HANDBOOK OF EQUIVALENCY FOR ACADEMIC PROGRAMMES/ DEGREES OF UNIVERSITIES

Government of Kerala

THE KERALA STATE HIGHER EDUCATION COUNCIL

(Constituted by Kerala State Legislature by notification No. 19536/Leg.Uni.3/2007/Law, Thiruvananthapuram, Dated, 15th October, 2007)

The Kerala State Higher Education Council

Equity Excellence

2019

HANDBOOK OF EQUIVALENCY FOR ACADEMIC PROGRAMMES/ DEGREES OF UNIVERSITIES

Government of Kerala

THE KERALA STATE HIGHER EDUCATION COUNCIL

(Constituted by Kerala State Legislature by notification No. 19536/Leg.Uni.3/2007/Law, Thiruvananthapuram, Dated, 15th October, 2007)

2019

Contents

Preface

This Handbook is issued in exercise of the powers provided for in the *Kerala State Higher Education Council Act (2007 & 2017), Amendment of Section 4 of the Principal Act:*

(zd)- *evolve common academic guidelines for Universities in the State for mutual recognition, approval or equalization of academic programmes or areas of studies and nomenclature thereof;*

(ze)-*evolve common academic guidelines for Universities in the State for recognition, approval or equalization of academic programmes or areas of studies and nomenclature thereof of various programmes conducted by Universities or higher education institutions outside the State and outside the country.*

The norms in the Handbook stipulated to be used for resolving the problem of approval/recognition/equivalency of academic programmes, Degrees and their nomenclature differences have been endorsed by the Government of Kerala through Orders (See the GO reproduced at the end of the Executive Summary).

This Handbook of Norms/Guidelines for according Equivalency/Recognition of Academic Programmes or Areas of Studies or Nomenclature or Degrees of Universities has been prepared in response to the sorely felt need of the students constrained to be desperately dashing from pillar to post in search of certification. It intends to cater to the needs of employers, especially the Public Service Commission, who want a document of authenticity for deciding the status of qualifications. It is a compendium of consensual norms/guidelines based on current academic approaches and perspectives to be followed for reciprocal recognition of degrees offered by universities across the country and abroad.

Dr. RajanVarughese
(Member Secretary)

Acknowledgements

Since Universities keep on introducing new academic programmes and continuously revise the nature of qualifications and their intended outcomes, we have to regularly update the list of academic programmes and the section on their outcomes that are case-suggestive.

A Handbook like this would not have been possible without the unstinting support and patronage of Prof. C. Raveendranath, Hon. Minister for Education (former Chairman of KSHEC) and Dr. K. T. Jaleel Hon. Minister for Higher Education (present Chairman of KSHEC), Govt. of Kerala. We acknowledge our indebtedness to them. We owe the overall academic concept and design of the Handbook to Prof. Rajan Gurukkal, the Vice Chairman of KSHEC.

We are immensely grateful to Dr. Usha Titus IAS, Principal Secretary, who encouraged us to bring out a comprehensive Handbook. Our thanks are due to all the members of the Executive Body and the Governing Body of the Council for its publication. We are grateful to Ms. Hemaprabha and Mr.Sivaprasad B (Registrars), Ms. K. Ajitha (Finance Officer), Mr. Suresh Babu A. (Assistant Registrar), Dr. Saji Mathew, Dr. Shefeeque V, and Dr. Manulal P. Ram (Research Officers), Ms. Divya A.S and the entire administrative staff of the Council for their cooperation in bringing out this Handbook.

It is extremely gratifying to put on record the untiring service of Mrs. Deepika Lakshman (Documentation Officer) of the Council, who did the hard job of preparing the Handbook with professional distinctiveness.

I. Executive Summary

Universities all over the world discharge various regulatory functions like validation/approval/recognition of academic programmes/degrees, and certification of equivalency as part of academic quality assurance. They facilitate the function without much bureaucratic procedure and invariably protect the meritorious. Our universities also seek to save the meritorious through discharging their validation functions, but by resorting to a bureaucratic and protracted procedure that ultimately fails to assure either quality or merit. Moreover, the criteria they follow are narrowly designed, discipline based and not in alignment with the academic perspective of premier institutions in the country or abroad. As a result, they are unable to approve the courses, programmes and degrees of the premier institutions in the country. For instance, most of these universities refuse to give approval or equivalency certificates for BS-MS dual degree graduates of IISERs/IISc/IITs for employment and research, with the argument that the programme of the premier institutions contains less than 80 percent of what the universities teach in the discipline concerned. Premier institutions teach the latest courses in science and seldom repeat the basics that the students must have learnt at lower levels. On the contrary, our universities largely deal with regional students, unlike the premier institutions that are catering to the needs of students competitively chosen at the national level. There is incompatibility between the multi-disciplinary as well as interdisciplinary approaches of the premier institutions and the mono-disciplinary approach of the universities that are in disciplinary silos. Factors like cross-disciplinary illiteracy, lack of exposure to multi-disciplinary teaching, and academic obsolescence make the state universities incomparable with premier institutions in the country. Hence a comparative assessment of the two categories of institutions is a futile exercise.

Problem of Equivalency

Equivalency, in fact, is a misnomer. No two academic programmes in the same discipline are alike and cannot be equated with each other, because the courses in them would significantly vary. In any discipline, the undergraduate as well as postgraduate programmes can cover only a very limited number of courses and their selection varies from university to university. Even the core courses of an academic programme will not be the same in all universities. Today, universities issue equivalency certificates by comparing their courses with those that the candidates have completed while ensuring that there is 80 percent similarity. It is unreasonable to make such comparisons of courses in the state universities with those offered in the premier institutions in the country, which are up-to-date and least repetitive.

It is disheartening that nationally acclaimed best brains of the youth from the state often get teased and frustrated by obsolete requirements and cumbersome procedures of the universities in the state. A most common example is the requirement of certification of equivalency or approval/recognition of the qualifications obtained from other universities. The candidates are required by the universities in the state to submit the syllabus and scheme of examination of the academic programme they have completed, for scrutiny by the Board of Studies concerned, the Dean of the Faculty, and the Academic Council, for recognition and equivalency. It is a time consuming process and the candidates lose opportunities of employment and higher studies. Even among themselves,

these universities mutually insist upon formal approval/recognition/equivalency as an essential requirement of admission to higher studies as well as employment.

Even where courses are comparable, the difference in the nomenclature of academic programmes may prevent the certification of equivalency. Most students who encounter hassles in this set up have qualified CSIR or UGC JRF examinations or secured covetable fellowships for doing research in institutions abroad. Many of them tend to remain here under domestic constraints. It is a disgraceful paradox that, on flimsy grounds, the universities do not recognize these accomplished youngsters, who have proved their competitiveness nationally. Moreover, the universities cannot be justified in imposing restrictions that are not followed elsewhere. *Universities are expected to cop up with the globally up-to-date methods and practices followed by premier institutions.*

Similarly, universities do not recognize the double major and triple major under-graduate programmes offered by various universities in the country. These are programmes in vogue all over the world, and denial of recognition is against the perspective of the UGC. Therefore, the universities should refrain from imposing requirements of recognition in their cases. Likewise, the employers should cease the practice of demanding equivalency certification for them for the reasons stated earlier. *It is the knowledge area and attributes of the graduate, which the university and the employer should weigh, rather than being prejudiced by the pattern of organization of disciplines.* In order to ascertain these attributes, tests or interviews or both are administered today. They are sufficient to confirm the candidates' suitability for higher studies as well as employment. Universities/employers should fix the eligibility criteria with maximum flexibility and accommodativeness.

The Problem of Special Rules

Special Rules (SR) prescribing the qualifications for various posts in Government and quasi-Government services mention a couple of names of degrees and put 'or their equivalent' as a routine phrase. This constrains the Public Service Commission (PSC) to insist upon certification of equivalency/approval/recognition for appointments. It may be noted that, despite high scores in tests and interview of the PSC (often allowed under the direction by the Court of Law), candidates do not get ranked for want of the equivalency certificate. Sometimes mere difference in the nomenclature of the academic programme in the same knowledge area drags candidates into the ordeal of obtaining equivalency certification. Such issues of nomenclature can be settled at the PSC office itself by confirming the knowledge area of the candidates through a perusal of the course-lists and mark-sheets. The difference in nomenclature between Natural Science and Biological Science, which are expressions inter-changeably used by universities across the country, is a good example. Instead of resolving this through *in situ* verification, the candidates are compelled to produce equivalency certificate or a Government Order.

In fact, it is sufficient to ascertain graduation or post-graduation in the discipline concerned as the qualification, rather than specifying by nomenclature two or three degrees along with the problematic expression 'or equivalent to them'. An example is B.E Civil or B.Tech Civil or equivalent. This makes a degree holder in B.E.Structural Engineering or Construction Engineering to run around for an equivalency certificate, although the nomenclatures B.E and B.Tech are interchangeable and Structural Engineering or Construction Engineering is the same as Civil Engineering. *The SR in*

Government should be revised at the earliest by scraping the expression, 'or equivalent', however long winding the process might be. Nevertheless, there are cases of nomenclature differences necessitating clarifications for establishing equivalency. For instance, B.Sc. / M.Sc. denoting science disciplines, is sometimes used for certain non-science disciplines like psychology, archaeology, geography, pedagogy etc. It hardly makes any difference whether you designate programmes in these disciplines as B.A/M.A or B.Sc. /M.Sc., for their contents cannot be totally different despite the contrast explicit in the nomenclature. Introducing laboratory assignments or courses will not help turn non-science disciplines into science. Such curricular modifications do not bid-fair to equate psychology to brain science, archaeology to material science, geography to geology, or pedagogy to cognitive science. Nevertheless, employers seeking experts or universities looking for teachers/ researchers, in the interface of science and non-science, can check the courses, their knowledge areas and declared attributes or outcomes of programmes, instead of being influenced by the prefix 'science.' In short, there are several issues relating to nomenclature differences.

The World Practice

Universities all over the world validate the programmes and degrees of other universities by examining their programme attributes or outcomes and the accredited status of the universities. American and European universities validate the academic programmes and degrees of outside universities by examining the number of courses, attributes/outcomes, credits, and duration of the programme. Since the duration of undergraduate programmes in American universities is four years, they insist upon the completion of two additional semesters for students of three-year pattern seeking admission to postgraduate programmes. Sometimes they outsource the validation work to World Education Services (WES), a non-profit organization that undertakes the task of confirming international credentials of academic programmes across the world. Generally, all universities have validation and recognition of foreign academic programmes and degrees in the least cumbersome way. For instance, an American or European university admits a graduate of three-year bachelor's degree from any accredited university in India with minimum formalities of validation or recognition.

Universities have started granting degrees based on credits earned from another university and are issuing joint degrees as well as dual degrees as part of internationalization of higher education. Policies and procedures are being laid in universities of USA and Europe for awarding dual-degrees by combining the credits earned from a foreign university with the credits secured from the home university. All this is gaining importance as a regular means of international collaboration between universities.

The UGC Circular

More than two decades have elapsed since the UGC issued a circular against the preposterous practice of recognizing degrees by universities. The circular called upon all universities recognized by the UGC to reciprocally approve their academic programmes and degrees. Most universities in the country positively responded to the call, but the universities in Kerala overlooked the circular. It is mostly the revenue interest and hardly

the criteria of academic quality, which prompts the universities to insist upon recognition/approval/equivalency certificates.

In this context, it needs to be mentioned that the UGC has issued notifications regarding the specification of degrees published in March 2014 and the subsequent two amendments in 2015 and 2016 pertaining to the nomenclature of the degrees. UGC has also issued notification regarding the granting of first degrees – *UGC (Minimum Standards of Instruction for the Grant of the First Degree through Formal Education) Regulations and the UGC (Minimum Standards of Instruction for the Grant of the Master's Degree through Formal Education) Regulations, 2003* and their subsequent amendments. The failure of the higher education institutions in the state to comply with the UGC's public notices/circulars regarding the specification of degrees and other related notifications has aggravated the problem to an extent. UGC mandates that:

> *No University shall confer a degree in violation of the provisions of this notification. It shall be mandatory for the Universities to adhere to the approved nomenclature of the degree(s) and ensure the observance of the minimum standards of instructions before award of a degree as hereinafter prescribed. The approved nomenclature may be followed by the specific area of specialization to be reflected in parentheses. The universities may launch new programmes of study relevant to the contemporary and emerging societal needs and such innovation or specialization may be indicated in the parentheses within the nomenclature of any of the specified degrees in the broad discipline/ areas.*

The Handbook

The Kerala State Higher Education Council, mandated to advise all organs in the Government in policy matters of higher education, has prepared this comprehensive Handbook to resolve various problems such as approval/recognition/equivalency of different academic programmes/degrees of universities. The Handbook contains description of the university-level Academic Programmes, their Areas of Knowledge and Graduate Attributes or Programme Learning Outcomes, Degrees, and various nomenclatures thereof, as guidance to employers. It helps them understand attributes/competencies of graduates and postgraduates who have completed the respective academic programmes and obtained the Degrees.

The Handbook has followed the nomenclature of the degree conferred by universities in the state, which differs from what the UGC has preferred in the case of certain disciplines, because both the employers and the employee clientele here need that for their purposes. Sometimes the universities follow totally different abbreviations to designate degrees in some of the disciplines. For example, in the case of Journalism BCJ and MCJ are the abbreviations used, while the UGC uses BA Journalism and MA Journalism. They do create lot of practical difficulties for the degree holders. Therefore, it is recommended that all universities follow as much as possible the nomenclature of the degrees/abbreviations suggested by UGC. It is a good sign that universities have now initiated steps to conform the nomenclature and abbreviations of their degrees to those specified by the UGC. We have reproduced in the Handbook the specification of degrees, their nomenclature and abbreviations notified by the UGC.

This Manual has reproduced the list of universities and their academic programmes approved by the UGC in order to facilitate quick compliance of the Government Orders. It has also reproduced, for ready reference, the names of the universities listed by the University Grants Commission. Most institutions in the country have not specified the attributes that the students would be able to attain by doing their programmes. Nevertheless, we have bothered to indicate tentatively the knowledge areas and outcomes. We have incorporated the learning outcomes of the academic programmes with a view to facilitating appraisal of competencies. In the case of specialized academic programmes, we have listed even course learning outcomes. Therefore, one might see a bit of overlap of Graduate Attributes, Programme Learning Outcomes, and Course Learning Outcomes. All this is given to help the employers decide the qualifications and eligibility criteria for various posts/positions in relations to the functions/services they require. This Handbook helps determine the eligibility criteria in the light of the competencies of the candidates. *Its avowed purpose is to preclude forever the need for Equivalency Certification.*

It is the considered advice of the Council that the eligibility criteria of any job must never be narrowly stipulated on the basis of the nomenclature of the Academic Programmes/Degrees. Instead they must be highly inclusive and based on the knowledge areas and programme learning outcomes required for the job.

University is the one and only constitutionally ordained authority to award Academic Degrees and to decide upon the recognition/approval/equivalency thereof. No Employer can demand a Government Order to validate a certificate issued by the University. As per GO (Ms) No. 303/2018/HEdn. Dated, Thiruvananthapuram, 17/12/2018 *Universities/Higher Education Institutions/Employment Agencies/Employers shall refer unsettled issues of nomenclature of Academic Programmes/Degrees and their approval/recognition/equivalence to KSHEC for decision by the SLAC. In all issues of nomenclature of Academic Programmes/Degrees and their approval/recognition/equivalence the aggrieved candidates shall appeal to the Kerala State Higher Education Council for the decision by SLAC.*

***

File No.HEDN-B2/209/2018-HEDN

GOVERNMENT OF KERALA

Abstract

Higher Education Department- Norms/Guidelines Relating to Equivalency/Recognition of academic Programmes or Areas of Studies and Nomenclature and Degrees of Other Universities - Approved - orders issued -

HIGHER EDUCATION (B) DEPARTMENT

G.O.(Ms)No.272/2018/HEDN Dated,Thiruvananthapuram, 13/11/2018

Read 1 *Letter No. KSHEC-A7/302/MS-Dret../2018 (3) dated 26.07.2018 from the Member Secretary , Kerala State Higher Education Council.*

ORDER

Kerala State Higher Education Council (KSHEC) vide letter read above has forwarded the Norms/Guidelines relating to Equivalency /Recognition of Academic Programmes or Areas of Studies and Nomenclature and Degree of Other Universities .

Government have examined the matter in detail and are pleased to approve the following Norms/Guidelines Relating to Equivalency/recongnition of Academic Programmes or Areas of Studies and Nomenclature and Degree of Other Universities.

NORMS / GUIDELINES

1. All universities, higher educational institutions (HEIs), agencies and employers shall recognize the degrees awarded by national institutes like Indian Institutes of Technology (IITs), Indian Institute of Science (IISc), National Institutes of Technology (NITs), Indian Institutes of Science Education and Research (IISERs), and other national level stand-alone institutions funded by Government.
2. All universities/HEIs/employers in the state shall recognize the BS/MS degrees of IISERs, IISc, State/Central Universities, and other HEIs funded by the Government.
3. No equivalency/recognition shall be insisted upon for degrees obtained from National Institutes like Indian Institutes of Technology (IITs), Indian Institute of Science (IISc), National Institutes of Technology (NITs), Indian Institutes of Science Education and Research (IISERs) or other institutions recognized by University Grants Commission (UGC).
4. There shall be reciprocal recognition of degrees awarded by the Indian Universities/other HEIs as listed out and updated by the University Grants Commission.
5. Universities/HEIs/Employment Agencies/Employers in the State shall follow the nomenclature of degrees prepared and listed by the UGC.
6. Universities/HEIs/Employment Agencies/Employers shall follow the conditions, policies and procedure stipulated by Association of Indian Universities (AIU) for according

recognition/equivalence of qualification / Degrees awarded by Foreign Universities.

7. Universities/HEIs/Employment Agencies/Employers shall approve/ recognize Degrees acquired through Open and Distance Learning complying with the latest University Grants Commission Open and Distance Learning Regulations.
8. Equivalency/Recognition of Degrees acquired through Open and Distance Learning before the promulgation of the UGC Open and Distance Learning Regulations, 2017 shall be decided by the university concerned.
9. Universities/HEIs/Employment Agencies/Employers shall approve/ recognize Degrees awarded by Private Universities with the recognition/approval of the UGC, and which comply with the relevant UGC norms/regulations as amended from time to time.

(By order of the Governor)
M. G RANJITH KUMAR
ADDITIONAL SECRETARY

To:

The Member Secretary, Kerala State Higher Education Council

The Registrar,

Kerala University / M.G. University / Calicut University / CUSAT / Kannur University / Thunchath Ezhuthachan MalayalamUniversities / Sree Sankaracharya University of Sanskrit / NUALS / A P J Abdul Kalam Technological University

The Principal Accountant General (Audit/A&E)), Kerala, Thiruvananthapuram

Stock file[HEDN-B2/ 209/2018-HED] / Office copy

Forwarded /By order

Section Officer

File No.HEDN-B2/209/2018-HEDN

GOVERNMENT OF KERALA

Abstract

Higher Education Department- Constitution of State Level Academic Committee (SLAC) in Kerala State Higher Education Council (KSHEC) - Approved - orders issued.

HIGHER EDUCATION (B) DEPARTMENT

G.O.(Ms)No.303/2018/HEDN Dated,Thiruvananthapuram, 17/12/2018

Read 1 *Letter No. KSHEC-A7/302/MS-Dret./2018 (3) dated 26.07.2018 from the Member Secretary, Kerala State Higher Education Council.*

2 *G.O. (MS) No.272/2018/HEDN dated 13/11/2018*

ORDER

As per the Government Order read above Government approved the Norms/Guidelines relating to Equivalency/Recognition of Academic Programmes or Areas of Studies and Nomenclature and Degree of Other Universities. The Member Secretary, Kerala State Higher Education Council (KSHEC), vide the letter read above, has requested to establish a State Level Academic Committee (SLAC) in KSHEC for the purpose of disposing of objections/disputes/complaints regarding the nomenclature of Academic Programmes/Degrees and according approval/recognition/equivalence.

Government have examined the matter in detail and are pleased to constitute a State Level Academic Committee(SLAC) for the purpose of disposing of objections/disputes/complaints regarding the nomenclature of Academic Programmes/Degrees and according approval/recognition/equivalence, as follows:

Vice Chairman, Kerala State Higher Education Council as Chairman and Vice Chancellors of all State Universities in Kerala and Member Secretary, Kerala State Higher Education Council (Convenor) as members.

Universities/Higher Educational Institutions/Employment Agencies/Employers shall refer unsettled issues of nomenclature of Academic Programmes/Degrees and their approval/recognition/equivalence to KSHEC for decision by the SLAC. In all issues of nomenclature of Academic Programmes/Degrees and their approval/recognition/equivalence the aggrieved candidates shall appeal to the Kerala State Higher Education Council for the decision by SLAC.

(By order of the Governor)
VIJAYAKUMAR.R
JOINT SECRETARY

To:

The Member Secretary, Kerala State Higher Education Council.

UGC Approved Academic Programmes

Reproduced from the notification published in the Gazette of India
No.27 New Delhi, Saturday, July 5-July 11, 2014
Accessed from https://www.ugc.ac.in/pdfnews/1061840_specification-of-degrees-july-2014.pdf

UNIVERSITY GRANTS COMMISSION
SPECIFICATION OF DEGREES
NEW DELHI, March, 2014

NO. F. 5-1/2013 (CPP-11)--In exercise of the powers conferred by sub-Section (3) of Section 22 of the University Grants Commission Act, 1956 (3 of 1956) and in supersession of all earlier Gazette Notifications pertaining to specification of degrees, the University Grants Commission (UGC) with the approval of the Central Government hereby specifies the nomenclature of degree for the purposes of the said section.

SPECIFIED DEGREES

Broad discipline-wise nomenclatures of degrees at all levels of higher education should be taken as the specified degree, which the universities/ institutions must adhere to, are given below. Alongside the nomenclature of the degrees, minimum entry-level qualifications and duration of the programmes have also been indicated. The information is presented in a tabular form for clarity. In the bottom-most row of each table, nomenclatures of degrees that are presently in vogue in some institutions were found to be neither conventional, nor reflective of a real innovation in knowledge and are de-specified with the suggestion that the same may be restructured/changed as suggested therein.

Universal/Common to all disciplines

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
1.	D. Litt	Doctor of Literature	Post-Doctoral	…..	PhD
2.	D.Sc.	Doctor of Science	Post-Doctoral	…..	PhD
3.	L.L.D	Doctor of Laws	Post-Doctoral	2	PhD
4.	Ph.D./D.Phil.	Doctor of Philosophy	Doctoral	2	MASTER'S
5.	M.Phil.	Master of Philosophy	Pre Doctoral	1-1/2	MASTER'S

Agriculture & Allied Disciplines

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
6.	B.Sc. (Agriculture)	Bachelor of Science (Agriculture)	BACHELOR'S	4	10+2
7.	M.Sc. (Agriculture)	Master of Science (Agriculture)	MASTER'S	2	BACHELOR'S

8.	B.Sc. (Sericulture)	Bachelor of Science (Sericulture)	BACHELOR'S	4	10+2
9.	M.Sc. (Sericulture)	Master of Science (Sericulture)	MASTER'S	2	BACHELOR'S
10.	B.V.Sc.	Bachelor of Veterinary Sciences	BACHELOR'S	4	10+2
11.	M.V.Sc.	Master of Veterinary Sciences	MASTER'S	2	BACHELOR'S
12.	B.F.Sc.	Bachelor of Fisheries Sciences	BACHELOR'S	4	10+2
13.	M.F.Sc.	Master of Fisheries Sciences	MASTER'S	2	BACHELOR'S

Journalism/Mass Communication/Media

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
14.	BJ	Bachelor of Journalism	BACHELOR'S	1	Bachelor's
15.	MJ	Master of Journalism	MASTER'S	1	BJ
16.	BA(Journalism)	Bachelor of Arts (Journalism)	BACHELOR'S	3	10+2
17.	MA (Journalism)	Masters of Arts (Journalism)	MASTER'S	2	BACHELOR'S
	BJMC/BMC	be restructured as	BA(Journalism & Mass Communication)		
	MJMC/MMC	be restructured as	MA(Journalism & Mass Communication)		
	BMM	be restructured as	BA(Multimedia/B. Sc. Multimedia)		
	MMC	be restructured as	MA(Mass Communication)		

Arts/Humanities/Social Sciences

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
18.	BA/ B.A. (Hons)	Bachelor of Arts/ Bachelor of Arts (Hons)	BACHELOR'S	3 years	10+2
19.	MA	Masters of Arts	MASTER'S	2	BACHELOR'S
20.	BSW	Bachelor of Social Work	BACHELOR'S	3	10+2
21.	MSW	Master of Social Work	MASTER'S	2	BACHELOR'S
22.	BRS	Bachelor of Rural Studies	BACHELOR'S	3	10+2
23.	MRS	Master of Rural Studies	MASTER'S	2	BACHELOR'S
	B. Lit.	be restructured as	BA(Literature)		
	M.Litt.	be restructured as	MA(Literature) or M.Phil., as the case may be		
	BOL	be restructured as	BA(Oriental Learning)		
	MOL	be restructured as	MA(Oriental Learning)		
	BPS	be restructured as	BA(Population Studies)		
	MPS	be restructured as	MA(Population Studies)		

	M. Ind	be restructured as	MA(Indology)
	BSS	be restructured as	BA(Social Studies)
	B.S.Sc.	be restructured as	BA(Social Sciences)

Education/Teachers Training

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
24.	B. Ed	Bachelor of Education	BACHELOR'S	1	BACHELOR'S
25.	B. El. Ed	Bachelor of Elementary Education	BACHELOR'S	4	10+2
26.	M.Ed.	Master of Education	MASTER'S	1	B.Ed.
27.	BP Ed	Bachelor of Physical Education	BACHELOR'S	1	BACHELOR'S
28.	MPEd	Master of Physical Education	MASTER'S	1	BPEd
	BPE	be restructured as	BPEd		
	MPE	be restructured as	MPEd		

Law

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
29.	LLB	Bachelor of Law	BACHELOR'S	3	BACHELOR'S
30.	LLM	Master of Law	MASTER'S	2	BACHELOR'S
31.	LLD	Doctor of Law	Post PhD	2	PhD
	BCL	be restructured as	LLB(Civil Law) or as LL.B(Commercial Law) as the case may be		
	BGL	be restructured as	LLB(General Law)		
	BL	be restructured as	LLB		
	ML	be restructured as	LLM		
	DL	be restructured as	LLD		

Business Administration/Commerce/Management/Finance

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
32.	B. Com/ B.Com (Hons)	Bachelor of Commerce/Bachelor of Commerce (Hons)	BACHELOR'S	3	10+2
33.	M.Com	Master of Commerce	MASTER'S	2	BACHELOR'S
34.	BBA	Bachelor of Business Administration	BACHELOR'S	3	10+2
35.	MBA	Master of Business Administration	MASTER'S	2	BACHELOR'S

36.	BMS	Bachelor of Management Studies	BACHELOR'S	3	10+2
37.	MMS	Master of Management Studies	MASTER'S	2	BACHELOR'S
	BBS/BBM/BBE	be restructured as	BBA or B.Com or B.Com (Hons.)		
	BIBF	be restructured as	BBA or B.Com(International Business & Finance)		
	MFM/MFC	be restructured as	MBA(Financial Management)		
	MIB/MIBM	be restructured as	MBA/M.Com(International Business)		
	MHRD/MHROD	be restructured as	MBA/M.Com(Human Resource Development)		
	M.Mkt. M.	be restructured as	MBA/M.Com(Marketing Management)		
	MFT	be restructured as	MBA/M.Com(Foreign Trade)		
	MHA	be restructured as	MBA/M.Com(Hospital Administration)		
	MFA	be restructured as	MBA/M.Com(Finanacial Analysis)		
	MBE	be restructured as	MA/MBA/M.Com(Business Economics)		

Library & Information Sciences

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
38.	B. Lib. Sc.	Bachelor of Library Sciences	BACHELOR'S	1	BACHELOR'S
39.	B. Lib. I. Sc	Bachelor of Library & Information	BACHELOR'S	1	BACHELOR'S
40.	M. Lib. Sc	Sciences Master of Library Sciences	MASTER'S	1	B. Lib. Sc.
41.	M. Lib.I. Sc	Master of Library & Information	MASTER'S	1	B. Lib. I. Sc
	M. L. I. Sc.	be restructured as	M. Lib. I. Sc.		

Fine Arts/Performing Arts/Visual Arts/Applied Arts

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
42.	BFA	Bachelor of Fine Arts	BACHELOR'S	4	BACHELOR'S
43.	MFA	Master of Fine Arts	MASTER'S	2	BACHELOR'S
44.	BVA	Bachelor of Visual Arts	BACHELOR'S	4	10+2
45.	MVA	Master of Visual Arts	MASTER'S	2	BACHELOR'S
46.	BPA	Bachelor of Performing Arts	BACHELOR'S	4	10+2
47.	MPA	Master of Performing Arts	MASTER'S	2	BACHELOR'S
	B. Dance	be restructured as	BPA(Dance)/BFA(Dance)		
	M. Dance	be restructured as	MPA(Dance)/MFA(Dance)		
	B. Mus.	be restructured as	BPA(Music)/BFA(Music)		
	M. Mus.	be restructured as	MPA(Music)/MFA(Music)		
	D. Mus.	be restructured as	Ph. D		

Hotel Management/Hospitality/Tourism/Travel

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
48.	BHM	Bachelor of Hotel Management	BACHELOR'S	4	10+2
49.	MHM	Master of Hotel Management	MASTER'S	2	BACHELOR'S
50.	BHMCT	Bachelor of Hotel Management & Catering Technology	BACHELOR'S	4	10+2
51.	MHMCT	Master of Hotel Management & Catering Technology	MASTER'S	2	BACHELOR'S
52.	BTTM	Bachelor of Tourism & Travel Management	BACHELOR'S	4	10+2
53.	MTIM	Masters of Tourism & Travel Management	MASTER'S	2	BACHELOR'S
	Will require restructuring of some degrees being offered by a few universities				
	BHTM	be restructured as	BHM/BHMCT/BTTM		
	BTA	be restructured as	BTTM/BBA(Tourism & Travel)		
	MTA	be restructured as	MTTM or as MBA(Tourism & Travel Management)		
	BHMTT	be restructured as	BHM/BHMCT/BTTM		

Sciences

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
54.	B.Sc./B.Sc. (Hons)	Bachelor of Science/Bachelor of Science (Hons)	BACHELOR'S	3	10+2
55.	M.Sc.	Master of Science	MASTER'S	2	BACHELOR'S
56.	BCA	Bachelor of Computer Applications	BACHELOR'S	3	10+2
57.	MCA	Master of Computer Applications	MASTER'S	3	BACHELOR'S
58.	B. Stat	Bachelor of Statistics	BACHELOR'S	3	. 10+2
59.	M. Stat	Master of Statistics	MASTER'S	2	BACHELOR'S
	B. S. Sc.	be restructured as	B. Sc. (Sanitary Science)		

Engineering/ Technology/ Architecture/ Design

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
60.	B. Tech	Bachelor of Technology	BACHELOR'S	4	10+2
61.	M. Tech	Master of Technology	MASTER'S	2	BACHELOR'S
62	BE	Bachelor of Engineering	BACHELOR'S	4	10+2
63.	ME	Master of Engineering	MASTER'S	2	BACHELOR'S
64.	B. Arch	Bachelor of Architecture	BACHELOR'S	5	10+2
65.	M.Arch.	Master of Architecture	MASTER'S	2	BACHELOR'S
66.	B. Plan	Bachelor of Planning	BACHELOR'S	4	10+2
67.	M.Plan	Master of Planning	MASTER'S	2	BACHELOR'S
68.	B.l.D	Bachelor of Interior Design	BACHELOR'S	4	10+2
69.	M.l.D	Master of Interior Design	MASTER'S	2	BACHELOR'S
70.	B. Des.	Bachelor of Design	BACHELOR'S	4	10+2
71.	M. Des.	Master of Design	MASTER'S	2	BACHELOR'S
	B. Ch. E.	be restructured as	B. Tech/BE(Chemical Engineering)		
	B. Chem. Tech	be restructured as	B. Tech/BE(Chemical Technology)		
	BCE	be restructured as	B. Tech/BE(Civil Engineering)		
	BEE	be restructured as	B. Tech/BE(Electrical Engineering		
	MEE	be restructured as	M.Tech/ME(Electrical Engineering		

Vocational Education

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
72.	B. Voc.	Bachelor of Vocation	BACHELOR'S	3	10+2

Medicine& Surgery/ Ayurveda/Unani/Homeopathy/Health & Allied Sciences/Paramedical/Nursing

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
73.	MBBS	Bachelor of Medicine and Bachelor of Surgery	BACHELOR'S	5-1/2	10+2
74.	MD	Doctor of Medicine	MASTER'S	3	BACHELOR'S

75.	MS	Master of Surgery	MASTER'S	3	BACHELOR'S
76.	DM	Doctor of Medicine	Post MASTER'S	3	MASTER'S
77.	M. Ch.	Master of Chirurgiae	Post MASTER'S	3	MASTER'S
78.	M.Sc. (Medical Anatomy)	Master of Science (Medical Anatomy)	MASTER'S	2	BACHELOR'S
79.	M.Sc. (Medical Biochemistry)	Master of Science (Medical Biochemistry)	MASTER'S	2	BACHELOR'S
80.	M.Sc. (Medical Microbiology)	Master of Science in Medical Microbiology)	MASTER'S	2	BACHELOR'S
81.	M. Sc. (Medical Pharmacology)	Master of Science in Medical Pharmacology	MASTER'S	2	BACHELOR'S
82.	M.Sc. (Medical Physiology)	Master of Science in Medical Physiology)	MASTER'S	2	BACHELOR'S
83.	MHA	Master of Hospital Administration	MASTER'S	2	BACHELOR'S
84.	MPH	Master of Public Health	MASTER'S	2	BACHELOR'S
85.	BDS	Bachelor of Dental Surgery	BACHELOR'S	5	10+2
86.	MOS	Master of Dental Surgery	MASTER'S	3	BACHELOR'S
87.	Ayurveda Vachaspati	Ayurveda Vachaspati	Post MASTER'S	3	MASTER'S
88.	Anu Parangat	Anu Parangat	Post MASTER'S	1	MASTER'S
89	Ayurvedacharya	Ayurvedacharya	BACHELOR'S	5	10+2
90	BAMS	Bachelor of Ayurvedic Medicine & Surgery	BACHELOR'S	s -1/2	10+2
91.	BSMS	Bachelor of Siddha Medicine & Surgery	BACHELOR'S	5-1/2	10+2
92.	MD (Ayurveda)	Doctor of Medicine (Ayurveda)	MASTER'S	3	BACHELOR'S
93.	BNYS	Bachelor of Naturopathy & Yogic Sciences	BACHELOR'S	5	10+2
94.	BHMS	Bachelor of Homeopathic Medicine & Surgery	BACHELOR'S	5-1/2	10+2
95.	MD(Hom)	Doctor of Medicine (Homeo)	MASTER'S	3	BACHELOR'S
96.	BUMS	Bachelor of Unani Medicine & Surgery	BACHELOR'S	5-1/2	10+2
97.	MD (Unani)	Doctor of Medicine (Unani)		3	
98.	M.Sc. (Nursing)	Master of Science (Nursing)	MASTER'S	2	BACHELOR'S

99.	B.Sc.(Nursing)	Bachelor of Science (Nursing)	BACHELOR'S	4	10+2
100.	B. Optom	Bachelor of Optometry	BACHELOR'S	4	10+2
101.	M. Optom	Master of Optometry	MASTER'S	2	B. Optom
102.	BOT	Bachelor of Occupational Therapy	BACHELOR'S	4	10+2
103.	MOT	Master of Occupational Therapy	MASTER'S	2	BACHELOR'S
104.	BPT	Bachelor of Physiotherapy	BACHELOR'S	4-1/2	10+2
105.	MPT	Master of Physiotherapy	MASTER'S	2	BACHELOR'S
106.	B. Sc (Trauma Care Management)	Bachelor of Science (Trauma Care Management)	BACHELOR'S	4	10+2
107.	Pharm. D	Doctor of Pharmacy	MASTER'S	6	10+2
108.	M. Pharm.	Master of Pharmacy	MASTER'S	2	BACHELOR'S
109.	B. Pharm.	Bachelor of Pharmacy	BACHELOR'S	4	10+2
110.	B. Pharm (Ayu)	Bachelor of Pharmacy (Ayurveda)	BACHELOR'S	4	10+2
	BAM/BIM	be restructured as	BAMS		
	B. Nat(Ayu)	be restructured as	BNYS		
	B. Nat(Yogic)	be restructured as	BNYS		
	MAMS	be restructured as	MD (Ayurveda)		
	MHMS	be restructured as	MD (Homeo)		
	MUMS	be restructured as	MD (Homeo)		
	MS(Pharm.)	be restructured as	M. Pharm		
	BS (Trauma)	be restructured as	B.Sc.(Trauma Care Management System)		
	MAE	be restructured as	M. Sc. (Applied Epidemiology)		

Rehabilitation Sciences

	Specified Degree		Level	Minimum duration in years	Entry Qualification
	Abbreviated	Expanded			
111.	B.Ed. Spl. Ed.	Bachelor of Education - Special Education	BACHELOR'S	1	BACHELOR'S
112.	M.Ed. Spl. Ed.	Master of Education - Special Education	MASTER'S	1	B.Ed. Special Education
113.	B.P.O.	Bachelor in Prosthetics & Orthotics	BACHELOR'S	4	10+2

114.	M.P.O.	Master in Prosthetics & Orthotics	MASTER'S	2	B.P.O
115.	B. ASLP	Bachelor in Audiology and Speech language Pathology	BACHELOR'S	4	10+2
116.	M. ASLP	Master in Audiology and Speech Language Pathology	MASTER'S	2	B.ASLP
117.	B. R. Sc.	Bachelor in Rehabilitation Science	BACHELOR'S	3	10+2
118.	M.R.Sc.	Master in Rehabilitation Science	MASTER'S	2	BACHELOR'S

Sanskrit Sounding Degree

	Specified Degrees	Level	Minimum Duration in years	Entry Qualification
119.	Shastri/Shastri(Hons.)	BACHELOR'S	3	10+2
120.	Acharya	MASTER'S	2	Bachelor
121.	Shiksha Shastri	BACHELOR'S	1	Bachelor
122.	Shiksha Acharya	MASTER'S	1	Shiksha Shastri
123.	Vishistacharya	PRE- DOCTORAL	1	Acharya/ Master
124.	Vidya Varidhi	DOCTORAL	2	Master
125.	Vachaspati	POST DOCTORAL	2	Ph.D./Vidya Varidhi
The Universities shall be free to write English Equivalent of these degrees, if they so desire, in the mark sheet/degree certificates either in parenthesis or slash				

Specification of Degrees with Urdu/Persian/Arabic Nomenclature

	Specified Degrees	Level	Minimum Duration in years	Entry Qualification
126.	Fazil	BACHELOR'S	3 years	10+2 (Alim/Afzal-Ul-Ulema Preliminary)
127.	Afzal-UI-Ulma	BACHELOR'S	3years	10+2 (Alim/Afzal-Ul-Ulma Preliminarv)
128.	Kami!	MASTER'S	2 years	Fazil/Afzal-Ul-Ulma (BA)
129.	Mumtaz (Mumtazul Tafseer, Mumtazul Mohaddisin, Mumtazul Fiqh, Mumtazul Adab etc.)	M.PHIL.	1 year	Kami! (MA)
The Universities shall be free to write English Equivalent of these degrees, if they so desire, in the mark sheet/degree certificates either in parenthesis or slash				

Guiding Principles:

Degrees should be specified in generic terms and their nomenclatures should be such that are generally recognized, globally acknowledged and widely accepted and are indicative of the level of the degrees and the broad subject/ discipline/ knowledge area universities/institutions, in curricular innovation, shall have the freedom to indicate uniqueness/ specialization in parentheses against the specified generic degrees.

Universities/institutions may introduce Integrated and Dual Degree Programmes judiciously and with caution. A dual degree programme combines more than one subject mostly in a horizontal spread, whereas an Integrated Programme is progressive and cumulative. The academic philosophy/rationale behind offering such integrated programmes should not be for economizing on course requirements or award of double degrees in a fast track; on the contrary, an integrated approach should involve a vertical/inter-disciplinary discourse. A dual degree should aim for a better comprehension of the related subjects of study from a multi-dimensional perspective. This would necessarily entail an equal, if not more, course duration and a newer approach of curricular transaction and additional interactive courses. Thus an Integrated/Dual Degree Programme combining two or more disciplines shall be permissible only if there is no compromise on any of the course requirements, viz. duration, number of papers and intensity of courses, teaching/learning hours, credits, etc. Integrated and Dual Degree Programmes are therefore, be introduced by the universities/ institutions subject to the following conditions:

a) The Integrated/Dual Degree Programmes must not dilute the standards as prescribed under the Regulations made by the UGC and other statutory authorities concerned in terms of syllabi, programme duration and examination requirements.
b) If the Integrated/Dual Degree Programmes intend to offer two separate degrees with an option for an interim exit or lateral entry, the duration of the Integrated/Dual Degree Programme must not be less than the duration equal to the sum total of the prescribed duration of the two degrees that are being combined in the Integrated/Dual Degree Programme. Provided that all such programmes would carry the nomenclature of "Integrated/Dual Degree (name of the first degree)-(name of the final degree)." " Provided further that both the degrees awarded under the Integrated/Dual Degree programme shall be individually and separately recognized as equivalent to corresponding degrees and not as one single integrated degree".
c) If the Integrated Programme intends to offer a single degree without permission to exit and lateral entry, the programme duration may be relaxed by not more than 20% of the sum total of the prescribed duration of the two degrees that are being combined to make the single Integrated Degree.

General Instructions:

1. All the changes in the nomenclature of the degrees, as notified herewith will come into effect from the date of their notification in the official Gazette.

2. The above specified degrees shall be awarded by a University established or incorporated by or under a Central Act, a Provincial Act or a State Act or an institution deemed to be a University under section 3 or an institution specially empowered by an Act of Parliament to confer or grant degrees under section 22 of the UGC Act, 1956.
3. No University shall confer a degree in violation of the provisions of this notification. It shall be mandatory for the Universities to adhere to the approved nomenclature of the degree(s) and ensure the observance of the minimum standards of instructions before award of a degree as hereinafter prescribed.
4. The approved nomenclature may be followed by the specific area of specialization to be reflected in parentheses.
5. The universities may launch new programmes of study relevant to the contemporary and emerging societal needs and such innovation or specialization may be indicated in the parentheses within the nomenclature of any of the specified degrees in the broad discipline/ areas.
6. The specified degrees shall be reviewed and updated by the UGC from time to time under intimation to all the universities.

Specification of New Degrees

7. Henceforth, the Universities shall not introduce any new nomenclature of Degrees unless there is a very strong and genuine reason. Should a University intend to introduce a new nomenclature, it shall approach the UGC for its specification at least six months prior to starting the degree programme along with the details of the courses of study prescribed for the degree as approved by the respective academic bodies of the university/ institution, such as - Board of Studies, Academic Council and Governing Council.
8. All the universities (including affiliated colleges thereto) shall observe the minimum standards of instruction and prescribed norms for the grant of a degree which shall be imparted by the duly qualified teaching staff and appropriate academic physical infrastructure facilities as prescribed by the concerned statutory / regulating bodies, such as University Grants Commission (UGC), All India Council for Technical Education (AICTE), Medical Council of India (MCI), Pharmacy Council of India (PCI), Council for Architecture (COA), Bar Council of India (BCI), National Council for Teachers Education (NCTE), Dental Council of India (DCI), Indian Nursing Council (INC), etc. in their respective notifications/ regulations.
9. The specified degrees offered by a University and the minimum standards of instruction and norms prescribed as laid down by the concerned statutory / regulatory bodies shall be prominently published in the admission brochure of concerned University / affiliated College and shall also be made available in their website.

Inspection by UGC

10. Each University shall furnish information relating to the conformity to the above standards of instructions (including its affiliated colleges) to the UGC.

11. The UGC may cause periodic inspection of the University and its affiliated colleges including extension/ regional/study centers and such other facilities offering the courses leading to a degree.
12. After such inspection, the UGC may give reasonable opportunity to the defaulting Universities/affiliated colleges to rectify the identified deficiency/ non-conformity.

Consequences of failure of Universities to comply with these instructions:

13. The defaulting University/Affiliated College shall be prohibited from offering any course for the award of unspecified degree.
14. Any degree awarded in contravention to this notification shall be deemed to be an unspecified degree and shall be declared as such by the UGC after duly satisfying itself as to the violation of this notification. The UGC shall give due publicity regarding the defaulting Universities/ colleges and unspecified degrees offered by them for the information of the general public.
15. It shall be the responsibility of the respective University to keep a watch over the observance of prescribed norms by itself and by the affiliated colleges and disaffiliate the defaulting colleges to the extent of violations.
16. The UGC shall forward a copy of the order made under clause 14 above to the university concerned, and on and from the date of receipt of a copy of such order by the university, the affiliation of such an institution, so far as it relates to the course of study specified in such order, shall stand terminated. On and from the date of termination of such affiliation, and for the period of three years thereafter, approval shall not be granted to that institution to start such or similar degree or post-graduate degree programme.
17. Contravention of the provisions relating to the specification of degrees as above shall also render the defaulting university and affiliated colleges liable for action as deemed fit by the UGC.

Status of De-specified degrees

18. The degrees which were specified in the earlier notification issued on 23.5.2009 but have now been de-specified, shall be treated as valid in case of the students who have already been enrolled in such degree programmes prior to this notification.

JASPAL S. SANDHU
Secretary

II. Guidelines for Employers: Academic Programmes and Outcomes

Bachelor's Degree-3 Year Programme

Entry Qualifications: 10+2
Degree Conferred: B.A. in the respective discipline

1. Animation

Knowledge Area: Animation and Graphic Design; Animation and Visual Effects

Attributes/Outcomes: Create animation with fundamental and technical proficiency; express visual concepts artistically; integrate storytelling and performance; synthesize theory and practice creating animation from a global perspective; demonstrate the ability to create quality animation performance through a creative and professional portfolio; use principles of animation, drawing, design, cinematic storytelling, and artistic expertise; demonstrate innovativeness; exhibit professional commitment to artistic growth and cultural literacy that conveys passion, confidence, and collaborative spirit; communicate with professionals as well as people; demonstrate adaptability to work within a dynamic animation community; show commitment to professional ethics and social responsibility; demonstrate competency to undertake self-directed life-long learning.

2. Economics

***Knowledge Area*:** Economics; Corporate Economics Development Economics

***Attributes/Outcomes*:** Demonstrate the ability to explain core economic terms, concepts, and theories; understand micro-economic processes; understand the measurement of the macroeconomic variables like GDP, consumption, savings, investment and balance of payments; and examine trends in Indian economy; communicate the subject matter effectively across multi-cultural population; demonstrate ethics and social responsibility in relations to economic development and policies; show competency to undertake self-directed life-long learning.

3. History

i) History

***Knowledge Area*:** History

***Attributes/Outcomes*:** Demonstrate knowledge of different peoples and cultures in past environments and of how those cultures changed over the course of the centuries; develop the capacity to recognize diversity, complexity, magnitude and significance of historical changes that take place within a society or culture; describe the history of the region, the country, and the world; demonstrate curiosity to acquire more knowledge about the past landscapes, peoples, economies, cultures and political processes based on original source material; communicate the subject matter effectively across multi-cultural population; demonstrate ethics and social responsibility; show competency to undertake self-directed life-long learning.

ii) Museology and Archaeology
***Knowledge Area*:** Archaeology and Museology

***Attributes/Outcomes*:** Demonstrate knowledge of contemporary theory and practice of museum studies and archaeology, show skills as a curator in the treatment and classification of archaeological objects; demonstrate knowledge in conservation of archaeological objects; demonstrate skills in the installation of exhibits and their labelling; and show ability to design, organize and establish, and manage an archaeological museum; communicate the subject matter effectively across multi-cultural population; understand responsible tourism and eco-tourism; demonstrate professional ethics and social responsibility.

4. International Relations
***Knowledge Area*:** West Asian Studies

Attributes/Outcomes: Understand the history and culture of West Asia; demonstrate the ability to historically and culturally situate West Asia against the context of the larger Afro-Asian world, the Americas and Europe; demonstrate knowledge of diplomacy of political and economic relations between the government and people in different nation states; communicate effectively with multi-cultural population; understand international politics and diplomatic relations; demonstrate professional ethics and social responsibility; show the inclination to lifelong learning.

5. **Journalism and Mass Communication**
***Knowledge Area*:** Journalism; Mass Communication

***Attributes*:** Understand the fundamental knowledge in the theories of Journalism and Mass Communication; demonstrate skills for working in media organizations, written and spoken skills, critical thinking and social responsibility; make effective oral presentations on a variety of topics in public settings; apply basic and advanced human communication theories and models to academic and professional situations; undertake effective business and professional presentations to internal and external audiences; demonstrate the capability to generate a variety of mass media products, including news stories, press releases, and advertising copy, following accepted journalistic standards, including Associated Press style; create and design emerging media products, including blogs, digital audio, digital video, social media, digital photography, and multimedia; apply relevant case law involving journalism, the First Amendment, and other mass media issues; show commitment to professional ethics and social responsibility; and show aptitude to life-long learning.

6. Language and Literature
***Knowledge Area*:** Arabic; English; Hindi; French; Kannada; Malayalam; Tamil; Sanskrit; Urdu

***Attributes/Outcomes*:** Demonstrate knowledge in general linguistics and the literature of the language concerned across periods and cultures; identify the major traditions of literature; identify how formal elements of language and genre shape meaning; read literary texts critically and interpret; analyze texts in relation to their historical and social contexts; understand literary, rhetorical and cultural theories; and analyze texts using critical and theoretical models appropriate to those traditions; define and evaluate the influences of class, ethnicity, nationality,

sexuality, gender and other identity markers with reference to literary texts; demonstrate knowledge of how theories and research about social justice, diversity, equity, and identities help textual analysis; demonstrate ethical commitment social responsibility in reading and writing texts; and recognize the need for engaging in life-long learning.

7. **Multimedia**

***Knowledge Area*:** Audiography and Digital Editing; Multimedia

***Attributes/Outcomes*:** Demonstrate the basic skills in audio recording, designing, digital editing and multimedia; produce effective multimedia texts that are responsive to different purposes and audiences; understand terminology associated with the concepts, techniques of multimedia; identify problems and evolve solutions in multimedia; create communication solutions by implementing the various stages of the design process; properly assemble a working sound system, identifying components and their function, manipulate audio to be aesthetically pleasing; demonstrate a working knowledge of professional audio and video equipments; demonstrate a working knowledge and function of modern cameras; demonstrate proper use of advanced camera techniques; execute the operation procedures associated with the different facets of multimedia like digital-photography, page layout, typography, video, audio, interactive media, and web design; demonstrate advanced knowledge of photo editing; demonstrate the phases of the production cycle relating to each area of multimedia; demonstrate professional ethics; and understand the need for continuous learning.

8. **Performing Arts**

Knowledge Area: Histrionics; Dance; Music

***Attributes/Outcomes*:** Demonstrate theoretical knowledge in the subject area and show skills to perform music/dance/instrument; demonstrate skills in choreography; understand how performing arts engage people, foster curiosity, nurture imagination and boost creativity, entertain, challenge, transmit culture, retain heritage and hold on values, express ethical dilemmas and so on; understand the ways in which dance, music and drama communicate the ideas, religions and traditions of contemporary and past civilizations in the wider world; understand the relationship between artists and artworks; analyze a variety of artistic forms; recognize traditional, historical and contemporary performing arts; demonstrate knowledge of basic concepts of metre, tempo, rhythm, pitch, texture, dynamics, tone colour, structure, style, role and language while appraising a performance; demonstrate performance skills in drama, music and dance; demonstrate production skills necessary for communication with an audience; show commitment to ethics and social responsibility; and understand how the visual and performing arts foster lifelong learning.

9. **Philosophy**

Knowledge Area: Philosophy

***Attributes/Outcomes*:** Understand the history and development of Philosophy in general; describe the important historical and contemporary interpretive frameworks used in the discipline of Philosophy like Plato's Theory of Forms, early Indian systems of thought, the Utilitarian approach to ethics, Materialism of Karl Marx, and the Existentialism of Jean Paul Sarthre; demonstrate critical thinking, ability to construct analytically well-honed arguments;

show skills to express unambiguously; understand various philosophical traditions as well as the intellectual, civic, and moral virtues; demonstrate skills in philosophical analysis; show the courage to cross-examine opinions and dogmas; exhibit curiosity to understand human reflective traditions and desire to enlarge one's own horizon of knowledge; apply analytical techniques of Philosophy; understand ontology and epistemology; demonstrate proficiency in presenting orally and in writing succinct analyses of philosophical texts; communicate coherently structured arguments in defense of philosophical claims; and demonstrate ethics social responsibility.

10. Political Science

***Knowledge Area*:** Political Science

***Attributes/Outcomes*:** Understand approaches in political science and its subfields; understand political theories and methods; interrelate the leading political theories with international relations; understand the fundamental concepts, issues, and theories central to comparative politics and international relations; analyze basic structures and processes of governmental systems; recognize the philosophical underpinnings of political systems, political parties and ideologies; demonstrate competence in the basic methodology of research and analysis in political science; formulate effective arguments about the political world in writing and oral presentation; critically assess political processes and actions; explain political systems around the world; demonstrate commitment to ethics and social responsibility; participate in public policy debates; and recognize the need for lifelong learning.

11. Public Administration

***Knowledge Area*:** Public Administration

Attributes/Outcomes: Demonstrate familiarity with the mechanisms operating in the major political institutions and agencies for the creation and implementation of public policies; understand the various social forces that affect the creation of public policies; understand the citizenry, who actively engage in the policy making process; demonstrate critical thinking and communicative skills; explain the cross-cultural context of public and private institutions operating in a global environment; manage diversity issues within an organizational framework; identify major issues in today's public and private institutions; integrate knowledge and undertake issue based research in public administration; demonstrate skills necessary for responsible administrative and leadership positions; demonstrate ethics and behavioral skills for effective job performance and career mobility; show commitment to social responsibility; appreciate the need for lifelong learning.

12. Sociology

***Knowledge Area*:** Sociology

Attributes/Outcomes: Understand current social issues and social problems in their cultural, historical, and socio-political contexts sociologically; understand major sociological theories; analyze social systems, structures, institutions, relations, dynamics, problems and processes; apply sociological knowledge to develop solutions to social problems; engage with social issues; demonstrate the development of a responsible citizen in oneself; demonstrate awareness of social inequality and develop critical thinking; demonstrate ethical imagination about society

and show concern for social issues; demonstrate commitment to social justice; appreciate social and intellectual diversity; show commitment to social responsibility; appreciate the need for lifelong learning.

Bachelor's Degree-3 Year programme

Entry Qualifications: 10+2
Degree Conferred: B.Sc. in the respective discipline

1. Aquaculture

Knowledge Area: Aquaculture

Attributes/Outcomes: Demonstrate a sound understanding of the biology of aquaculture organisms and of breeding; understand water quality issues relevant to aquaculture; demonstrate sound knowledge of health and safety; understand ethical issues in aquaculture; communicate and interact effectively as a team and also individually; show skills to design aquaculture systems; identify and solve engineering issues in aquaculture; understand related ecological issues; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

2. Biochemistry

Knowledge Area: Biochemistry

Attributes/Outcomes: Demonstrate knowledge of fundamental biochemical principles, gain basic laboratory techniques in both chemistry and biology; show ability to apply scientific method of experimentation for testing hypotheses; demonstrate skill to effectively communicate science; describe the synthesis of proteins, lipids, nucleic acids, and carbohydrates and their role in metabolic pathways along with their regulation at the epigenetic, transcriptional, translational, and post-translational levels including RNA and protein folding, modification, and degradation; understand the regulation by non-coding RNAs tied to the developmental and physiological functioning of the organism; analyze structural-functional relationships of genes and proteins from bacteria to eukaryotes using genomic methods based on evolutionary relationships; exhibit professional ethics and social responsibility; demonstrate the urge for lifelong learning.

3. Bioinformatics

Knowledge Area: Bioinformatics

Attributes/Outcomes: Demonstrate the basic practical techniques of bioinformatics; gain skill in the application of bioinformatics and biological databases to problem solving in research; show competency to use of a wide variety of internet applications to handle biological database for evolving research questions; understand bioinformatics methods like accessing of the major public sequence databases; demonstrate ability to use the different computational tools to find sequences; analyze protein and nucleic acid sequences through various software packages; apply biochemical and molecular techniques to plan and carry out experiments; generate and test hypotheses; analyze the data by using statistical methods wherever appropriate; demonstrate skills in oral and written communication of inferences; show commitment to ethics and social responsibility; and appreciate the need for lifelong education.

4. Biotechnology

Knowledge Area: Biotechnology, Microbiology, and Biochemistry.

Attributes/Outcomes: Demonstrate fundamental knowledge of biology, biological processes, and the scientific method of biotechnology; comprehend the principles and practices of biotechnology; understand the current scientific literature including the web information; integrate biological knowledge and concepts with the legal, ethical, and business perspectives of the biotechnology industry; ability to work in groups or individually; develop written and oral presentations that effectively communicate scientific concepts and opinions using language appropriate to the discipline; apply major quantitative and computational skills and tools to solve problems in the biotechnology/life sciences industry; apply methods of biotechnology research to solve problems in the field; demonstrate the ability to think critically and show commitment to ethics and social responsibility; and recognize the need for lifelong learning.

5. Botany

Knowledge Area: Botany

Attributes/Outcomes: Understand the morphological and structural organization of plants and plant structures; understand the physiological functions of plants; understand the diversity of plants; assess national plant wealth; understand industrial application of microorganisms; recognize the position of plant in the broad classification and phylogenetic level; interpret and use taxonomical information to evaluate and formulate a position of plant in taxonomy; understand the structural organization and variation in chromosomes; understand lipid metabolism in plants; demonstrate knowledge in the developmental biology of plants; demonstrate skill to communicate knowledge; understand economic botany and plant utilization in human life; exhibit cross-disciplinary adaptability to life science; understand ethics and the importance of lifelong learning.

6. Chemistry

Knowledge Area: Chemistry

Attributes/Outcomes: Understand the basics of the main areas of chemistry: organic, inorganic, analytical, and physical; demonstrate critical thinking and problem solving abilities; perform chemical research; show ability to work in chemical or related fields; carry out scientific experiments as well as accurately record and analyze the results of such experiments; demonstrate skills in critical thinking and analytical reasoning; apply chemical methods to find solutions to scientific problems; communicate the results of scientific experiments in oral, written and electronic formats to scientists as well as the larger public; demonstrate ethical behavior and social responsibility; exhibit cross-disciplinary adaptability; and recognize the importance of lifelong learning.

7. Computer Science

Knowledge Area: Computer Science

Attributes/Outcomes: Comprehend the basics of computer science; apply knowledge of computing and mathematics appropriate to the discipline; analyze problems, and identify and define the computing requirements appropriate to its solution; apply algorithmic, mathematical

and scientific reasoning to a variety of computational problems; design, implement and document solutions to significant computational problems; analyze and compare alternative solutions to computing problems; implement software systems that meet specified design and performance requirements; work effectively in teams to design and implement solutions to computational problems; communicate effectively, both orally and in writing; recognize the social and ethical responsibilities of a professional working in the discipline; exhibit cross-disciplinary adaptability; and recognize the importance of lifelong learning.

8. Cyber Forensics

Knowledge Area: Cyber Forensics

Attributes/Outcomes: Understand the origins of forensic science; explain the difference between scientific conclusions and legal decision-making; explain the role of digital forensics and the relationship of digital forensics to traditional forensic science, traditional science and the appropriate use of scientific methods; outline a range of situations where digital forensics may be applicable; identify and explain the main issues in the practice of digital forensic investigations; understand the structure, mechanics and evolution of the internet in the context of emerging crime threats and other technological trends in cyberspace; understand the forms of cybercriminal activity; analyze and assess the impact of cybercrime on government, businesses, individuals and society; exhibit cross-disciplinary adaptability; examine the different theoretical and cross-disciplinary approaches (criminological, political, legal and information security/management) of cyber-security and the regulation of the internet; show commitment to professional ethics and social responsibility; and recognize the importance of lifelong learning.

9. Electronics

***Knowledge Area*:** Electronics

Attributes/Outcomes: Demonstrate knowledge of scientific and technological aspects of electronics; explain positive and negative logic states, TTL, MOS and CMOS integrated circuits properties; explain logical AND, OR, NOT, NAND, NOR, EX-OR, EX-NOR functions; understand Boolean equation by using Truth Table and shows its logic circuits; identify combinational circuit; explain the working principles of decoder, encoder; recognize 7-segmented displayers; demonstrates flip-flop applications; recognize asynchronous and synchronous counters; demonstrate knowledge of recent technological developments; demonstrate analytical abilities towards real world problems; show professional skills fair enough to be directly employed; demonstrate competency to start his/her own work as an electronic circuit designer, electronics consultant, testing professional, service engineer and even an entrepreneur in electronic industry; show commitment to professional ethics and social responsibility; and recognize the importance of lifelong learning.

10. Environment

Knowledge Area: Environment

Attributes/Outcomes: Understand the science of environment and environmental issues; ability to tackle multifaceted environmental issues; collect, analyze and interpret complex quantitative and qualitative environmental data; demonstrate skills in effective scientific communication;

show ability to collaborate with multidisciplinary teams; demonstrate technical leadership to engage with the challenging environmental problems of local, national and global nature; exhibit concern for ethical issues and be a socially responsible citizen; understand core concepts and methods from ecological and physical sciences and their application in environmental problem solving; understand core concepts and methods from economic, political, and social analysis as they pertain to the evaluation of environmental policies; appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems; demonstrate proficiency in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to work with interdisciplinary scholars; show commitment to professional ethics and social responsibility; and recognize the importance of lifelong learning.

11. Food Technology

Knowledge Area: Food Technology

Attributes/Outcomes: Understand the basic nature of food and its nutritional, physical and chemical properties, the behavior of food and food ingredients under different processing conditions; apply the principles underlying food processing, industrial management practices, preservation techniques, packaging methods, etc.; understand production processes; demonstrate ability to design novel processing approaches; undertake product development; show skills to develop new and safe food products; demonstrate skills to control and manage quality of processed foods; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

12. Forestry

Knowledge Area: Forestry

Attributes/Outcomes: Understand the scientific and socio-economic principles underlying forestry, physical and biological processes, silvicultural, economic and business concepts and social factors; demonstrate ability to measure and inventory forest vegetation with precision and accuracy; understand forestry investment analysis and be able to evaluate typical financial investments; understand the development and execution of strategic, tactical and operational forest plans that support achievement of desired future; understand conditions and strategic goals in forestry; demonstrate knowledge of the social and political context of forestry; describe current policies, laws, and regulations governing the management of forest lands; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

13. Genetics

Knowledge Area: Genetics

Attributes/Outcomes: Comprehend the knowledge in the chemical basis of heredity, genetic methodology, quantification of heritable traits in families and populations; show insight into cellular and molecular mechanisms; understand how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc.; understand the role of genetic mechanisms in evolution; show ability to design, execute,

and analyze the results of genetic experimentation in animal and plant model systems; exhibit adaptability to teamwork and leadership-skills in group analysis of data; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

14. **Geography**

Knowledge Area: Geography

Attributes/Outcomes: Demonstrate knowledge of physical geography and specialized areas of physical geography; understand geographical theories, techniques and concepts; demonstrate skills in cartography; understand human geography; assess and map human induced environmental changes; understand environmental dimensions of geography; recognize environmental systems, cycles, patterns and processes; understand human – environment interactions at the local and global scales; analyze and explain the geography of the modern world; show skills to apply appropriate field, statistical and survey methods for analyzing geographical issues; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

15. Geology

Knowledge Area: Geology

Attributes/Outcomes: Identify, describe, and classify earth materials, formations, and structures; identify the most common elements in the Earth's crust and their order of abundance; understand how we know about the Earth's interior and its magnetism; understand geochemistry; apply the tools and concepts commonly used by geologists; interpret the materials in the context of geologic processes; analyze and compare the properties, material, and layers within the Earth's geosphere; critically evaluate geologic reports, professional papers and maps; synthesize information from a variety of disciplines to solve geologic problems; interpret major types of evidence supporting the Theory of Plate Tectonics and the related geological processes; understand the causes and common locations of earthquakes; recognize our limited ability to predict seismic activity; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

16. Home Science

Knowledge Area: Home Science; Family and Community Science

Attributes/Outcomes: Understand the basics of human physiology, biochemistry, microbiology environment and human rights; demonstrate skills to plan and prepare diet for a healthy life style using the principles of food science and nutrition; understand the principles and patterns of growth and development of humans from conception to old age and the role of family in development; acquire skills for career options in the fields of dietetics; exhibit ability to conduct effective extension education programmes through different media; apply the acquired conceptual knowledge of food quality assurance and sustainable waste management for holistic living; organize and deliver relevant knowledge through written, verbal, graphical/virtual

communications; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

17. Hotel Management and Catering Science/Technology

This area offers courses/degrees in several aspects of hotel management like the 3-year programmes viz- B.Sc Hotel Management and Catering Science; B.Sc. Hotel Management and Culinary Arts; Bachelors in Hotel Adminstration; B.Sc. in Culinary Arts and Catering Technology and a four year programme Bachelor in Hotel Management (BHM).

However, the National Council For Hotel Management And Catering Technology(NCHMCT), an autonomous body under Ministry of Tourism, Govt. of India) admits students to its **3 year BSc program in Hospitality & Hotel Administration** with Specialization (majors) at select institutes affiliated to the National Council for Hotel Management through the NCHMCT JEE.

UGC Specified Degrees: At the same time, UGC in its specification of Degrees stipulates degrees in this discipline to be of 4 years duration conferring degrees Bachelor of Hotel Management (BHM) and Bachelor of Hotel Management and Catering Technology (BHMCT)

Degree Conferred: B.Sc.Hotel Management and Catering Science (3 year programme)
B.Sc. Hotel Management and Culinary Arts (3 year programme)
Bachelors in Hotel Administration (3 year programme)
B.Sc. in Culinary Arts and Catering Technology (3 year programme)

Knowledge Area: Catering Science and Hotel Management; Culinary Arts and Catering Technology; Hotel Management and Catering; Hotel management and Culinary Arts

Attributes/Outcomes: Describe aims of cooking and understand the duties of kitchen staff; identify ingredients, tools and equipment used in bakery and commercial kitchen, the methods of bread and cookies making; demonstrate knowledge of the pre-preparation methods and the methods of cooking food; show awareness of the crucial hospitality management concepts; understand the fundamentals of the hotel industry, commercial kitchen operations, Food and Beverage Service; apply the key principles of human resources, customer centred marketing and specific finance and accounting to the hotel industry; devise techniques for delivering superior performance and value to the customer; understand cross-disciplinary importance of the field; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

18. Industrial Chemistry

Knowledge Area: Industrial Chemistry

Attributes/Outcomes: Demonstrate knowledge in the basic theories in the field; understand the development and production activities in the field of chemistry and in other allied sectors: health, food, cosmetics, the environment, energy, communications, furnishing, the automotive sector etc; evaluate theoretical and practical aspects relating to the transfer of the production of chemical products from laboratories to the industrial scale; apply the fundamentals of industrial

chemistry, experimental methodologies in the chemical and industrial fields; understand cross-disciplinary importance of the field; demonstrate skills in handling tools required to carry out professional research; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

19. **Industrial Microbiology**

Knowledge Area: **Industrial Microbiology**

Attributes/Outcomes: Demonstrate ability to apply the techniques used in the different phases of industrial microbiology, production (including fermentation and scale-up), bioprocessing and cell banking; demonstrate knowledge about application of micro-organisms to the industrial production of foods, pure chemicals, proteins and other useful products, including the use of genetically modified organisms; demonstrate skills in handling tools required to carry out professional research in the field; understand the need for both the science and business aspects to be achievable to make a viable product; understand cross-disciplinary importance of the field; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

20. Information Technology

Knowledge Area: Information Technology

Attributes/Outcomes: Apply knowledge of computing and mathematics appropriate to the discipline; analyze a problem, and identify and define the computing requirements appropriate to its solution; design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs; function effectively on teams to accomplish a common goal; effectively integrate IT-based solutions into the user environment; understand professional, ethical, legal, security and social issues and responsibilities; demonstrate skills in handling tools required to carry out professional research; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

21. Instrumentation

Knowledge Area: Instrumentation technology and its management

Attributes/Outcomes: Demonstrate fundamental knowledge in operating principles of common instruments, instrumentation networks, sensors and display units; show knowledge in chemical process systems; demonstrate operational expertise in instrumentation technology; apply engineering knowledge; analyze, assess and solve common process control and instrumentation problems; and demonstrate skills in installing, configuring and operating instrumentation equipment; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

22. Mathematics

Knowledge Area: Mathematics

Attributes/Outcomes: Demonstrate advanced knowledge in mathematics; handle core concepts of differential and integral calculus, elementary linear algebra, and differential equations by solving problems within these disciplines; describe physical situations mathematically; apply

mathematical proof techniques in a wide variety of mathematical areas, including algebra and analysis; demonstrate skill in effectively communicating mathematical concepts and proofs; and recognize the need for lifelong learning.

23. Medical Biochemistry
Knowledge Area: Medical Biochemistry

Attributes/Outcomes: Demonstrate knowledge of the structure of biomolecules and be able to relate their function to the important and relevant aspects of their structure; apply this knowledge to problems requiring qualitative explanation as well as quantitative solutions of acid-base and enzyme kinetics problems; locate information relating to various chemical topics and interpret appropriate data; understand molecular mechanisms in a number of important cell signaling cascades; demonstrate competencies in advanced biochemical techniques; show competency in report writing and the critical appraisal of scientific literature; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

24. **Medical Microbiology**
Knowledge Area: Medical Microbiology

Attributes/Outcomes: Identify common infectious agents and the diseases that they cause; able to evaluate methods used to identify infectious agents in the clinical microbiology lab; recall microbial physiology including metabolism, regulation and replication; explain general and specific mechanisms by which an infectious agent causes disease; recognize and diagnose common infectious diseases from the clinical presentation and associated microbiology; describe the epidemiology of infectious agents including how infectious diseases are transmitted; assess treatment strategies including the appropriate use of antimicrobial agents and common mechanisms of antimicrobial action and resistance; explain interventions employed to prevent infectious diseases including infection control measure and vaccines; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

25. Microbiology
Knowledge Area: Microbiology

Attributes/Outcomes: Demonstrate knowledge of the vast array of microbes (bacteria, archaea, viruses, fungi and protozoa; understand the disciplines of bacteriology and virology; demonstrate knowledge of physiology, genetics and molecular biology of bacteria and viruses and an understanding of how these microbes interact with their environment and cause disease; demonstrate competency in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods; and exhibit awareness of laboratory safety rules; demonstrate commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

26. Nutrition

Knowledge Area: Clinical Nutrition and Dietetics

Attributes/Outcomes: Demonstrate knowledge from fields relevant to food and nutrition sciences, understand the importance of economic, environmental and cultural issues influencing food choice and nutritional status; design an effective evidence based nutrition care plan for individual clients or patients; demonstrate competency to undertake measures of prevention of disease in groups and individuals; demonstrate commitment to professional ethics important to nutritional services; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

27. Physics

Knowledge Area: Physics

Attributes/Outcomes: Demonstrate knowledge of classical mechanics, electromagnetism, quantum mechanics, and thermal physics; demonstrate ability to apply this knowledge to analyze a variety of physical phenomena; demonstrate proficiency in mathematics and the mathematical concepts needed for a proper understanding of physics; show laboratory skills enabling to take measurements in a physics laboratory and analyze the measurements to draw valid conclusions; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

28. **Plant Science**

Knowledge Area: Plant Science

Attributes/Outcomes: Demonstrate a coherent understanding of the conceptual and theoretical scientific basis of plant science; demonstrate knowledge of multi-disciplinary scientific principles relevant to plant science; select and apply practical and/or theoretical field and/or laboratory techniques or tools in order to conduct an investigation; collect, record, interpret and draw conclusions from scientific data; communicate effectively scientific results to a range of audiences, for a range of purposes using both written and oral delivery modes; work effectively, responsibly and safely as an individual and in team context; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

29. Polymer Chemistry

Knowledge Area: Polymer Chemistry

Attributes/Outcomes: Demonstrate a broad knowledge of the principles and concepts of contemporary polymer chemistry; demonstrate the basic concepts of polymer synthesis; elucidate the basic reactions in polymer chemistry; describe the physical properties of different polymers, the different experimental techniques used in the characterization of polymer solutions; describe theoretical models used to describe polymer solutions; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

30. Psychology

Knowledge Area: Psychology

Attributes/Outcomes: Demonstrate familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology; demonstrate critical and creative thinking, skeptical inquiry, and scientific approach to solve problems related to behavior and mental processes; apply psychological principles to personal, social, and organizational issues; understand the complexity of sociocultural diversity and societal inequality in the inquiry and analysis of psychological issues; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

31. Statistics

Knowledge Area: Statistics

Attributes/Outcomes: Ability to apply basic methods of statistical description, modelling, and inference in the analysis of empirical data; plan, conduct and analyze small-scale statistical investigations; describe basic concepts and principles of statistics both orally and in writing; understand statistics along with mathematics functions as a tool in engineering, business, finance, computing, data sciences, health sciences, environmental sciences and public policy; understand how statistics is important in internet search algorithms, disease control, communications technology, and climate modeling; understand the application of statistics to problem solving in both sciences and social sciences; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

32. Zoology

Knowledge Area: Zoology

Attributes/Outcomes: Identify the major groups of organisms with an emphasis on animals and classify them within a phylogenetic framework; compare and contrast the characteristics of animals that differentiate them from other forms of life; understand the evolutionary processes and how descent with modification has shaped animal morphology, physiology, life history, and behavior; explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system; explain the physiological adaptations, development, reproduction and behavior of different forms of life; relate the physical features of the environment to the structure of populations, communities, and ecosystems; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

Bachelor's Degree- 3 Year Programme

Entry Qualifications: 10+2
Degree Conferred: B.Com.

Commerce

***Knowledge Area*:** Commerce

Attributes/Outcomes: Demonstrate accounting skills, managerial skills, communication skills; show ability to face the challenges in present competitive market; demonstrate acquaintance with theoretical concepts and skills in their application to the business; demonstrate qualities of an entrepreneurship; articulate ideas about the modern business strategies, banking sector, insurance sector, income tax, e-commerce; explain about Indian economy etc.; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

Other Bachelor's Degree-3 Year Programme

Entry Qualifications: 10+2
Degree Conferred: B.B.A. (Bachelor of Business Administration)

i. Business Administration

Knowledge Area: Business Administration

Attributes/Outcomes: Demonstrate appropriate knowledge in accounting, management and marketing; understand global dimensions of business; understand business finance; demonstrate competency to work in the legal environment of business economics; show commitment to professional business ethics; understand information management systems; apply quantitative methods/statistics; demonstrate business leadership; understand strategic management; demonstrate critical thinking; show skills in managing business related situations; apply technology to enable business growth, development and sustainability; demonstrate written and oral skills appropriate for business communication; show commitment to social responsibilities; understand the importance of cross-disciplinary adaptability in the field; and recognize the need for lifelong learning.

ii. Retail Management

Knowledge Area: Retail Management

Attributes/Outcomes: Understand the impact of retailing on the economy; comprehend retailing's role in society and, conversely, society's impact on retailing; explain how retailing fits within the broader disciplines of business and marketing; recognize and understand the operations-oriented policies, methods, and procedures used by successful retailers in today's global economy; outline the responsibilities of retail personnel in the numerous career positions available in the retail field; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Entry Qualifications: 10+2
Degree Conferred: B.A. Travel and Tourism Management (3 year)
BBA Travel and Tourism Management/ Tourism Management
B.Com Commerce and Tourism & Travel Management/Travel & Tourism/Tourism (3 year)
BTHM-Bachelor of Tourism and Hotel Management (3 year)
BTTM-Bachelor of Travel and Tourism Management (3 year)

Knowledge Area: Travel and Tourism Management

Attributes/Outcomes: Interpret and evaluate travel and tourism industry as a phenomenon and as a business system; explain the diverse nature of travel and tourism, including culture and place, global/local perspectives, and experience design and provision; identify and assess relationships and networks relative to building travel and tourism capacity; apply relevant technology for the production and management of travel and tourism experiences; demonstrate

ability to organize and control resources for effective and efficient travel and tourism operations; evaluate marketing strategies for travel and tourism destinations and organizations and tourism policy; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Entry Qualifications: 10 + 2
Degree Conferred: B.M.M.C. (Bachelor in Multimedia Communication)

Knowledge Area: Multimedia Communication

Attributes/Outcomes: Apply the knowledge and skills associated with multimedia technology to develop high quality, effective products, including the ability to engage audiences with sound, music, text, still and moving images, and interactivity; reflect critically and cogently on the use of multimedia technology as a powerful tool for self-expression, learning, persuasion, and collaboration; demonstrate a portfolio of finished work that is displayed in a professional manner and effectively integrates content and form; demonstrate academic skills including competency in writing, information literacy, oral communication, and quantitative reasoning; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Entry Qualifications: 10+2
Degree Conferred: B.F.T. (Bachelor in Fashion Technology)

***Knowledge Area*:** Fashion Technology, Apparel and Fashion Designing; Costume and Fashion Designing

Attributes/Outcomes: Understand theories and principles behind fabric construction, textile science, history of art, textile, costumes, styles, marketing, merchandising and industrial procedures; apply the knowledge of elements and principles of design; demonstrate ability to convert their design into a product or a garment using appropriate construction techniques; demonstrate skill to apply software tools knowledge to design and create prototype; visually communicate ideas in the form of artistic fashion illustrations, graphic illustration; demonstrate event management, team work, leadership, entrepreneurial and business skills; exhibit strong foundation in designing and have the ability to visually represent it by illustrations, photographs, graphics and visual display of merchandise; demonstrate entrepreneurial skills; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Entry Qualifications: 10+2
Degree Conferred: BPEd
UGC Specified Degree: BPES(Bachelor of Physical Education and Sports)

***Knowledge Area*:** Physical Education, Sports and Games, Coaching Methods in Sports and Games.

Attributes/Outcomes: Demonstrate knowledge of the factors that affect sports performance ability; examine knowledge of sports' significance for the individual and society; understand the relationship between physical activity and youths' development; apply knowledge of relevant methods in sports research; demonstrate skills in a selection of sports / activities; plan,

execute and evaluate training and sports activities on different levels; use the relevant skills and attitudes for guiding and coaching; apply analytical tools appropriate for charting varying prerequisites for sports performance abilities; apply academic knowledge in participation in academically founded discussions and development work; demonstrate insight into ethical issues connected to sports; demonstrate up-to-date research-based knowledge in the academic area; show knowledge, skills and general competence in the elective minor; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Entry Qualification: 10+2
Degree Conferred: B.S.W.(Bachelor's in Social Work)

Knowledge Area: Social Work, Sociology, Community Education, Community Empowerment, Community Health.

Attributes/Outcomes: Demonstrate social work knowledge, values and skills; show ability to assess, intervene and evaluate individuals, families, groups organizations and communities; understand the importance of socio-economic and cultural differences in shaping life experiences; show ability to effectively support and deliver social welfare services; engage in practices that advance social and economic justice; work effectively in teams as well as individually; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

Bachelor's Degree- 1 Year Programme

Entry Qualifications: Bachelor's Degree in any Discipline
Degree Conferred: B.L.I.Sc/B.Lib.I.Sc.

Knowledge Area: Library and Information Science

Attributes/Outcomes: Understand, apply and articulate the history, philosophy, principles and ethics of library and information science and the related professions; develop, administrate, assess, and advocate for information services by exercising principled communication, teamwork and leadership skills; classify and catalogue using the various standardized tools of library classification and cataloguing; organize, create, archive, preserve, retrieve, manage, evaluate, and disseminate information resources in a variety of formats; evaluate and use the latest information technologies, research findings and methods; communicate and collaborate with diverse colleagues, information seekers and community stakeholders; apply basic knowledge of computer and its application in managing various activities of a library system; demonstrate professional ethics.

Bachelor's Degree-4 Year Programme

Entry Qualifications: 10 + 2
Degree Conferred: B.F.Sc. Bachelor's in Fisheries Science

***Knowledge Area*:** Fisheries Science, Aquatic Biology, Biochemistry, Aquaculture, Fish Processing, Biostatistics

***Attributes/Outcomes*:** Understand concepts and theories in Fisheries Science; demonstrate practices of aquaculture; recognize taxonomy and diversity of fresh water fish biology and ecosystems; demonstrate knowledge of basics of biostatistics; understand biochemistry of aquatic organisms; understand principles of genetics; demonstrate knowledge of inland fisheries; show skills in ornamental fish culture; exhibit skills in fishing methods; show knowledge of fish preservation and awareness of conservation; apply food safety measures and regulations regarding the conduct of fisheries; understand knowledge of fishing methods; show awareness of fish preservation and conservation; apply fish food-safety regulations; understand fisheries policies and laws; show ability to conduct research work independently or in a team; communicate effectively among experts as well as fish farmers; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: 10 + 2
Degree Conferred: B.Sc. (Hons.) Agriculture

***Knowledge Area*:** Horticulture, Agronomy, Agricultural Economics, Livestock Production, Agroforestry

Attributes/Outcomes: Understand scientific concepts, theories and methods of Agriculture and its allied branches such as agronomy, horticulture, livestock production and agroforestry; understand human-environment-agriculture relations; demonstrate practices required to raise the income of farmers through agricultural enterprises; apply various techniques of the scientific and sustainable farming system; demonstrate knowledge of agricultural market; show skills in marketing agricultural produce; show skills in the use of appropriate agricultural implements and machinery; show ability to conduct research work independently or in a team; communicate effectively among experts as well as farmers; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: 10 + 2
Degree Conferred: B.Sc. (Hons.) Co-operation and Banking

***Knowledge Area*:** Co-operative Management; Rural Banking and Finance Management; Rural Marketing Management

***Attributes/Outcomes*:** Understand professional management of formal and informal co-operatives, financial institutions, agribusiness enterprises and other rural development organizations; understand functional, organizational, institutional, managerial and operational issues of Co-operatives and resolve them; exhibit skill in managing income generating activities

through self-employment; facilitate interest in agricultural community centred and empowerment oriented initiatives; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: 10 + 2
Degree Conferred: BHM-Bachelor's in Hotel Management

***Knowledge Area*:** Catering Science and Hotel Management; Culinary Arts and Catering Technology; Hotel Management and Catering; Hotel management and Culinary Arts

Attributes/Outcomes: Demonstrate advanced knowledge of professional hotel management; understand finance, physical infrastructure, and front office management; demonstrate skills in personal administration, housekeeping, customer care, scientific catering, and service quality assurance; understand food safety rules; demonstrate the ability to develop, examine, question, and explore perspectives or alternatives to problems in hospitality operations; manage and evaluate functional systems in lodging operations; integrate human, financial, and physical resources management into foodservice and lodging operations; understand cross-disciplinary importance of the field; demonstrate effective communication skills and adaptability to live and work in a cross-cultural environment; show commitment to professional ethics, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: 10 + 2
Degree Conferred: BTTM-Bachelor's of Tourism & Travel Management

***Knowledge Area*:** Travel and Tourism Management, Tourism Management, Tourism and Hospitality Management

***Attributes/Outcomes*:** Understand fundamentals of Travel and Tourism Management; understand issues in the tourism and hospitality industries; create favourable guest experiences by designing effective service delivery systems in a hospitality business environment; use current and relevant technology, information, and findings from research data to enhance organizational performance in a hospitality business environment; apply professional knowledge in travel and tourism business management; demonstrate skills in problem solving in the management of travel and tourism operations; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Bachelor's Degree (Hons.)- 3 year and 5 year Programmes

Bachelor's Degree (Hons.) Programmes are generally run with a select clientele of proven abilities and distinction in the subject concerned. They are supposed to be more focused and oriented to specialization. Their knowledge areas should demonstrate advanced level and attributes should be commensurate to the high standards. Therefore, the programme is relatively superior in terms of standard to the conventional undergraduate programmes.

Bachelor's Degree (Hons.)-3 Year Programme

Entry Qualifications: 10+2
Degree Conferred: Bachelor's (Hons.) in the respective Discipline

1. B. A. English Language and Literature (Hons.)
2. B. Sc. Agriculture (Hons.)
3. B. Sc. Mathematics (Hons.)

Bachelor's Degree (Hons.)-5 Year Programme

Entry Qualifications: 10+2
Degree Conferred: Bachelor's (Hons.) in the respective Discipline

1. B.B.A. LL. B. (Hons.)
2. B.Com. LL.B. (Hons.)

Bachelor's Degree-3 year Programme Double Main

Entry Qualifications: 10+2
Degree Conferred: Bachelor's in the respective Discipline

1. B. A. Arabic and Islamic History (Double Main)
2. B. A. English Literature and Communication Studies(Model III) Double Main
3. B. A. English and History (Double Main)
4. B. A. English Literature and Communication Studies Double Main(Model III)

Bachelor's Degree-3 year programme Triple Main

Entry Qualification: 10+2
Degree Conferred: Bachelor's in the respective Discipline

1. B. A. English Literature, Communication and Journalism Triple Main(Model III)

Bachelors in Teacher Education Programmes

1. Integrated Four Year B.Ed. Programme

The Four Year Integrated Bachelor Programme in Education combines Teacher Education with an undergraduate programme in Sciences or Languages (English, Hindi and Regional Languages) or Humanities or Social Sciences (Commerce, History, Economics, Statistics, and Sociology). Science education is generally in two combinations: i.) Mathematics, Physics, and Chemistry; and ii.) Chemistry and Bioscience/Biological Studies/Natural Science. All these respective disciplines are taught in combination with Teacher Education Science or Pedagogic Science. Each area has its specific learning outcomes or attributes as indicated elsewhere against independent undergraduate programmes.

***Knowledge Area*:** Integrated B.Ed. Programmes have the specific subject area called Teacher Science or Teacher Education or Pedagogic Science, which encompasses constituent areas such as Educational Philosophy, Educational Psychology, Educational Anthropology/Sociology, Teaching and Assessment Methods, Learning and Cognition Theories, Critical Pedagogy.

Attributes/Outcomes: Demonstrate theoretical knowledge in all the related areas of Pedagogic Science and skills to apply them in teaching; demonstrate up-to-date knowledge in teaching and assessment theories; show curriculum design and content management; exhibit skills in classroom management; convey knowledge effectively; demonstrate critical thinking and nurture creativity; show skill to kindle curiosity and sustain it as the motor of life-long learning; identify and handle the emerging technology and tools for teaching; facilitate teaching and learning in ICT environment; identify students' learning difficulties and adopt appropriate methods to remedy them; exhibit ethics for the making of good humans and ideal citizenry.

2. Science Groups

i. Physics and Mathematics

Knowledge Area: Physics and Mathematics as offered for the undergraduate programme in the disciplines.

Attributes/Outcomes: Understand principles and theories of Physics; understand principles and procedures of Mathematics; demonstrate knowledge in applying mathematics to the theories in Physics; ability to communicate Physics and Mathematics in oral and writing; knowledge in teaching and assessment methods in Physics and Mathematics; show skills in organizing practical experiments in the laboratory of Physics; show skills in teaching mathematics; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

ii. Chemistry and Bioscience/Biological Studies/Natural Science

Knowledge Area: Chemistry (Organic and Inorganic) as offered at the undergraduate level. Bioscience/Biological Studies/Natural Science has the same subject area as offered for the undergraduate level Biology. Knowledge content, aims, objectives, and scope of Bioscience, Biological Studies, Biology, and Natural Science are the same.

Attributes/Outcomes: Attributes of Bioscience, Biological Studies, Biology, and Natural Science are the same. Demonstrate knowledge in the fundamentals of bioscience or biology or natural science, which include knowledge in botany or plant science and zoology or animal science; understand life science and the environment; demonstrate knowledge in the teaching methods with special reference to bioscience/natural science; demonstrate skills to organize laboratory experiments and observations in the respective knowledge fields; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

3. Bachelor of (Teacher) Education or General B.Ed. Programmes

Knowledge Area: The subject area of Bachelor of (Teacher) Education or B.Ed. Programmes as indicated above consists of sub-fields such as Educational Philosophy, Educational Psychology, Educational Anthropology/Sociology, Teaching and Assessment Methods, Cognition/Learning Theories, Critical Pedagogy. The learning outcomes or attributes remain the same too.

Attributes/Outcomes: Understand and practise theoretical knowledge in all the related areas of Pedagogic Science in teaching; demonstrate up-to-date knowledge in teaching and assessment theories; demonstrate curriculum design and content management; show skills in classroom management; convey knowledge effectively; demonstrate skill to develop critical thinking and nurture creativity; show skill to kindle curiosity and sustain it as the motor of life-long learning; identify and handle the emerging technology and tools for teaching; facilitate teaching and learning in ICT environment; identify students' learning difficulties and adopt appropriate methods to remedy them; demonstrate ethics for the making of good humans and ideal citizenry.

4. B.Ed. Special Education

This Bachelor Programme focuses on special training in the theory and practice of teaching the differently abled or challenged students with difficulties in normal learning due to chronic physical or/and mental disabilities. The knowledge field of this programme includes all the core areas of the General Teacher Education or B.Ed. Programmes. Nonetheless, the programme has a more focused approach to the theory and practice of Special Education. This demands specialization in disability studies and special educational methods for the mentally impaired and physically handicapped.

Knowledge Area: Disability Studies, Disability Pedagogy

Attributes/Outcomes: Understand theories and practices of special education; ability to distinguish between learning disabilities and learning difficulties; demonstrate knowledge of teaching methods and strategies under disability pedagogy; show ability to teach students of learning disabilities; demonstrate knowledge of special learning devices and tools for the differently abled or challenged students with visual or/and auditory handicaps; show skills to handle such special devices and tools; ability to identify and provide for the special needs of the physically and mentally handicapped; demonstrate competency in understanding the bio-psycho-social implications of disability; show skills in working with students of disabilities; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

Master's Degree- 2 Year Programme

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.A. in the respective discipline

1. **Animation**

***Knowledge Area*:** Animation

Attributes/Outcomes: Understand the principles of animation and the role and development of the visual arts in past and present cultures; develop art application, aesthetic judgment, visual perception and critical thinking skills; use different stop motion styles, materials and techniques; demonstrate in depth understanding of the art and techniques of inorganic modeling, production skills needed for work in digital animation production; demonstrate proficiency in narrative techniques: understanding of techniques of digital lighting and texturing, visual effects; demonstrate the attitude to be ethically responsible; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for lifelong learning.

2. **Anthropology**

Knowledge Area: Anthropology

Attributes/Outcomes: Demonstrate advanced knowledge of general anthropological theory; comprehend theories in specific disciplinary area; evaluate anthropological theories and arguments; demonstrate reflective ability to interpret anthropological phenomena; show competency to critically evaluate anthropological studies; identify problems and formulate research questions in anthropology; demonstrate ability to work effectively with multi-cultural teams; facilitate cooperative or coordinated effort to act together as a group for the avowed common cause; demonstrate competency in written and oral communication; demonstrate commitment to ethical standards in anthropological research**;** demonstrate the attitude to be ethically responsible; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

3. **Cinema and Television**

***Knowledge Area*:** Cinema and Television

Attributes/Outcomes: Demonstrate creative writing skills in the production of projects, screenplays and/or scholarly essays; understand the history, philosophy, and critical aesthetics of parallel cinema; understand the aesthetic and industrial components of television and film production; show proficiency in at least two disciplinary areas of film industry such as production, management, screenwriting, direction, camera and lighting, editing, audio, art direction, set design, special effects, and studio production; demonstrate skills to work collaboratively with a team in the production industry; exhibit critical thinking and self-awareness based on insights from a variety of theories and approaches to film analysis; assess the relationships between film history, film styles and film aesthetics in order to identify and predict industry trends; understand the importance of cross-disciplinary adaptability in the

field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

4. Cultural Heritage Studies

***Knowledge Area*:** Cultural Heritage Studies

Attributes/Outcomes: Demonstrate aptitude for the critical assessment of tangible structures and objects such as buildings, monuments, archaeological sites, and works of art; understand intangible heritage like traditions, languages, and knowledge; recognize environmental heritage connected to human-nature interactions; understand how world heritage is assessed and managed; understand advanced theoretical perspectives and frameworks of global heritage; critically evaluate emerging approaches, issues and trends in the theories and practices of world-wide heritage policy and management; demonstrate preparedness to undertake critical research; show competency in reflective practice; demonstrate skills in the knowledge of heritage policy, management, and conservation; show workplace experience at a heritage site; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

5. Economics

***Knowledge Area*:** Applied Economics; Business Economics; Development Economics; Development Studies

Attributes/Outcomes: Apply economic analysis to everyday problems in real world situations, evaluate specific policy proposals; understand how to use empirical evidence to evaluate the validity of an economic argument; apply statistical methodology; interpret statistical results and conduct appropriate statistical analysis of data; critical and quantitative thinking skills specific to business and accounting; communicate effectively in written, oral and graphical form about specific issues and to formulate well-organized written arguments; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

6. Environmental Studies

Knowledge Area: Environmental Studies

Attributes/Outcomes: Identify core concepts and methods from ecological and physical sciences and their application in environmental problem solving; understand the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems; understand the transnational character of environmental problems and address them; analyze and understand interactions between social and environmental processes; reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world; demonstrate proficiency in critical thinking, and written and oral communication skills; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

7. Film Studies

Knowledge Area: Film Studies

Attributes/Outcomes: Understand communication, expression, and storytelling in a media, organizational, interpersonal and social context; understand the history, social and cultural

roles of media in society; demonstrate an aesthetic understanding of media production and technical proficiency in areas such as video and visual production, writing and digital media development; demonstrate ability to carry out rigorous formal analysis of film; explain how film has changed over time as an aesthetic form, as an industry, and as a social institution; compose convincing written arguments backed by evidence from films and secondary sources; exhibit critical thinking and self-awareness based on insights from a variety of theories and approaches to film analysis; assess the relationships between film history, film styles and film aesthetics in order to identify and predict industry trends; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

8. **Folklore**

Knowledge Area: Folklore

Attributes/Outcomes: Recognize the main areas in the study of folklore; understand the concept of vernacular narrative; understand underlying ideas of popular belief and ritual; recognize folklore in everyday life past and present; identify and critically evaluate cultural themes; discuss key occasions in life experience in terms of ritual and festival; demonstrate advanced knowledge of folklore theories; demonstrate reflective ability to interpret folklore; show competency to critically evaluate folklore studies; demonstrate ability to work effectively with multi-cultural teams; demonstrate commitment to ethical standards in folklore research**;** demonstrate the attitude to be ethically responsible; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

9. Gandhian Studies

Knowledge area**:** Gandhian Studies

Attributes/Outcomes: Recognize the key features of the Gandhian philosophy of non-violence, Gandhi's critique of liberalism and capitalism; assess the impact of Gandhian political thought on Indian and global politics; engage in selected historiographical debates related to the study of anti-colonial Indian politics; understand the importance of cross-disciplinary adaptability in the field of Gandhian thought; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

10. Gender Studies

Knowledge Area: Womens' Studies

Attributes/Outcomes: Identify and apply interdisciplinary approaches to gender issues; analyze, evaluate and apply advanced theories of gender and feminism; identify limitations and strengths in existing scholarship on gender and feminism; use feminist epistemology to critically analyze gender within disciplinary boundaries; demonstrate ability to research issues in advanced gender studies and feminism independently; communicate complex ideas in speech and writing; understand the importance of cross-disciplinary adaptability in the field of women studies; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

11. Graphic Design
Knowledge Area: Graphic Design

Attributes/Outcomes: Articulate a distinct philosophy of art; analyze historical trends in artistic theory and practice; demonstrate advanced technical proficiency in the use of appropriate creative media and technology in a specific area of concentration; demonstrate proficiency in the areas of typography, layout, and visual literacy; exhibit professional skills and behaviors necessary to compete in their chosen field of art; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

12. History
***Knowledge Area*:** Archaeology; History; Islamic History

Attributes/Outcomes: Understand the significance of historiographical developments since the professionalization of the discipline; comprehend the epistemological and methodological distinctiveness of history as a discipline; ability to reflect deeply on historical knowledge and to demonstrate an awareness of current historical debates; ability to locate and critically evaluate archival, printed or electronic source-material for the investigation of specific historical questions; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

13. Language and Literature
***Knowledge Area*:** Arabic; Comparative Literature; English; German; Hindi; Kannada; Malayalam; Post-Afzal-Ul-Ulama; Russian; Sanskrit; Tamil; Urdu

Attributes/Outcomes: Demonstrate an appropriate level of expertise in literary history, literary theory, and rhetoric; exhibit high-level proficiency in literary research and in the synthesis of research; demonstrate critical and analytical skills in the interpretation and evaluation of literary texts; employ and write effectively the language of their discipline; show commitment to ethics and social responsibilities in language studies; and recognize the need for self-directed lifelong learning.

14. Linguistics
Knowledge Area: Linguistics

Attributes/Outcomes: Demonstrate an in-depth knowledge of the structure and function of language and its use and change from various theoretical perspectives; show critical thinking skills, analytical skills, and reading skills, writing and research skills; understand—the relationship between linguistic theories and areas such as artificial intelligence, cognitive science, language acquisition and learning, intercultural communication, and language policy; demonstrate appreciation for the diversity and dynamic nature of human languages and cultures; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

15. **Local Development Studies**

Knowledge Area: Local Development Studies

Attributes/Outcomes: Understand the specific forms and social, economic, regional and institutional dynamics that characterize the processes of local development in different contexts and at different levels of development, and knowledge aimed at promoting the implementation of a sustainability process (policies, operational practices); apply the different methodologies used for the formulation, implementation, monitoring and evaluation of programs and projects for local development; be able to critically and constructively analyze problems and interventions on the basis of a rigorous interrogation of arguments and evidence; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

16. Multimedia

Knowledge Area: Multimedia

Attributes/Outcomes: Understand basic sociological and psychological concepts of multimedia communication; show insight into modern methods of Journalism; handle various tools for image manipulation and effective colour correction; demonstrate ability to use high end 3 D tools and understand methods of architectural visualization; understand the concepts of visual communication, programme production, and animation; demonstrate ability to create web pages using contemporary tools; understand the importance of cross-disciplinary adaptability in the field of multimedia studies; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

17. Performing Arts

Knowledge Area: Dance *(Bharatanatyam, Mohiniyattam, Kerala Nadanam)*

***Attributes/Outcomes*:** Understanding of dance education concepts and related topics; demonstrate kinesthetic proficiency and conceptual understanding of various kinds of dance from diverse geographic regions; demonstrate comprehensive knowledge of educational theories, best practices, related published literature and current developments in the field; show effective oral and written communication skills that demonstrate critical thinking ability; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

***Knowledge Area*:** Music (*Instrumental; Vocal)*

Attributes/Outcomes: Exhibit knowledge of different philosophies of music and develop a personal philosophical foundation for his/her career; exhibit knowledge of current issues and trends in music; demonstrate the ability to organize, interpret, synthesize, and evaluate knowledge in music, music education and to conduct research; demonstrate competence in oral, written, and communication skills and the ability to disseminate knowledge in a scholarly, coherent, and organized manner; understand the importance of cross-disciplinary adaptability in the field; show commitment to social responsibilities; and recognize the need for self-directed lifelong learning.

18. Philosophy

***Knowledge Area*:** Philosophy

***Attributes/Outcomes*:** Demonstrate advanced knowledge in various philosophical traditions; demonstrate competency to critically and creatively examine philosophical texts; critically evaluate the historical and contemporary interpretive frameworks used in the discipline of philosophy; demonstrate ability to construct philosophically well-framed arguments; demonstrate skills in philosophical analysis; show the courage to cross-examine opinions and dogmas; exhibit curiosity to understand human reflective traditions and desire to enlarge one's own horizon of knowledge; apply analytical techniques of Philosophy; understand ontology and epistemology; demonstrate proficiency in presenting orally and in writing succinct analyses of philosophical texts; communicate coherently structured arguments in defense of philosophical claims; demonstrate ethics social responsibility; and demonstrate competency to pursue lifelong learning.

19. Political Science

***Knowledge Area*:** Political Science

***Attributes/Outcomes*:** Analyze and critique political positions, present opposing viewpoints and alternative hypotheses on various issues; effectively apply reading, writing, critical thinking, and analytical skills to address significant issues in the political world; effectively apply social scientific reasoning and theories to the analysis of a wide range of political issues; generate and test hypotheses about political processes; create cogently political questions, using appropriate language in the discipline; construct organized and coherent verbal presentations directed to appropriate audience levels

20. Psychology

***Knowledge Area*:** Psychology

Attributes/Outcomes: Understand theory and research in the basic domains of psychology, the chosen specialization and its relevant sub domains; analyze specific psychological problems; understand and know the methodology of behavioural science research; develop the skills specific to the interventions in the practical field; show ability to use the instruments of psychological assessment independently and in a scientifically sound method in the chosen specialism and interpret data independently; demonstrate general scientific attitude, effective communication and reporting skills; demonstrate personal maturity, social responsibility and sensitivity to ethical and moral issues associated with the profession of a psychologist; and show interest to pursue lifelong learning.

21. Public Administration

***Knowledge Area*:** Public Administration

Attributes/Outcomes: Demonstrate broad understanding of public affairs, policy development, policy analysis, economic analysis, management skills, and organization theory and their applications to public service; conduct a purposeful inquiry exploring the problem/issue a client is experiencing; apply critical thinking and appropriate technology for public policy analysis; ability to work with and for others in ways that translate community need into policy

solutions and public service action to promote a just and humane world; communicate effectively for different audiences and purposes; understand the various social forces that affect the creation of public policies; understand the citizenry, who actively engage in the policy making process; demonstrate critical thinking and communicative skills; explain the cross-cultural context of public and private institutions operating in a global environment; manage diversity issues within an organizational framework; identify major issues in today's public and private institutions; integrate knowledge and undertake issue based research in public administration; demonstrate skills necessary for responsible administrative and leadership positions; demonstrate ethics and behavioral skills for effective job performance and career mobility; show commitment to social responsibility; appreciate the need for lifelong learning.

22. Rural Studies

***Knowledge Area*:** Tribal and Rural Studies

Attributes/Outcomes: Demonstrate awareness of the multifunctional role of rural areas and an integrated vision on development of rural areas; recognize the different approaches to rural development and ability to apply these in diverse situations; apply adequate instruments, methods and innovative tools to analyze, evaluate and solve problems related to rural development; exhibit necessary communication skills for integrated team work for dealing with rural development challenges; show behavioral skills as a facilitator of self esteem and social awareness; demonstrate commitment to people centered and empowerment oriented initiatives; show critical thinking and commitment to social responsibility; appreciate the need for lifelong learning.

23. Sociology

***Knowledge Area*:** Sociology

Attributes/Outcomes: Comprehend major sociological theories and understand society theoretically; analyze social systems, structures, institutions, relations, dynamics, problems and processes; apply sociological knowledge to develop solutions to social problems; engage with social issues; demonstrate the development of a responsible citizen in oneself; demonstrate awareness of social inequality and develop critical thinking; demonstrate ethical imagination about society and show concern for social issues; demonstrate commitment to social justice; appreciate social and intellectual diversity; show commitment to social responsibility; appreciate the need for lifelong learning; apply sociological theories and methods outside of academic settings; interpret and evaluate both published social scientific research and social policies and programs; understand the ethical issues involved with various methodological approaches; communicate and present sociological knowledge using oral, written, and other technologically driven mediums; demonstrate expertise in a select subfield of sociology; show academic maturity to pursue lifelong learning.

24. Theatre

***Knowledge Area*:** Theatre

Attributes/Outcomes: Define and evaluate the connections between theatre, entertainment, popular culture and digital media arts; describe and apply the aesthetic, sociological, political and historical frameworks of global theatre; analyze and interpret scholarly writing in the areas

of world theatre history, literature and criticism; show ability to converse about and teach a survey of theatre history, as well as some specialized knowledge of a chosen era, aesthetic movement or artist in a historical-cultural context; demonstrate research skills; understand the relationship between theatre and performance and society; communicate ideas in clear and correct writing; show familiarity with various components of the art of the stage to be able to interact cross-culturally with theatre professionals; demonstrate professional ethics and social responsibility; recognize the need for pursuing lifelong learning.

25. Vedic Studies

Knowledge Area: Knowledge of the four Vedas, its constituents-viz., samhitas, brahmanas, aranyakas, and Upanishads; the chanting of the hymns based on the rules of pratisakhyas; mimansa of sacrificial rituals, and the eschatological discourses. Vedic knowledge also includes the six Vedanga sutras of the specialized studies of consisting of siksha (phonetics), kalpa (rituals), nirukta (etymology), chandas (meters), jyotisha (astronomy), and vyakarana (grammar).

Attributes/Outcomes: Demonstrate knowledge in the four components of the Vedas and Vedāngas; exhibit proficiency in Sanskrit; demonstrate knowledge in Vedic Sanskrit; understand *prātisākhyas*; show skills in memorizing and chanting the Vedic hymns by adhering to *prātisākhyas*; understand the historical context and nature of pastoral social life and material culture; demonstrate scientific perspective; show commitment to academic ethics; and demonstrate interest in lifelong learning.

Master's Degree-2 Year Programme

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.Sc. in the respective discipline

1. Actuarial Science

***Knowledge Area*:** Actuarial Science

***Attributes/Outcomes*:** Demonstrate a solid foundation in mathematics to solve a variety of basic and advanced mathematical problems; apply actuarial mathematics to problems in a variety of fields, including insurance, finance, investment, and other businesses; communicate effectively and clearly both in written and oral forms; apply-technology to actuarial problem solving; show commitment to ethics and social responsibilities; and exhibit academic maturity to pursue lifelong learning.

2. Animal Sciences

***Knowledge Area*:** Animal Science

***Attributes/Outcomes*:** Explain position of agriculture as a human activity, particularly characteristics and importance of animal production in structure of agriculture; describe technological and economic requirements in livestock production, production of forage crops and grassland management; identify technological, health and economic requirements in breeding of domestic animals, fisheries, apiculture and production of animal origin products; recognize contemporary requirements in farm management and animal production integration; organize work and independently manage technological processes in animal production and conduct field and laboratory work; communicate with experts, professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

3. Atmospheric Sciences

Specializations

i. Meteorology

***Knowledge Area*:** Meteorology

***Attributes/Outcomes*:** Describe the history and development of meteorology, knowledge of the dynamics, physics and thermodynamics in meteorology; apply statistical time-space methods in analyses of geophysical data; exhibit knowledge of mathematics, physics, computer science, geosciences, climate and oceanography and of a specialized topic in meteorology; demonstrate the ability to use mathematical and numerical models and discuss the results in terms of theory and available observations; show the ability to use the most common instruments in meteorology to carry out related data analyses and aware of the possibilities and limitations;

explain and discuss meteorological phenomena with both experts and laymen; present both written and oral reports; demonstrate the ability to work individually and in a team to solve a complex problem; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. **Climate Science**

***Knowledge Area*:** Climate Science

***Attributes/Outcomes*:** Understand fundamentals of the changing climate, climate history, present-day variations and climate prediction; apply empirical approaches to climate reconstruction, data preparation and analysis, detection of anthropogenic changes and theoretical or model-based approaches to climate prediction; evaluate the social and economic externalities of climate change; describe the ethical, scientific, and policy strengths and weaknesses of current and proposed mitigation and adaptation strategies; identify, analyze, synthesize, and communicate scientific information and uncertainties for public and professional audiences; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

4. Aquaculture

***Knowledge Area*:** Aquaculture and Fisheries; Aquaculture and Fish Processing; Aquatic Biology and Fisheries; Fisheries and Aquaculture

***Attributes/Outcomes*:** Understand taxonomy and diversity of fresh water and marine ecosystems, fish biology and diversity; demonstrate knowledge of basic statistics, biochemistry of aquatic organisms, principles of genetics; demonstrate knowledge of inland fisheries, mariculture, aquaculture; show skills for field work, data collection, aquarium management and ornamental fish culture; understand knowledge of fishing methods, various methods of fish preservation, several regulations and policies for the judicious usage of fisheries; show ability to conduct research work independently or in a team; communicate effectively; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

5. Biochemistry

***Knowledge Area*:** Biochemistry

***Attributes/Outcomes*:** Demonstrate in-depth knowledge of biological problems from a chemical approach; understand chemical and molecular processes that occur in and between cells; describe and explain processes and their meaning for the characteristics of living organisms; show insight into the molecular and cell-based methods used; conduct independent work in a laboratory; exhibit good oral and written communication skills in the presentation of scientific topics and research results; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

6. Bioinformatics

Specializations

i. **Bioinformatics**

***Knowledge Area*:** Bioinformatics

***Attributes/Outcomes*:** Demonstrate interdisciplinary practical skills and knowledge of computational and statistical biosciences for challenging careers in academic research, biotechnology, the pharmaceutical and health care industries; demonstrate the ability to use computational, statistical and analytical approaches to post genomic biology and genetics; demonstrate competency in both the design and analysis of studies and the effective extraction of information in genetics, genomics and other biosciences; survey a selected field within bioinformatics; synthesize information from primary literature; and coherently report findings in a written document; analyze biological data using a variety of Bioinformatics tools; interpret correctly the outputs from tools used to analyze biological data and make meaningful predictions from these outputs; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. **Computational Biology**

***Attributes/Outcomes*:** Understand the fundamental concepts of molecular biology, the basic and commonly used algorithms in bioinformatics; know algorithms to compute sequence alignments and how these are applied in current research; understand the statistical and algorithmic approach for detecting cell types from single-cell expression data of thousands of cells; understand how tissue slides are imaged with high throughput, identify basic problems in the processing and analysis of tissue images and some standard solutions to those; apply image analysis and machine learning to real-world computational pathology problems; communicate with professionals and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

7. Biophysics

***Knowledge Area*:** Mathematics; Theoretical Physics; Biophysics; Molecular Physics.

***Attributes/Outcomes*:** Understand biophysics of the human body; explain the biophysics of signaling and movement at the cellular level; apply mathematical modelling in biophysics; appreciate how biophysical measurements can be acquired and used in clinical environments**;** communicate with professionals and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

8. Biostatistics

***Knowledge Area*:** Statistics, Biostatistics, Bioinformatics.

***Attributes/Outcomes*:** Demonstrate deep knowledge of their specialist discipline as well as across disciplines; demonstrate advanced understanding of the principles, theories and

techniques relevant to bio statistical methods and their applications; show problem-solving abilities in biostatistics; demonstrate the practical and technical skills needed to begin careers as biostatisticians; show skills in complex statistical analyses; apply relevant statistical techniques and software to manage a variety of problems; exhibit a strong sense of intellectual integrity and the ethics of scholarship; demonstrate a high level of achievement in writing, generic research activities, problem-solving and communication; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

9. Biotechnology

***Knowledge Area*:** Biotechnology, Microbiology, Molecular Biophysics and Biochemistry, Biosynthetic Engineering.

***Attributes/Outcomes*:** Understand advanced methods of molecular biophysics, biochemistry, and microbiology used in the contemporary biotechnology sector; demonstrate how these techniques are applied in biotechnology; undertake research in biomolecular engineering; critically appraise new data arising from the use of these techniques and to interpret the implications of such data; demonstrate in-depth knowledge of relevant specialist discipline(s); examine critically, synthesize and evaluate knowledge across a broad range of discipline; understand the commercial, financial and regulatory context in which the biotechnology sector operates; demonstrate a strong sense of cross-disciplinary literacy and intellectual integrity; show good communication skills-oral and written skills; interact with professionals and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

10. Botany

***Knowledge Area*:** Botany

***Attributes/Outcomes*:** Demonstrate understanding of core concepts in biology; use interdisciplinary approaches (applying chemistry and quantitative skills) to work on biological problems; describe the complex networks of interactions that determine energy flow and the cycling of water, carbon, nitrogen, and minerals within ecosystems; identify and analyze the anatomical and morphological features of plants and plant structures as they enable plant function and reveal plant evolutionary histories; recognize and describe the features of vascular plant groups using standard botanical terminology; interpret the evolutionary and phylogenetic relationships of plants; describe and implement laboratory methods typically used in plant studies; communicate with professionals and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

11. Chemical Sciences

***Knowledge Area*:** i) Analytical Chemistry ii) Applied Chemistry iii) Medicinal Chemistry iv) Pharmaceutical Chemistry

i. Analytical Chemistry

***Attributes/Outcomes*:** Demonstrate knowledge of the principles of Inorganic, Organic and Physical Chemistry; understand the principles defining analytical chemistry from the point of view of the "problem solving" approach; demonstrate ability to carry out qualitative tests and define the optimal conditions for a reaction to occur, volumetric and gravimetric quantitative determinations; apply standard analysis procedures; capable of statistical treatment of the data and significance tests for the final evaluation of analytical data; evaluate the advantages and disadvantages of the different types of analytical instruments and methods of analysis; communicate with scientists and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Applied Chemistry

***Attributes/Outcomes*:** Demonstrate knowledge of the principles of Inorganic, Organic and Physical Chemistry; apply instrumental techniques used in qualitative and quantitative chemistry; demonstrate knowledge in applications of chemistry to relevant industrial processes, medicinal and clinical chemistry; interpret data obtained by instrumental analysis; undertake laboratory investigations in a responsible, safe and ethical manner; apply numerical and statistical techniques to solve scientific problems; show adaptability to work flexibly and respond to changes both individually and in teams; communicate with scientists, engineers and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Medicinal Chemistry

***Attributes/Outcomes*:** Demonstrate knowledge of the principles of Inorganic, Organic and Physical Chemistry; understand the fundamentals of cell biology, molecular biology, drug design, and analytical methods; demonstrate the basic biological and pharmacological interactions by using both natural products and total synthesis of bioactive molecules; demonstrate use of corresponding knowledge for the development of biologically and clinically active drugs; understand and apply knowledge about recent developments in medicinal chemistry; apply research principles and methods pertinent to medicinal chemistry; investigate, analyze and synthesize information, problems, concepts and theories; design and evaluate hypotheses and methodologies by the performance of experiments; communicate with scientists, doctors and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Pharmaceutical Chemistry

***Attributes/Outcomes*:** Demonstrate knowledge of the principles of Inorganic, Organic and Physical Chemistry; explain structure and bonding in atoms, molecules, gasses, liquids and solids; to do stoichiometry and calculations of pH in acid-base equilibria; evaluate the solubility of simple organic compounds, and know the most common administration routes and dosage

forms for drugs; demonstrate knowledge of the core functional groups in organic chemistry and their acid-base properties, and how their acid-base properties may be influenced by the molecular structure; exhibit knowledge of the concepts of enthalpy, entropy and free energy; and understand the connection between thermodynamics, electrochemistry and chemical equilibrium; communicate with scientists, industrialists and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

12. Computer Science

***Knowledge Area*:** Computer Science: Computation and programme science and software technology; algorithmic design; mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems

***Attributes/Outcomes*:** Demonstrate knowledge in the basic science of computing and software; exhibit skills in algorithmic design; demonstrate mathematical and computational skills; apply mathematics, algorithmic principles, and computer science theory in the modeling and design of computer-based systems; analyze a problem, and identify and define the computing requirements appropriate to its solution; design, implement, and evaluate a computer-based systems of varying complexity; communicate with computer scientists, technologists and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

13. Co-operation and Banking

***Knowledge Area*:** Co-operative Management; Rural Banking and Finance Management; Rural Marketing Management

***Attributes/Outcomes*:** Demonstrate knowledge in professional management of formal and informal co-operatives, financial institutions, agribusiness enterprises and other rural development organizations; understand functional, organizational, institutional, managerial and operational issues of Co-operatives and resolve them; exhibit skill in managing income generating activities through self-employment; show interest in rural community empowerment initiatives; communicate with the Government, Local Bodies, Bankers, financiers and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

14. Dairy Science

***Knowledge Area*:** Quality Control in Dairy Industry. Knowledge of animal sciences with special focus on animal genetics, nutrition, reproduction, and other relevant disciplines

***Attributes/Outcomes*:** Demonstrate practical ability in animal production and management systems by integrating knowledge of animal genetics, nutrition, reproduction, and other relevant disciplines and applying scientific and quantitative reasoning to solve real-world challenges; demonstrate ability to communicate animal sciences; aptitude to expand knowledge of animal sciences; show competency to undertake research in the field; communicate with dairy scientists and common people; demonstrate critical thinking; show commitment to

professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

15. Demography

***Knowledge Area*:** Demography

***Attributes/Outcomes*:** Comprehend population issues in a research-led environment, with a focus on applying learning to real-world scenario; demonstrate skills to undertake demographic analysis and apply these to societal issues; locate demographic data and evaluate their quality and utility; formulate demographic research questions; implement appropriate methods for demographic analysis and interpret the results; ; use demographic research to inform policy; develop skills in demographic techniques, research and writing; communicate with demographers and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

16. Earth Sciences

***Knowledge Area*:** i) Earth Sciences ii) Geology, Applied Geology iii) Remote Sensing and GIS

i. Earth Sciences

***Attributes/Outcomes*:** Understand advanced concepts in Earth Sciences and relate them to a range of disciplinary and interdisciplinary contexts; apply concepts, content knowledge, skills and tools in the field of earth science; produce, critically evaluate, and appropriately represent data; interpret evidence and report results; demonstrate ability to present the results of their work in written, oral, and graphical formats; communicate with earth scientists and common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Geology; Applied Geology

***Attributes/Outcomes*:** Apply theoretical, conceptual, and observational knowledge to the analysis and solution of geological data and problems; demonstrate the ability to compile and critique geological literature pertinent to original research; demonstrate competence in collection, synthesis, and interpretation of original geological data; undertake research in applied geology; communicate clearly the theoretical and practical knowledge of geology, findings, and interpretations; communicate with scientists in geology and the common people; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Remote Sensing and GIS

***Attributes/Outcomes*:** Demonstrate a critical understanding of appropriate tools; exposure to new methods and techniques; gain competence in developing tools for the acquisition, processing, transformation, analysis, modelling, storage and presentation of spatial data; show ability to use geo-information in identifying and responding to development problems and in drafting development policies; demonstrate skills to design and undertake research and

development projects in various fields of geoinformatics; formulate and carry out research independently or as part of a team; communicate effectively the scientific findings with professionals and scientists in geoinformatics; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

17. Electronics

***Knowledge Area*:** Physics, Electronics, Mathematics, and Electronics Instrumentation.

***Attributes/Outcomes*:** Demonstrate skills in integrating undergraduate fundamentals with advanced knowledge to solve complex electronics engineering problems; comprehend, analyze, design and create novel products and solutions for real life problems; demonstrate professional and ethical responsibility, effective communication skills with electronics engineers and technology professionals, scientists and common people; demonstrate teamwork skills in multicultural, multidisciplinary environments; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

18. Environmental Sciences

***Knowledge Area*:** i) Disaster Management ii) Environment Science and Disaster Management iii) Environment Science and Management iv) Environmental Sciences v) Environmental Technology (Environmental Engineering) vi) Environmental Technology (Environmental Biotechnology)

i. Disaster Management

***Attributes/Outcomes*:** Understand the natural environment and its relationships with human activities, ability to characterize and analyze human impacts on the environment; integrate facts, concepts, and methods from multiple disciplines and apply to environmental problem; analyze, evaluate and manage the different public health aspects of disaster events at the local and global level; obtain, analyze, and communicate information on risks, relief needs and lessons learnt from earlier disasters; use such lessons in formulating strategies for disaster mitigation in future; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Environment Science and Disaster Management

***Attributes/Outcomes*:** Understand the science behind the incidence and intensity of natural and anthropogenic hazards and adverse environmental impacts such as earthquake, land slide, flood, drought, tsunami and cyclone, mine fire and roof collapse, groundwater pollution and hazards, forest fire, land degradation and coastal hazards; apply remote sensing and geospatial techniques for assessment, monitoring and modelling of natural and anthropogenic disasters with prime focus on prevention and mitigation measures leading to disaster risk reduction; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Environment Science and Management

***Attributes/Outcomes*:** Describe and synthesize knowledge about recent developments on aspects of environmental science; demonstrate an understanding of inter and multidisciplinary concepts and perspectives that are required in environmental science and/or environmental management; exercise critical thinking, judgement and reflective practices in the generation and evaluation of human-environment interactions; justify, interpret and communicate propositions, ideas, theories, methodologies, conclusions and professional decisions; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Environmental Sciences

***Attributes/Outcomes*:** Synthesize knowledge about latest developments in environmental science; demonstrate command over inter and multidisciplinary concepts and perspectives that are integral to environmental science; demonstrate critical thinking, judgement and reflective practices in the generation and evaluation of human-environment interactions; justify, interpret and communicate propositions, ideas, theories, methodologies, conclusions and professional decisions; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

v. Environmental Technology (Environmental Engineering)

***Attributes/Outcomes*:** Demonstrate advanced knowledge in water chemistry and microbial Ecology of aquatic systems; understand knowledge of sources, conversion and transportation of vital chemical components for overall water quality in freshwater and marine recipients; demonstrate ability to characterize water quality and perform aquatic process analysis based on continuity principles and biogeochemical conversion processes; show awareness of technologies for treatment of potable water, and municipal and industrial wastewater; apply and evaluate disciplinary knowledge to diagnose aquatic ecological problems and suggest adequate solutions based on holistic ecological reasoning, including analysis and evaluation of field data; apply basic field equipment for limnological and hydrological measurements, acquainted with methods for water quality characterization and toxic analyses; communicate effectively; demonstrate ability to work in a team in multidisciplinary and multicultural environment; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

vi. Environmental Technology (Environmental Biotechnology)

***Attributes/Outcomes*:** Recognize the various global and regional environmental concerns due to natural causes and/or human activities, and the impact of these on various forms of life including native biodiversity; investigate some examples of different types of environmental pollution and their impacts; describe the applications of various fields including chemistry, biochemistry, molecular biology and/or microbiology, in understanding and addressing the above issues, as well as exploring environmental resources for new technologies.; demonstrate an awareness of emerging concerns such as climate change, waste management or reductions in fossil fuels, and new technologies for addressing these; appreciate the scientific, ethical and/or

social issues associated with certain applications of biotechnology for alleviating the environmental concerns; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

19. Industrial Fisheries

***Knowledge Area*:** Fisheries science fields and aquatic science disciplines

***Attributes/Outcomes*:** Understand fisheries science with a special emphasis on the biology; demonstrate academic excellence in the fisheries discipline; assess and manage fish and invertebrate fisheries; demonstrate excellent oral and written communication skills; show competence to handle the scientific tools of data collection in fisheries science; demonstrate competency in compiling and reporting the data; demonstrate preparedness to undertake a career in fisheries and/or the seafood industry; demonstrate critical thinking; show commitment to professional ethics in the field of fisheries science and perform social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

20. Fashion Technology

***Knowledge Area*:** Apparel Designing and Technology; Fashion and Textile Designing; Textile and Fashion Technology

***Attributes/Outcomes*:** Understand knowledge of basic chemistry and application of fibres, dyes, finishes and other auxiliaries used in the textile and apparel industry; demonstrate a systematic approach to basic and applied aspects of textiles and fashion technology; understand the various theoretical and practical aspects of textile and apparel quality assurance; demonstrate ability to conduct independent research fashion design technology; design and produce garments based on needs of the industry and the market; show innovativeness in design production; demonstrate skill to do team work in multicultural environment; communicate with professionals and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of fashion technology; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

21. Floriculture and Landscaping

***Knowledge Area*:** Horticulture, Floral Design, Interior Landscape Management, Landscape technology, Nursery Management, Sustainable Landscape, Irrigation, Horticulture

***Attributes/Outcomes*:** Practise landscape technology, nursery management, sustainable landscape and irrigation; demonstrate technical knowledge and skills for nursery management, sustainable landscape and irrigation; demonstrate skill to do team work in multicultural environment; communicate with professionals and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of fashion technology; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

22. Food Sciences

***Knowledge Area*:** i) Food and Industrial Microbiology ii) Food and Nutrition iii) Food Science and Technology iv) Food Technology and Quality Assurance

i. Food and Industrial Microbiology

***Attributes/Outcomes*:** Demonstrate knowledge of microbiology; understand how microorganisms are used in industry to manufacture food or products in large quantities; apply science and technology of microbiology; undertake independent research in the field; demonstrate skill to do team work in multicultural environment; communicate with professionals, industrialists and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of fashion technology; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Food and Nutrition

***Attributes/Outcomes*:** Understand requirements, bioavailability, and metabolism of macronutrients and micronutrients and their relationships in health and disease; assess the pathophysiology and role of nutrition and food constituents in the prevention and treatment of major disease states; apply theories of nutrition education and behavior change to design, implement, and evaluate a community nutrition program; understand state and national nutrition policy by promoting evidence-based practice of nutrition in health and disease prevention/treatment; demonstrate effective oral and written communications pertinent to food, nutrition, and clinical dietetics; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with professionals, industrialists and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of food and nutrition; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Food Science and Technology

***Attributes/Outcomes*:** Demonstrate a thorough knowledge of food science and technology as it relates to nutrition; develop skills for the understanding of recent innovations in food science; demonstrate a comprehensive understanding of the specialized disciplines of food science, emerging technologies and the relevance of these to the future food industry; demonstrate a critical understanding of environmental, economic, social and ethical factors related to food production; describe the principles of food preservation and the major types of processes used; develop skills to communicate the information to a specialist and non-specialist audience; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with scientists, technologists, professionals and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of food science and technology; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Food Technology and Quality assurance

***Attributes/Outcomes*:** Demonstrate knowledge and competence in the principles of quality assurance and quality management systems as they are applied in the food manufacture and distribution; demonstrate the ability to produce safe food, meeting quality and legal requirements; understand the chemical, biological and physical principles of food processing and storage; apply the principles of chemical analysis, microbiology and statistical control

techniques to assure the quality and safety of food; demonstrate capacity to undertake research into the science of foods; critical, presentational and inter-personal skills; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with scientists, technologists, professionals and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of food science and technology; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

23. Forestry

Demonstrate knowledge in strategies of forest management, sustainable utilization of forest resources, carrying capacity awareness, skills in the preparation of action plans for forest management; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, environmentalists, forest dwellers and ordinary people; show commitment to environmental ethics and perform social responsibilities in the field of environmental science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

***Knowledge Area*:** i) Forest Management and Utilization; ii) Silviculture and Agroforestry iii) Tree Physiology and Breeding; iv) Wild Life Sciences; v) Wood Sciences

i. Forest Management and Utilization

***Attributes/Outcomes*:** Demonstrate knowledge on the extent and structure of forest resources at regional, national and the global scale; appreciate the relevance of forests for the production of wood and the provision of other ecosystem services; understand trends in the forest resources and their drivers in the present, past and future; appreciate the effect of management options on the provision of ecosystem services; gain an appreciation of the role of wood market globalization and international trade flows for sustainable forest management; apply knowledge and analytical abilities to a range of problems, concepts and theories concerning forestry and forest sciences; effectively communicate knowledge and understanding of forest science, methods, policy and management to a diversity of stakeholders; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, environmentalists, forest dwellers and ordinary people; show commitment to environmental ethics and perform social responsibilities in the field of environmental science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Silviculture and Agroforestry

***Attributes/Outcomes*:** Identify the pertinent zones for an area of forest land; evaluate climatic attributes pertinent to species selection and their regeneration for a specific site; identify and describe attributes of stand structure; predict successional pathways and stand dynamics; identify pertinent soil characteristics and sensitivities and recommend appropriate soil management practices for an area of forest land; identify the characteristics of commonly applied silvicultural systems and recommend appropriate silvicultural systems to achieve given management objectives for a specific site and stand; identify silvical characteristics of commercial tree species pertinent to the selection of silvicultural system and regeneration method; recommend appropriate crop tree species for a specific silvicultural system on an area

of forest land; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, environmentalists, forest dwellers and ordinary people; show commitment to environmental ethics and perform social responsibilities in the field of environmental science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Tree Physiology and Breeding

***Attributes/Outcomes*:** Demonstrate knowledge of tree physiology and development; manipulate plant growing conditions to enhance growth performance; analyze plant structures and make recommendations for growth improvement; know different methods of forest tree breeding; know main patterns and criteria for selection of plus trees; demonstrate knowledge of the principles of establishment and function of vegetative seed orchards; recognize the ecological, morphological and physiological variations of different tree species; know the principles of genetic conservations and genetic diversity of forest trees; able to apply forest breeding principles into forest practice; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, environmentalists, forest dwellers and ordinary people; show commitment to environmental ethics and perform social responsibilities in the field of environmental science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Wildlife Sciences

***Attributes/Outcomes*:** Recognize new theories, methods and technologies about wildlife studies and peculiarities of their application; improve the knowledge about animal ecology, ethology, theriology, ornithology, ichthyology, cynology, biotechnology and technology; apply it describing content of wildlife recourses and dynamics; select appropriate wildlife study; identify the methodology; formulate hypothesis; evaluate the result; demonstrate methods for study or problem solving; apply current methods for wildlife population studies requiring analytical abilities, innovation and knowledge-integration in a context of permanent environment dynamics; know and apply modern theories, specific methodology solving diverse wildlife recourses management problems; critically apply selected scientific theories (forestry or biodiversity) in a context of permanent environment dynamics; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, wildlife biologists, environmentalists, forest dwellers and ordinary people; show commitment to wildlife ethics and perform social responsibilities in the field of wildlife science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

v. Wood Science

***Attributes/Outcomes*:** Understand complex ecological phenomena and describe how they relate to one another; assess the reactions of ecosystems to biotic and abiotic environmental factors and deduce the consequences for ecosystem conservation as well as forest management; evaluate various forms of land use and make judgments about opportunities for, and limits to, sustainable uses; assess biogeographic, technical and commercial production conditions, and to analyze concepts for the production of forestry resources in accordance with current standards, as well as to develop such concepts independently; conduct forestry business analysis and

planning that takes into account economic, social and ecological factors; demonstrate familiarity with the demands of the wood industry and the market structures of the wood industry and distinguish between its production processes; conduct conflict analysis and formulate possible courses of action that are solution-oriented and take into consideration legal and political conditions; communicate their findings in an appropriate manner; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with foresters, wood science experts, environmentalists, forest dwellers and ordinary people; show commitment to environmental ethics and perform social responsibilities in the field of wood science and forestry; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

24. Fruit Science

***Knowledge Area*:** Fruit Science belongs to horticulture and hence all knowledge fields of the latter are applicable to the former. It includes biodiversity, biotechnology, fruit- biochemistry, organic production and GAP in fruit culture.

***Attributes/Outcomes*:** Demonstrate knowledge of the science fruits, their biochemical processes and their transformation processes; understand fruit processing technology; perform biochemical, physical, microbiological analyses of the raw material; demonstrate knowledge and skill applicable in the case of horticulture; undertake fruit science research; demonstrate skill to do team work in multidisciplinary and multicultural environment; communicate with fruit science experts, fruit processing industries, and ordinary people; show commitment to professional ethics and perform social responsibilities in the field of fruit science; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

25. Geography

***Knowledge Area*:** Geography

***Attributes/Outcomes*:** Demonstrate knowledge of physical geography and specialized areas of physical geography; understand geographical theories, techniques and concepts; demonstrate skills in cartography; understand human geography; assess and map human induced environmental changes; understand environmental dimensions of geography; recognize environmental systems, cycles, patterns and processes; understand human – environment interactions at the local and global scales; analyze and explain the geography of the modern world; show skills to apply appropriate field, statistical and survey methods for analyzing geographical issues; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

26. Home Science

***Knowledge Area*:** i**)** Child Development ii) Extension Education iii.) Family Resource Management iv.) Food and Nutrition; Food Service Management and Dietetics; Food Science and Nutrition; Nutrition and Dietetics

i. Child Development

***Attributes/Outcomes*:** Describe the typical divergent development route through childhood that may occur in response to a range of bio- psychological issues; understand the rights and developmental needs of special children; demonstrate effective skills in early childhood

education and provide intervention for issues in early childhood education; analyze and evaluate major theoretical frameworks that explains child development through childhood in the social context of family, community, culture and larger environment; enhance the understanding and develop skills to establish Entrepreneurial setups and Human Resource Development centers; show skills to apply statistical and survey methods for analyzing child development issues; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

ii. Extension Education

***Attributes/Outcomes*:** Understand the meaning process and evolution of extension and extension systems of pre-independence era to present era; comprehend the relationship between home science education and the extension system; demonstrate familiarity with the structural and functional concepts of rural society; demonstrate knowledge regarding various existing extension and rural development programmes; show commitment to professional ethics and social responsibility in extension education; understand multidisciplinary importance of the field; and recognize the need for lifelong learning.

iii. Family Resource Management

***Attributes/Outcomes*:** Identify a variety of resources available to most family systems; describe the bi-directional relationship between resources and family functioning; explain how social institutions affect family resources and resource management; analyze proper family resource management services; apply family resource management techniques; articulate in writing critical analyses of published scholarly literature related to the course focus; show commitment to professional ethics and social responsibility; understand multidisciplinary importance of the field; and recognize the need for lifelong learning.

iv. Food and Nutrition; Food Service Management and Dietetics; Food Science and Nutrition; Nutrition and Dietetics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in food and nutrition; plan balanced diet using food groups; understand problems of different age groups and its management; understand causes and effects of environmental pollution and its impact on human health; demonstrate knowledge on institutional food management to develop entrepreneurship in food service; understand need of guidance and counselling in educational settings; knowledge on programme planning in public health; evaluate nutrition surveillance programmes and strategies to undertake to tackle nutritional problems during emergencies; demonstrate knowledge in public health nutrition ,aspects of Mal-and lifestyle disorders; demonstrate knowledge on food preservation and food processing technologies of different food products to start different food processing units; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

27. Human Physiology

***Knowledge Area*:** Human Physiology

***Attributes/Outcomes*:** Locate, identify, and functionally describe the structures of the human body at all levels of organization; understand the functional relationships of anatomical structures to one another (at all levels of organization) in health and communicate the acquired knowledge in written form; perform laboratory investigations in which numerical, physical and chemical physiological data pertaining to tissue function are collected, classified, and analyzed in order to reach an informed, conclusive interpretation about relevant clinical scenario; connect what she/he is learning to her/his own field; apply the science to evaluate various case-studies; analyze controversial topics; and solve problems relevant to physiology; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

28. Information Technology

***Knowledge Area*:** Theory and practices of information technology, computational mathematics, computer systems and networks, computerized data management, IT solutions and standards of application.

***Attributes/Outcomes*:** Demonstrate a comprehensive understanding of the broad themes in Information Technology; demonstrate a deep understanding of the methodologies and frameworks used to solve complex computing problems related to at least one body-of-knowledge; develop and implement optimal solutions to complex computing problems using industry-recognized best practices and standards; identify and define the computing requirements appropriate to its solution; use and apply current technical concepts and practices in the core information technologies of networking, data management, software engineering, computer security; analyze and resolve problems of basic information technology through the application of systemic approaches; design, implement, and evaluate need-based computer systems, processes, and programmes; identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems; effectively integrate IT-based solutions into the user environment; apply ethical decision making in the development, implementation, and management of IT systems; and recognize the need for engaging in life-long learning.

29. Instrumentation

***Knowledge Area*:** Instrumentation

***Attributes/Outcomes*:** Understand theories, concepts and application of mathematics, chemistry, physics, and electricity/electronics to measurement and control systems; understand electrical safety; solve circuit problems using Ohm's Law; define principles of voltage, current, resistance, conductivity and power examination of Series, Parallel Series, Parallel Circuits; analyze principles of Cconductors, Semiconductors and Insulators; read and interpret symbols, diagrams and schematics used in Electricity and Electronics; use electrical test equipment such as Voltmeters, Ammeters, Ohmmeters etc.; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

30. Integrative Biology

***Knowledge Area*:** Physics, Chemistry, Life sciences, Micro-biology, Genetics, Ecology, Physiology, Comparative Anatomy, Biochemistry.

***Attributes/Outcomes*:** Demonstrate knowledge in Physics, Chemistry, Life sciences, Micro-biology, Genetics, Ecology, Physiology, Comparative Anatomy and Biochemistry; identify and define research topics in the above core areas and apply the core sciences to research topic; demonstrate skills to extract relevant knowledge from available resources; assess quality and validity of experimental results; show commitment to professional ethics and social responsibility; understand cross-disciplinary importance of the field; and recognize the need for lifelong learning.

31. Mathematics

Knowledge Area: Mathematics

Attributes/Outcomes: Demonstrate solid foundation in mathematics and deep knowledge in one of the many specializations in the subject; gain solid experience in using mathematical language; engage in complex mathematical problems; clarify issues and find suitable solution methods; formulate a theoretical or practical problem in a mathematical language; demonstrate ability to work towards a solution of the problem within a formally correct framework; formulate precisely and scientifically in written and oral forms; show commitment to professional ethics and social responsibility; understand the centrality of the discipline as the common language and tool of science; demonstrate the cross-disciplinary importance of the discipline; and recognize the need for lifelong learning.

32. Microbiology

***Knowledge Area*:** i) Microbiology ii) Applied Microbiology

i. Microbiology

***Attributes/Outcomes*:** Demonstrate knowledge of the vast array of microbes (bacteria, archaea, viruses, fungi and protozoa; understand the disciplines of bacteriology and virology; understand the basic microbial structure and function, the structural similarities and differences among various physiological groups of bacteria/archaea; demonstrate proficiency with a variety of classical and modern microbiology techniques; demonstrate knowledge of physiology, genetics and molecular biology of bacteria and viruses and an understanding of how these microbes interact with their environment and cause disease; demonstrate competency in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods; and exhibit awareness of laboratory safety rules; undertake research and interpret results clearly both in oral and written forms; show awareness and perspective as a member of a local, national and global scientific community; show commitment to professional ethics and social responsibility; realize the multidisciplinary and interdisciplinary dimensions of the field; and recognize the need for lifelong learning.

ii. Applied Microbiology

***Attributes/Outcomes*:** Demonstrate knowledge of the vast array of microbes (bacteria, archaea, viruses, fungi and protozoa; understand the disciplines of bacteriology and virology; understand the basic microbial structure and function, the structural similarities and differences among various physiological groups of bacteria/archaea; demonstrate proficiency with a variety of classical and modern microbiology techniques; demonstrate knowledge of physiology, genetics and molecular biology of bacteria and viruses and an understanding of how these microbes interact with their environment and cause disease; demonstrate competency in routine and specialized microbiological laboratory skills applicable to microbiological research or clinical methods; understand relevant fundamental and applied scientific knowledge; apply that knowledge in a wide range of situations within the professional discipline; critically analyze the results of laboratory investigations; work constructively in a team; show commitment to professional ethics and social responsibility; understand the multidisciplinary and cross-disciplinary dimensions of the field; and recognize the need for lifelong learning.

33. Molecular Biology

***Knowledge Area*:** Molecular Biology and Genetic Engineering

***Attributes/Outcomes*:** Demonstrate specialized knowledge in molecular biology; describe the function of the most common enzymes used in molecular biology; explain the different DNA sequencing methods and their applications; explain which biological hosts are the best choice for producing a certain protein and why; apply gene regulation mechanisms; describe methods for performing DNA mutagenesis and how to screen or select for successful mutants; explain the principles behind modern gene therapy; describe how to perform large-scale transcriptomics and proteomics assays; translate concepts in genetic engineering to their own research; communicate knowledge effectively with experts and the ordinary people; show commitment to professional ethics and social responsibility; understand the multidisciplinary and cross-disciplinary dimensions of the field; and recognize the need for lifelong learning.

34. Nematology

***Knowledge Area*:** Science of nematodes, especially plant parasitic nematodes like root-knot nematode (*Meloidogyne sp.*), cyst forming nematodes (*Heterodera sp.,Globodera sp.*), reniform nematode (*Rotylenchulus reniformis*), lesion nematode (*Pratylenchus sp.*), burrowing nematode (*Radopholus similis*), and leaf and bud nematode (*Aphelenchoides besseyi*); and other co-inhabiting pathogenic bacteria, fungi, pathogens etc.

***Attributes/Outcomes*:** Understand the basic biology, ecology and physiology of Nematodes; understand the different nematode feeding/trophic groups, such as ectoparasites, endoparasites and semiendoparasites and how these pests inflict damage; understand the factors that determine the duration of the nematode life-cycle; know which nematode pests are important for each crop and the damage they cause; apply integrated control measures required to control and manage nematodes in crops; gain basic knowledge of the importance of obtaining adequate and representative plant and soil samples for diagnostic and research purposes; demonstrate knowledge of the basics of nematodes as bio indicators of soil health; show commitment to professional ethics and social responsibility; understand the

multidisciplinary and cross-disciplinary dimensions of the field; and recognize the need for lifelong learning.

35. Nutrition

***Knowledge Area*:** Clinical Nutrition and Dietetics

***Attributes/Outcomes*:** Demonstrate coherent and advanced knowledge of the principles and concepts associated with nutrition and dietetics; interpret and apply evidence-based guidelines pertaining to the nutrition care of individuals, community groups and/or populations; plan, implement and evaluate nutrition programs with groups, communities or populations; interpret and apply evidence-based guidelines pertaining to the nutrition care of individuals, community groups and/or populations; apply principles of leadership and management to clinical nutrition services, food service operations and other nutrition related organizations; show commitment to professional ethics and social responsibility; understand the multidisciplinary and cross-disciplinary dimensions of the field; and recognize the need for lifelong learning.

36. Oceanography

***Knowledge Area*:** i) Marine Biology, Biological Oceanography; Marine Microbiology ii) ii)Marine Chemistry; Chemical Oceanography; Ocean Chemistry iii) Marine Geology; Geological Oceanography iv) Marine Geophysics; Physical Oceanography v) Oceanography

i. Marine Biology; Biological Oceanography

***Attributes/Outcomes*:** Understand broadly the key processes and typical patterns in the marine ecosystem, flora and fauna characteristics to marine habitats, marine organisms and their biology and ecology; demonstrate fundamental knowledge of associated disciplines; understand the scientific methods and be able to design and conduct experiments or field studies and the most common research methods within field-based, experimental and theoretical oriented research of marine ecosystems; accurately describe (orally and in writing) marine biological research; communicate and collaborate with colleagues from other disciplines; understand the ecosystem importance of the marine biology; show commitment to professional ethics and social responsibility; understand the multidisciplinary and cross-disciplinary dimensions of the field; and recognize the need for lifelong learning.

ii. Marine Chemistry; Chemical Oceanography; Ocean Chemistry

***Attributes/Outcomes*:** Understand advanced Chemical science; demonstrate specialized knowledge of marine chemical processes; describe the distribution of the major sediment types in the ocean basins and the chemical controls that result in the observed distributions; aware of the behaviour and importance of trace metals dissolved in seawater; aware of some of the different chemical tracers used in oceanography; demonstrate data handling and interpretation skills; aware of chemical oceanographic sampling techniques and chemical laboratory techniques and safety; understand the multidisciplinary and cross-disciplinary dimensions of the field; show ability to work in a multidisciplinary and cross-cultural team; show commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

iii. Marine Geology; Geological Oceanography

***Attributes/Outcomes*:** Understand advanced marine geology or geological oceanography; explain and use scientific concepts and terminology used in marine geology and geophysics; use relevant marine-geological and marine-geophysical tools for scientific analyses; explain basic sedimentary and structural processes related to the development of ocean basins and continental margins; perform laboratory and fieldwork according to approved procedures; show ability to work in a multidisciplinary and cross-cultural team to solve geo-scientific and inter-disciplinary problems; show commitment to professional ethics and social responsibility; and recognize the need for lifelong learning.

iv. Marine Geophysics; Physical Oceanography

***Attributes/Outcomes*:** Demonstrate advanced knowledge in physical oceanography and allied subjects such as climatology and meteorology; explain how oceanography connects to relevant areas of mathematics, physics, computer science, geosciences, chemistry and meteorology; plan and conduct physical oceanographic research; use advanced instruments for oceanographic field surveys with an adequate understand of their limitations; carry out physical oceanographic data analysis; show ability to work in a multidisciplinary and cross-cultural research teams; interpret and discuss results with scientists as well as the people; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice, and social responsibilities; demonstrate the urge for lifelong learning.

v. Oceanography

***Attributes/Outcomes*:** Understand knowledge in the fundamentals of biological, chemical, geological and physical oceanography; communicate fundamental concepts of oceanography, as well as details of their own research, in both written and oral form, to expert and non-expert audiences; demonstrate laboratory skills and computational abilities; ability to undertake studies in different branches of oceanography; show ability to work in multidisciplinary and cross-cultural research teams; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice, and social responsibilities; demonstrate the urge for lifelong learning.

37. Operations Research and Computer Applications

***Knowledge Area*:** Mathematical and computational modeling and analytics for resolving problems, Computer application theory and practice of analytics and Software solutions.

***Attributes/Outcomes*:** Demonstrate knowledge in state-of-the-art methods of solving problems; recognize mathematical models and computer software solutions for problems; demonstrate skill to use quantitative methods and techniques for effective decisions–making; show competency in model formulation and application of mathematical models in solving industrial management problems and decision making; demonstrate ability to work in multidisciplinary and cross-cultural research teams; interpret and discuss results with scientists as well as the people; demonstrate critical thinking, transparency, precision and accountability; show

commitment to scientific values, professional ethics, and social responsibilities; demonstrate the urge for lifelong learning.

38. Physics

***Knowledge Area*:** i) Advanced Materials, Materials Science; ii) Applied Electronics iii) Non Conventional Energy.

i. Advanced Materials; Materials Science

***Attributes/Outcomes*:** Understand key structural properties, different classes of material, and characterization of materials; demonstrate principles and underlying theory of a range of characterization methods; demonstrate range of modelling tools applicable to a broad spectrum of materials types at different length scales; demonstrate expertise in specialist subjects of different classes of materials; integrate theory and practice in dealing with problems; demonstrate the skills necessary to plan, conduct and report a programme of original research or a project of direct and immediate industrial relevance; use laboratory methods to generate, analyze data, and determine their accuracy, precision and validity; make use of knowledge from a number of diverse areas to synthesize a feasible solution to a complex problem or design; communicate effectively through oral presentations and written reports; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, and social responsibilities; demonstrate the urge for lifelong learning.

ii. Applied Electronics

***Attributes/Outcomes*:** Demonstrate advanced knowledge of mathematics and physics in relation to electrical and computer engineering and engineering design; use modern engineering techniques, skills, and tools to fulfil societal needs; apply knowledge of mathematics, science and engineering; demonstrate ability to design and conduct experiments; design a system, component or process to meet desired needs; function on multidisciplinary teams; demonstrate ability to identify, formulate and solve engineering problems; demonstrate ability to communicate effectively; recognize the need for and an ability to engage in life-long learning; demonstrate critical thinking, transparency, precision and accountability; demonstrate commitment to scientific values, professional ethics, and social responsibilities; demonstrate the urge for lifelong learning.

iii. Non Conventional Energy

***Attributes/Outcomes*:** Understand the different nonconventional sources and the power generation techniques to generate electrical energy; design a prescribed engineering sub-system; demonstrate ability to identify, formulate and solve engineering problems; undertake issue based research in the field; show ability to work in multidisciplinary and cross-cultural teams and in interdisciplinary perspective; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

39. Phyto Medical Science and Technology

***Knowledge Area*:** Phytomedical science and technology consists of environmental biology, applied botany, aromatics, phyto-chemistry, plant physiology, plant biochemistry, medicinal plant genetics, microbiology, and biotechnology.

***Attributes/Outcomes*:** Demonstrate specialized knowledge in phyto-medical science and technology; demonstrate advanced knowledge in applied botany, medicinal plants, aromatics, plant genetics, and integrated healthcare; understand environmental biology, plant physiology, plant biochemistry, environmental biology, microbiology and biotechnology; demonstrate skills in conservation, breeding and sustainable management of medicinal plants; show ability to work in multidisciplinary and cross-cultural teams and in interdisciplinary perspective; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

40. Plant Biotechnology

***Knowledge Area*:** Plant Biotechnology; Genetics and Plant Breeding; Applied Plant Science

***Attributes/Outcomes*:** Demonstrate an understanding of the theoretical background knowledge in molecular, biochemical and plant sciences needed for an understanding of plant biotechnology; understand how biotechnology has been used to develop knowledge of complex processes that occur in the plant; explain how biotechnology is used for plant improvement and discuss the ethical implications; explain issues associated with growing and using transgenic plants as food crops; apply plant biotechnology techniques to develop new products; communicate effectively using oral and written means for both scientific and non-technical audiences; show ability to work in multidisciplinary and cross-cultural teams and in interdisciplinary perspective; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

41. Polymer Science

***Knowledge Area*:** i) Biopolymer Science ii) Polymer Chemistry

i. Biopolymer Science

***Attributes/Outcomes*:** Demonstrate detailed knowledge of the structure, function, properties and use of biopolymers; understand concept of nature as a model for polymeric materials; apply appropriate analytical and physico-chemical methods to characterize polymers and their properties; demonstrate knowledge on advanced polymeric materials and research strategies for their technical development; understand knowledge about the ecological impact of the use of plastic materials and technologies used to minimize environmental impact; show ability to work in multidisciplinary and cross-cultural teams and in interdisciplinary perspective; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice and social responsibilities;

demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

ii. Polymer Chemistry

***Attributes/Outcomes*:** Understand the base concepts in polymer synthesis, polymer modification and characterization; plan and assess various reactions and procedures in the area of polymer manufacturing and characterization; show skills to reliably handle the raw materials required for polymer manufacturing, and effectively use equipment to handle, manufacture and characterize polymer products; conduct experiments and testing series and interpret experimentally acquired data and view results in a larger context; show ability to work in multidisciplinary and cross-cultural teams and in interdisciplinary perspective; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

42. Post-Harvest Technology

***Knowledge Area*:** Fruits/vegetables biology of ripening and postharvest transformation processes towards deterioration; current technologies for their storage, packaging, processing, and handling of fresh horticultural products (fruits and vegetables).

***Attributes/Outcomes*:** Demonstrate advanced knowledge in the biology of postharvest processes of fruits and vegetables, their ripening and deterioration; demonstrate current technologies for their storage, packaging and handling of fresh horticultural products (fruits and vegetables); show commitment to scientific values, professional ethics, environmental justice and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

43. Psychology

***Knowledge Area*:** i) Applied Psychology; ii) Clinical and Counselling Psychology, Clinical Psychology, Counselling Psychology

i. Applied Psychology

***Attributes/Outcomes*:** Apply psychological principles and theories to real world environments; demonstrate specialized cognitive and technical skills in the body of knowledge and practice independently; analyze critically; reflect on and synthesize complex information, problems, concepts and theories; demonstrate skills of persuasion; apply established theories to a body of knowledge or practice; interpret and transmit knowledge, skills and ideas to specialist and non-specialist audiences; demonstrate a sense of personal and professional integrity; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

ii. Clinical and Counselling Psychology, Clinical Psychology, Counselling Psychology

***Attributes/Outcomes*:** Demonstrate knowledge of individual and group theories of counseling and psychotherapy; understand knowledge and application of ethical concepts; demonstrate awareness of legal issues regarding professional activities with individuals, groups, and organizations; negotiate differences and handle conflict satisfactorily; integrate ethical values into professional conduct; exhibit behavior that reflect the values and attitudes of counseling and psychology; demonstrate understanding of counseling and psychological practice as an applied behavioral science; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, and social responsibilities; demonstrate ability to communicate effectively with experts as well as ordinary people; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

44. Radiation Physics

***Knowledge Area*:** Radiation Physics

***Attributes/Outcomes*:** Demonstrate a knowledge of fundamental aspects of the structure of the nucleus, radioactive decay, nuclear reactions and the interaction of radiation and matter; describe nuclear and radiation physics connection with other physics disciplines; discuss nuclear and radiation physics applications in medical diagnostics and therapy; apply experimental techniques used or developed for nuclear physics; apply nuclear and/or radiation physics; and show awareness of radiation hazards and adopt safety measures; demonstrate critical thinking, transparency, precision and accountability; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively using verbal, non-verbal, and written skills in the professional as well as social context; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

45. Rehabilitation Sciences

***Knowledge Area*:** Disability Studies and Rehabilitation Sciences

***Attributes/Outcomes*:** Critically discuss and evaluate current theory and research in selected areas of disability policy and practice; demonstrate professional knowledge around a range of conceptual disability perspectives; promote the physical and emotional well-being of people living with disability around a specific issue or within a specific area of disability; apply positive disability perspectives to professional practice in an area of specialized knowledge; use specialized knowledge to facilitate community participation of people living with disability; develop skills in the evaluation of disability and allied rehabilitation programmes; contribute to the informed construction of disability policy, whether local, national or global; communicate effectively using verbal, non-verbal, and written skills in the professional as well as social context; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

46. Space Sciences

Knowledge Area: Geology, Oceanography, Meteorology, Astronomy, Astrophysics, and advanced Mathematics.

***Attributes/Outcomes*:** Demonstrate an understanding of the principles and concepts of Earth and Space Science and apply supporting knowledge of chemistry, biology and physics; apply knowledge of mathematics, science and engineering fundamentals to the solution of complex problems involved in different engineering areas; design solution strategy for mathematical models arising in aerospace engineering, electrical engineering, mechanical engineering and other in science and engineering disciplines; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively using verbal, non-verbal, and written skills in the professional as well as social context; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

47. Statistics

***Knowledge Area*:** Statistics; Statistics-Applied

***Attributes/Outcomes*:** Describe the central concepts and theoretical principles of statistics both orally and in writing; apply in a skilled manner methods of statistical description, modelling and inference in the analysis of empirical data; use the necessary software tools for statistical computation and graphics; design, conduct, and report more demanding statistical investigations than small-scale studies; interpret results and reporting of statistical investigations with appropriate criticism; understand the centrality of the discipline along with mathematics as the main language and tool; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively using verbal, non-verbal, and written skills in the professional as well as social context; and recognize the need and demonstrate the ability to engage in lifelong learning for further developments in this field.

48. Vegetable Science/ Olericulture

***Knowledge Area*:** Biology of vegetables, Genetics and other horticulture studies

***Attributes/Outcomes*:** Demonstrate advanced knowledge in the biology of vegetables, their ripening and deterioration; apply current horticultural practices; demonstrate practical skill in seed selection, conservation and sustainable agriculture; analyze the factors that affect the distribution of the industry at the global to regional levels, from small community and roof-top gardens to large acreage, commercial production for local consumption, processing and export; assess and modify cultural practices used in the production of vegetable crops, including the integration of soil science, plant physiology, plant nutrition, agro meteorology and crop protection; understand the challenges and opportunities facing the vegetable industry in the 21st Century; effectively communicate with scientists, professionals and ordinary people engaged in the vegetable sector, and further develop numeracy and literacy skills required in vegetable production; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

49. Zoology

***Knowledge Area*:** Zoology; Pure and Applied Zoology

***Attributes/Outcomes*:** Demonstrate deeper understanding of key concepts of biology at biochemical, molecular and cellular level, physiology and reproduction at organismal level, and ecological impact on animal behaviour; elucidate animal-animal, animal-plant, animal-microbe interactions and their consequences to animals, humans and the environment; understand genetics and cytogenetics, human genome and genomes of other model organisms; understand relationships of variations in phenotypic expression of genomes and their genome wide interaction with other organisms; understand zoological science for its applications in related disciplines; apply theoretical and practical knowledge in handling the animals and using them as model organism; demonstrate critical thinking; show commitment to professional ethics, conservation, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Masters in Wildlife Studies

Entry Qualification: Bachelor Degree in Zoology or Botany or Biological Studies or Life Science or Environmental Science.
Degree Conferred: M.Sc./MS Degree in Wildlife Studies/Wildlife Science

***Knowledge Area*:** Wild Life Sciences

***Attributes/Outcomes*:** Recognize new theories, methods and technologies about wildlife studies and peculiarities of their application; understand knowledge about animal ecology, ethology, theriology, ornithology, ichthyology, cynology, biotechnology and technology, apply it describing content of wildlife recourses and dynamics; select appropriate wildlife study and result, summarize methods for study hypothesis or problem solving; apply current methods for wildlife population studies requiring analytical abilities, innovation and knowledge integration in a context of permanent environment dynamics; know and apply modern theories, specific methodology solving diverse wildlife recourses management problems; systematically conclude and analyze wildlife study results, select specialized scientific interpretation methods and present it for scientific society; critically apply selected scientific theories (forestry or biodiversity) in a context of permanent environment dynamics; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master's Degree-2 Year Programme

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.Com.

***Knowledge Area*:** Commerce

***Attributes/Outcomes*:** Describe and explain the fundamental principles influencing consumers, markets, and organizations; evaluate the impact of a variety of environmental factors on the organization and in the market; employ a range of tools of analysis' pertinent to the evaluation of evidence in the business sector; apply problem solving in marketing through the ability to define, structure, and prioritize issues; collect and analyze data to test ideas; communicate marketing ideas, theories and solutions to peers and the wider community; apply marketing ideas, theories, models and evidence to real-world business problems; critically evaluate and use of marketing theories; effectively communicate cross-culturally, with experts and the larger public; collaborate and be effective in teams; demonstrate critical thinking; show commitment to professional ethics, and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master's Degree-Agricultural Sciences

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.Sc. Agriculture

***Knowledge Area*:** Plant Culture Science, Agronomy, Plant Environment and Soil Science, Horticulture, Post-harvest Crops Management, Agro-Biodiversity, Sustainable Agriculture.

***Attributes/Outcomes*:** Understand scientific methods of improving the plants, crops, and soil conditions (Agronomy); demonstrate awareness of sustainable agricultural development and agro-biodiversity conservation; demonstrate ability to communicate advanced knowledge in agricultural science and agronomy effectively both orally and in writing; show ability to do research in the fields of plant science, production systems, natural resource use and environmental impact; communicate science of agriculture with the scientists of the field as well as farmers; show skills to work in multi-cultural teams in interdisciplinary environment; understand the cross-disciplinary dimension of agricultural science; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

1. Agricultural Economics

***Attributes/Outcomes*:** Understand how economic forces impact upon agricultural production and the food chain, and on the rural economy; explain how markets function to co-ordinate economic activity; analyze the issues that arise when considering the likely economic impact of government intervention, and of the framework, and constraints, within which policy is formulated; apply quantitative and qualitative techniques, including econometrics; demonstrate present coherent, structured and well balanced arguments; collect, analyze and interpret economic data; understand survey techniques, and statistical appraisals; assess the role and impact of government intervention; communicate ideas in a variety of written styles and lengths; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

2. Agricultural Meteorology

***Attributes/Outcomes*:** Demonstrate knowledge, skills and capacity to address problems associated with food insecurity, natural disaster, climate change; apply modern tools and techniques in agro-meteorology and natural risk management and also work for continuous refinement and upgrading of existing practices; make decision on sustainable development to ensure food security and healthier climate and environment; monitor climate change, and other natural and man-made hazards carry out environmental impact assessment for proposed development proposals; communicate effectively on weather forecasting, early warning and disaster preparedness as well as natural risk management to diversity of stakeholders including farming and policy makers; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

3. Agricultural Microbiology

***Attributes/Outcomes*:** Explain why microbiology is relevant for agricultural, environmental and food applications; describe the significance of microorganisms as agents of infectious disease and their control; recognize the beneficial activities of microorganisms; identify what is required for, and undertake a simple microbiological assessment of a product, process or system; carry out specific experiments using acquired laboratory skills; demonstrate critical thinking; communicate with professionals and farmers; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

4. Agricultural Statistics

***Attributes/Outcomes*:** Knowledge in Agricultural Science, Crops Production and Management; analyze quantitative data and draw appropriate statistical conclusions; critically understand the impact of globalization and diversity in agricultural systems and their levels of productivity; ability to analyze crops market situations, identify problems and evolve viable solutions; demonstrate statistical skill in anticipating the productivity of crops, cost of production, and exchange values; show ability to speculate the future of various crops; analyze the relationships between inputs and outputs in agricultural fields to make effective and profitable decisions; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

5. Agronomy

***Attributes/Outcomes*:** Demonstrate knowledge in physical and chemical characteristics of the soil, soil biology, soil-plant/water relations, drainage and irrigation, agro-climatic awareness, cropping systems, plant breeding and crop improvement, seed selection and quality assurance, residue management, nutrition and fertility, nutrient assessment, fertilizers, pest management, crop harvest and storage, marketing; assess and regulate soil fertility; recognize the main types of crops, their biological, varietal and economic characteristics, the requirements for environmental conditions; show ability to implement fertility reproduction techniques, the laws of farming and crop production; demonstrate ability to educate in scientific seed production and crop selection; aptitude to do research for improving the quality of crop production; demonstrate skills to plan agriculture to suit market conditions; communicate agronomy with scientists, professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

6. Entomology

***Attributes/Outcomes*:** Explain the advantages and disadvantages of a range of pest management tactics including biological, cultural, mechanical, and chemical approaches; explain how tactics are combined to manage multiple pests in representative ecosystems; describe common methods used for monitoring pests, and explain how monitoring information is used to make pest management decisions; identify common insects pests and diagnose

common pest problems; describe ways to find information about pest identification and management; communicate with entomologists, professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

7. Agriculture Extension

Attributes Understand the evolution of agricultural extension and extension policy around the world and the role of agricultural extension in a contemporary context; design, explain and assess an engagement strategy for a project or activity involving different stakeholders and audiences; assess an extension project based on theories of change and including analysis of different strategies, methods and tools in delivery as well as suited evaluation approaches; design, plan, and evaluate an extension project or program; communicate with professionals, social activists and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

8. Olericulture (Vegetable Science)

Attributes/Outcomes**:** Understand and analyze the factors that affect the distribution of the industry at the global to regional levels, from small community and roof-top gardens to large acreage, commercial production for local consumption, processing and export; assess and modify cultural practices used in the production of vegetable crops, including the integration of soil science, plant physiology, plant nutrition, agro meteorology and crop protection; understand the challenges and opportunities facing the vegetable industry in the 21st Century; effectively communicate with scientists, professionals and ordinary people engaged in the vegetable sector, and further develop skills required in vegetable production; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

9. Plant Biotechnology

Attributes/Outcomes**:** Demonstrate an understanding of the theoretical background knowledge in molecular, biochemical and plant sciences needed for an understanding of plant biotechnology; understand how biotechnology has been used to develop knowledge of complex processes that occur in the plant; explain how biotechnology is used for plant improvement and discuss the ethical implications; explain issues associated with growing and using transgenic plants as food crops; apply plant biotechnology techniques to develop new products; communicate effectively using oral and written means for both scientific and non-technical audiences; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

10. Plant Breeding and Genetics

Attributes/Outcomes**:** Describe sources and types of genetic variation and explain their importance for plant improvement; describe the progression of stages within a modern breeding programme from the setting of breeding objectives, through the development and

implementation of breeding strategies to the commercialization of plant varieties and the protection of intellectual property; describe methods that are used in plant breeding; locate, analyze, evaluate and synthesize information relevant to plant breeding; judge which plant breeding methods are appropriate for specific objectives and situations; formulate and justify a plan for the application of plant breeding methods to achieve a specific objective; carry out specific plant breeding activities, such as selection of parental germplasm, observation and recording of phenotypic variation and selection among progeny; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

11. Plant Pathology

***Attributes/Outcomes*:** Discuss the main principles and concepts of plant pathology and plant-pathogen interactions; assess the role of host, pathogen, environment, time and human in plant diseases occurrence and outbreaks; apply the concepts of plant pathology to formulate integrated disease management strategies based on the sustainable agriculture practices; ability to diagnose the most economical plant diseases; demonstrate ability to scout the fields and inspect the seedlings and adult plants to identify plant diseases at early and late stages; communicate with scientists, professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

12. Plant Physiology

***Attributes/Outcomes*:** Distinguish key physiological processes underlying the formation of seedlings from seed embryos; identify the physiological factors that regulate growth and developmental processes of crop plants, and clearly define their roles; evaluate the different strategies used by plants to acquire and utilize resources, and formulate a logical argument of their impact on crop productivity; recognize the significance of assimilate translocation and patterns of its partitioning in determining crop yield; demonstrate clear understanding of crop-environment interaction and its implication on crop growth and yield; relate crop physiological processes with agronomic practices used in crop production systems; integrate and apply their knowledge of crop physiology for analytical thinking and solving practical problems experienced in agricultural systems; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

13. Plantation Crops and Spices

***Attributes/Outcomes*:** Understand the basic science of horticulture and specific knowledge of plantation crops and spices; provide scientific advice to agriculturists of plantation crops and spices; demonstrate skills to analyze the performance of plantation crops and spice agriculture; demonstrate ability to imbibe significant research achievements in plantation crops and spice agriculture; ability to evaluate the technology of regional/local plantation agriculture against hi-tech horticultural practices and provide appropriate assistance to agriculturists for improvement; show skill to evaluate the present marketing networks and post harvest

management systems; demonstrate competency to suggest measures to reduce losses and improve the infrastructure for the post harvest handling, storage, marketing and exports; concern for the needs of small and marginal farmers of horticulture crops and small growers of plantation crops; assess the risk in the horticulture of plantation crops and spices, and provide appropriate assistance to minimize the risk; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

14. Pomology and Floriculture

***Attributes/Outcomes*:** Identify major fruit trees and small fruit crops and flowers and understand where and how they are grown, marketed, utilized and their nutritional value; describe fruit crop botanical features, physiological growth characteristics and climatic requirements; understand the major concepts and technology necessary to successfully grow fruits and flowers at the commercial level; understand the complex management decisions, challenges and potential problems in producing fruit crops and flowers due to their perennial nature, required resource inputs and market forces; explain production alternatives including niche marketing and sustainable practices; ability to communicate effectively and share knowledge and solve problems with audiences such as novices, hobbyists, master gardeners, and the news media; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

15. Processing Technology

***Attributes/Outcomes*:** Understand scientific methods of post-harvest processing and management of grains, sugar crops, oil crops, fiber crops, fruits, vegetables, nuts; demonstrate knowledge in post-harvest technology of products finishing and storing; show competency in technological procedures of product preserving by drying the mercantile and seed material; demonstrate skills in drier types and process automation; apply procedures of finished products storage, physiological and chemical processes during the storing and storage and silage types; skills in designing post harvest technology; advise and practise knowledge about post-harvest technology of storage of agricultural products; identify appropriate devices for drying and storing the crops; apply a appropriate technology of various hydrothermal processing of crops; identify problems at the time of processing and resolve them; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

16. Seed Science and Technology

***Attributes/Outcomes*:** Demonstrate ability to perform basic seed quality tests; show competency to manage seed production in an agricultural enterprise; demonstrate knowledge on biological and technological aspects of seed production; possess knowledge on Harvest and post-harvest seed treatment; understand knowledge on current varieties of field crops, consultant services; demonstrate knowledge on seed legislation and trading; understand the system of seed multiplication and certification; skills to involve in social dissemination of seed science;

communicate with scientists, professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

17. Soil Science and Agricultural Chemistry

***Attributes/Outcomes*:** Acquire fundamental knowledge in soil science, i.e. pedology and edaphology; understand principles underlying nutrient management, and soil and water management so as to determine type and appropriate soil to use for agriculture; demonstrate an understanding of importance of soil as a component of natural environment; identify basic concepts of soil genesis, morphology and classification systems; understand and explain soil-forming factors on the diversity of soil, and their relationship to soils distribution around earth; demonstrate various techniques used to modify quality of soil, and identify and monitor soil biological health, and management options for sustainable agricultural production; understand the basics of land survey, i.e. topography, GIS and remote sensing; understand farmer behaviour towards changing agricultural technology, critically analyze agricultural policies and understand how these support agricultural development; diagnose/predict impact of soil properties on land in a non-classroom settings; advice farmers on impact of soil properties on land productivity and propose solutions for melioration; demonstrate oral and written skills to convey their knowledge about soil science to others; communicate with professionals and farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master's Degree-Fisheries Sciences

Entry Qualification: B.Sc Zoology/B.F.Sc Aquaculture
Degree Conferred: M.F.Sc. /M.Sc. Aquaculture

1. Aquaculture

***Knowledge Area*:** Fisheries Science; Aquatic Biology, Biochemistry, Biotechnology, Aquatic Ecology, Microbiology, Biostatistics, Aquatic Industry Management, Fish Food Technology.

***Attributes/Outcomes*:** ***Attributes/Outcomes*:** Demonstrate knowledge in advanced concepts and theories of Fisheries Science; understand the biodiversity of fresh water and marine ecosystems; demonstrate advanced knowledge in fish biology; understand biochemistry of aquatic organisms; understand microbiology, biotechnology and the science of genetics; demonstrate knowledge of inland fisheries, mariculture, aquaculture; apply knowledge of biostatistics; show skills in ornamental fish culture and aquarium management; understand knowledge of sustainable fishing methods, fish preservation and conservation; apply aquaculture laws, regulations and policies; show ability to conduct research work in Fisheries and related sciences independently or in a team; communicate effectively with professionals and fish farmers; demonstrate critical thinking; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

2. Aquatic Animal Health Management

***Knowledge Area*:** Aquatic Animal Biology, Microbiology, Histo-pathology, Haematology, Immunology

***Attributes/Outcomes*:** Understand the essential principles of aquatic animal health management, bio-security and specific issues associated with the system; Understand the general biology of parasites and viruses, pathology of infections in fishes and shellfishes and their management; apply different microbiological, haematological, histo-pathological, immunological and molecular techniques for aquatic health management; communicate effectively with multidisciplinary experts as well as ordinary people; undertake work as an effective team member in group activities; show commitment to professional ethics, conservation, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

3. Aquatic Environment Management

***Knowledge Area*:** Aquatic Ecology, Aquatic Biodiversity, Water Chemisstry, Aquatic Ecosystem Management, Conservation Science, Biostatistics, Environmental Impact Assessment.

***Attributes/Outcomes*:** Demonstrate highly specialized knowledge on aquatic biodiversity and conservation, aquatic ecology and ecosystem management, environment impact assessment and management; show ability to assess the status of biodiversity and ecosystems; show ability to assess aquatic biodiversity and ecosystem; propose measures for biodiversity conservation and management of aquatic ecosystems; organize research activities related to aquatic biodiversity and ecosystem management; work effectively in teams as well as individually;

communicate effectively with multidisciplinary experts as well as ordinary people; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

4. Fish Nutrition and Feed Technology

***Knowledge Area*:** Fisheries Culture, Fish Nutrition, Fish Feed Preparation and Feeding Technology, Aqua-products Storage and Processing.

***Attributes/Outcomes*:** Understand the nutritional needs of fish through different life stages; demonstrate ability to develop feeds and feeding strategies; demonstrate knowledge about a wide spectrum of raw materials that give sustainable feeds; understand the need to preserve nutrients through processing and develop high quality pellet; interpret and use new results from research to develop new feed production concepts; show ability to operate different industrial raw material and feed processing units; work effectively in teams as well as individually; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

5. Fish Processing Technology

***Knowledge Area*:** Fisheries Science, Fish Processing Technology, Fisheries Food Technology, Microbiology, Biochemistry, Fish Packaging and Transport Technology.

***Attributes/Outcomes*:** Understand the various aspects of freezing/processing of fish and the various chemical, bacterial changes during the process; demonstrate knowledge of the various preservation and packaging techniques, labelling and transportation; understand various aspects of the quality assurance systems; demonstrate knowledge to process the various fishery wastes; understand the maintenance of fish processing plant, machinery and the instruments used in fish processing plants; understand the different biochemical and microbial aspects in fish processing; show ability to analyse and estimate toxins; work effectively in teams as well as individually; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

6. Fisheries Engineering and Technology

***Knowledge Area*:** Aquaculture Technology, Fisheries Engineering, Aquaculture Wastewater Treatment Technologies, Hydraulic Structural Engineering.

***Attributes/Outcomes*:** Understand natural and applied sciences and basic engineering concepts; apply combination of their theoretical and practical knowledge on fisheries engineering applications; demonstrate aquaculture techniques by saving the natural environment; demonstrate knowledge of fish diseases, fishing and processing technology and structure of fishery sector; show ability to assess scientific data on fisheries engineering, identify and solve the problems; show skills to apply modern techniques and computational tools necessary for engineering applications; determine the current status of aquatic resources and its sustainable use, water pollution and control, and biotechnology areas; work effectively in teams as well as individually; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

7. Fisheries Resource Management

***Knowledge Area*:** Aquatic Biodiversity, Sustainable Fisheries Resource Management, Water Chemistry, Aquatic Ecosystem Management, Conservation Science.

***Attributes/Outcomes*:** Understand the principles of management of fisheries resources and conservation measures and enforcement of regulations; demonstrate knowledge on coastal resources, integrated coastal zone management strategies and disaster management; show skills to identify eggs and larvae of commercially important finfish and shellfish; understand the design, fabrication and operation of fishing gear and operation of fish finding equipments; demonstrate skills in differentiating genera/ species up to stock level using classical, molecular and computer based techniques; work effectively in teams as well as individually; communicate effectively with multidisciplinary experts as well as ordinary people; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

8. Seafood Safety and Trade

***Knowledge Area*:** Aquaculture, Fishery Biology, Fish-Processing Technology, Fishery Economics, Fisheries Management, Seafood Sustainability

Attributes/Outcomes: Understand advanced knowledge in Aquaculture, Fshery Biology, Fish-Processing Technology, Fishery Economics, Fisheries Management, and Seafood Sustainability; demonstrate specialised competency in technical and managerial skills demanded by the seafood industry; show skills in acquaculture; manage the supply chain's risks; work effectively in teams as well as individually; communicate effectively with multidisciplinary experts as well as ordinary people; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning

Master's Degree-Veterinary Sciences

Entry Qualification: Bachelor's Degree in the concerned discipline
Degree Conferred: M.V.Sc.

***Knowledge Area*:** Veterinary Science

***Attributes/Outcomes*:** Understand anatomy and physiology of the healthy animal in its normal environment; understand the biological and welfare needs of animals, and how management systems meet those needs; demonstrate skills in handling and examining animals; understand the pathological processes, different disease agents; demonstrate knowledge of public health, including how to prevent transmission of disease between animals and humans; apply knowledge of food production and processing; apply knowledge of the economics of food production; demonstrate knowledge of epidemiology, pathogenesis, therapies and control measures relating to animal diseases; demonstrate practical skills to apply that knowledge; understand knowledge of the legal context of veterinary practice; display sense of care and responsibility to patients and their owners and a welfare ethic for animals in general; understand knowledge of the business context of veterinary practice; show communication skills with staff, colleagues and the general public; exhibit interpersonal skills and team-working ability; exhibit good professional attitude and a high standard of professional behavior; demonstrate spirit of intellectual curiosity and academic enquiry; understand research techniques and critical evaluation; show commitment to professional ethics and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Specializations

i. Animal Biotechnology

***Attributes/Outcomes*:** Describe the structure of animal genes and genomes; explain how genes are expressed and what regulatory mechanisms contribute to control of gene expression; describe basic principles and techniques in genetic manipulation and genetic engineering; be able to describe gene transfer technologies for animals and animal cell lines; describe techniques and problems both technical and ethical in animal cloning; describe the contribution of Functional Genomics in animal biotechnology ; show commitment to professional ethics and social responsibilities; communicate effectively with experts in the field as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Animal Genetics and Nutrition

***Attributes/Outcomes*:** Explain the principles of Mendelian genetics and calculate predicted results; critically understand genetic effects in population; evaluate modern practice in the management of breeding animals; investigate the organization of breeding operations; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Animal Nutrition

***Attributes/Outcomes*:** Identify key nutrients for animals and explain why they are considered key nutrients; describe how carbohydrates, lipids and proteins are categorized; explain the digestion and absorption of dietary carbohydrates, lipids and proteins, minerals in monogastric and ruminant animals and the clinical signs associated with either inadequate (deficiency) or excessive (toxicity) intake of these nutrients; analyze feedstuff in terms of its dry matter, organic matter, lipid, crude protein and fibre contents; demonstrate the use of feeding standards to calculate the nutrient requirements of various classes of animals; demonstrate the practical application of science to the feeding of ruminants; show commitment to professional ethics and social responsibilities; communicate effectively with experts and ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Animal Reproduction, Gynaecology and Obstetrics

***Attributes/Outcomes*:** Demonstrate theoretical and practical knowledge in breeding; show skills in soundness evaluation both in male and female livestock; diagnose pregnancy; treat the most common diseases of pregnancy, parturition and postpartum period; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

v. Dairy Science

***Attributes/Outcomes*:** Understand the interdisciplinary aspects of on-farm milk production, dairy economics, and the processing of dairy food and products; demonstrate knowledge in dairy production, including economics, breeding, feed, nutrition and biochemistry, animal welfare and health, milking technology, eco-efficiency, processing and quality of dairy products apply skills in analytical understanding of the entire dairy production process chain; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

vi. Livestock Production Management

***Attributes/Outcomes*:** Demonstrate knowledge on agents of animal diseases and how animals respond to them; demonstrate knowledge in animal nutrition, breeding and management to optimize animal health and production; apply farming systems approach to animal production; appraise and monitor livestock production systems through development and execution; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

vii. Livestock Products Technology

***Attributes/Outcomes*:** Demonstrate knowledge of livestock production systems including key profit drivers for core food producing species: egg and broiler poultry, pork, wool and lamb sheep, dairy and beef cattle, aquaculture; demonstrate knowledge of pasture species,

assessment and management of pastures; devise strategies for the management of reproduction and neonatal survival in livestock; appraise factors affecting meat, egg and wool quality; demonstrate practical skills in livestock handling and management; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

viii. Poultry Science

***Attributes/Outcomes*:** Demonstrate knowledge of poultry production systems including key profit drivers for core food producing species; understand relevant genetics, nutrition, physiology and pathology; describe the management of egg and broiler poultry; devise strategies for the management of poultry reproduction; appraise factors affecting broiler meat and egg; demonstrate practical skills in egg and broiler poultry management; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ix. Veterinary Biochemistry

***Attributes/Outcomes*:** Explain the nomenclature and catalytic characteristics of enzymes; describe what enzymes are and how they allow for metabolism and its regulation; understand the kinetics and mechanism of action of enzymes; understand the nomenclature and functions of coenzymes and vitamins in animal metabolism; explain the role of vitamins and coenzymes through metabolic and physiological processes; describe the role of thermodynamics in the determination of biochemical reactivity and differentiate between the kinetic and thermodynamic factors influencing biochemical reactions; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

x. Clinical Medicine, Ethics and Jurisprudence

***Attributes/Outcomes*:** Demonstrate a knowledge of the basic framework of animal-related legislation; Show how the law is applied to animals and animal-based enterprises; interpret and apply legislation to animal-based enterprises; explain the difficulties in creating legislation relevant to animals and animal-based enterprises; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xi. Veterinary Epidemiology and Preventive Medicine

***Attributes/Outcomes*:** Demonstrate a profound understanding of epidemiology as the study of patterns and factors that affect health and welfare in animal and human populations; understand the role of epidemiology, the major health issues in both human and animal populations and the contribution of epidemiology to other health related disciplines; design and implement epidemiological studies; assess the results of epidemiological studies; apply epidemiological principles to disease control; show commitment to professional ethics and

social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xii. Veterinary Microbiology

***Attributes/Outcomes*:** Understand at an advanced level of selected microbial diseases of animals; possess skills and theoretical knowledge required to make a laboratory diagnosis of selected infections of animals; ability to evaluate and report on laboratory findings; understand ethical issues in veterinary microbiology; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xiii. Veterinary Parasitology

***Attributes/Outcomes*:** Understand the biology and ecology of parasites of veterinary importance; apply laboratory skills in the preparation and examination of a range of parasites of veterinary importance; demonstrate knowledge of the key morphological and physiological features of parasites of veterinary importance and their identification; and understand current issues in veterinary parasitology; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xiv. Veterinary Pathology

***Attributes/Outcomes*:** Identify and interpret gross and histologic lesions; understand the pathogenesis of diseases important to various animal species, including domestic animals; understand the pathology and pathogenesis of disease from a comparative medicine standpoint; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xv. Veterinary Pharmacology and Toxicology

***Attributes/Outcomes*:** Understand aspects of clinical pharmacology and therapeutics to support veterinary practice; assess appropriate drug selection for various animal species; understand aspects of clinical toxicology in relation to veterinary practice; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xvi. Veterinary Physiology

***Attributes/Outcomes*:** Demonstrate knowledge of basic mammalian systems physiology and physiological principles; analyze and report on experiments and observations in animal physiology; demonstrate skills in dissection and learn to appreciate variation in structure due to species, age, and sex; demonstrate skills in clinical application required for a veterinary technician or assistant; demonstrate critical thinking; and exhibit entrepreneurship; show commitment to professional ethics and social responsibilities; communicate effectively with

experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xvii. Veterinary Public Health

***Attributes/Outcomes*:** Demonstrate knowledge of zoonotic and non-zoonotic diseases of public health significance; understand surveillance programmes for zoonotic and non-zoonotic diseases and laboratory techniques used for the diagnosis and surveillance of zoonotic and food-borne diseases; understand veterinarians' responsibilities in the production of safe meat safe milk and milk products; demonstrate professional and caring attitude towards the welfare of food producing animals from farm to slaughter; understand quality control, quality assurance and Hazard Analysis Critical Control Point (HACCP) principles; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xviii. Veterinary Surgery and Radiology

***Attributes/Outcomes*:** Demonstrate theoretical knowledge and practical skills in the field; demonstrate advanced surgical skills and be able to handle instruments and tissues; repair soft tissue and orthopedic problems accurately; demonstrate ability to safely administer appropriate local and general anesthetic agents and patient monitoring; take medical images and interpret; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Other Master's Programmes

Master's Degree-2 Year Programme

Entry Qualifications-Bachelor's Degree
Degree Conferred: M.S.W.

***Knowledge Area*:** Social Work

Attributes/Outcomes: Understand the concept, definition, objectives, functions, theoretical foundations and methods of social work, theories about society; identify and critically analyze existing and emerging social problems; understand the relevance of psychology to social work practice; understand human development, human behaviour in socio-cultural context; show ability to work with individuals, groups, communities; understand the welfare policies of the government, human rights and social legislations; ability to establish a human service organization; understand disasters and disaster management strategies; demonstrate knowledge about the concept of and different types of disabilities and skilled at undertaking social work interventions with and through all stakeholders; demonstrate skills of social work intervention with rural/urban communities; demonstrate theoretical understanding of families and children, policies and programmes for child welfare; communicate effectively; demonstrate critical thinking; show commitment to professional ethics, and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.B.A.

***Knowledge Area*:** Business Administration

***Attributes/Outcomes*:** Understand knowledge of current theory and techniques of the major business disciplines core courses; exhibit the leadership capacity and teamwork skills for business decision making; understand the ethical implication of business decision making and recognize ethical dilemma; demonstrate critical thinking skills; understand global perspectives; identify the key issues facing a business or business subdivision; utilize qualitative and quantitative methods to investigate and solve critical business problems; integrate tools and concepts from multiple functional areas (i.e. finance, marketing, operations, etc.) to solve business problems; evaluate and integrate ethical considerations when making business decisions; incorporate diversity and multicultural perspectives when making business decisions; understand, analyze and communicate global, economic, legal, and ethical aspects of business; demonstrate effective leadership and collaboration skills needed to make business-critical decisions, accomplish functional, organizational and professional goals; demonstrate written and oral communication and information literacy competencies; evaluate and apply the effective use of technology to optimize business performance; demonstrate critical thinking; show commitment to professional ethics, conservation, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.C.A.

***Knowledge Area*:** Computer Applications

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; and devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning; demonstrate critical thinking; show commitment to professional ethics, and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualifications: Bachelor's Degree
Degree Conferred: M.C.J. / M.A. Journalism

***Knowledge Area*:** Communication and Journalism

***Attributes/Outcomes*:** Understand the latest reporting, writing, and technical skills for traditional and digital media; conduct incisive interviews, gather salient information, and write compelling narratives with clarity and style; gain a theoretical and practical grounding in issues such as civics, governance, citizenship, and leadership; investigate key concepts that frame recent developments in fields such as media law, management theory, globalization, health policy, and climate change; understand both local and global issues in the field of journalism, communication and/or media studies; ability to apply computer and technical skills to designated production and research functions in journalism; Ability to analyze knowledge from communities, current events and public affairs, and history to interpret and express the context for designated journalism publications and/or productions; function both independently and as a member of editorial and/or production teams; demonstrate critical thinking; demonstrate awareness of the knowledge of the legal requirements and ethical responsibilities in journalism; show commitment to professional ethics; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Bachelor's Degree in Library and Information Science
Degree Conferred: M.L.I.Sc/M.Lib.I.Sc. (Master in Library and Information Science)

***Knowledge Area*:** Library and Information Science

Attributes/Outcomes: Understand the social, political, ethical, and legal aspects of information creation, access, ownership, service, and communication; demonstrate knowledge of the emerging trends and the ability to respond proactively; develop and promote library and information services to a wide range of patrons; educate users and potential users to locate, use, and evaluate information resources and tools; analyze and evaluate information systems and

services in a variety of settings; develop and manage collections of information resources; design and apply policies and procedures that support the selection and acquisition of information resources for particular communities of users; manage, evaluate, and preserve physical and virtual collections of information resources; uphold ethical and legal standards in acquiring, leasing, preserving, and providing access to information resources; perform basic managerial functions, including planning, budgeting, and performance evaluation; communicate effectively to a variety of audiences; design, conduct, interpret, and take action based upon research and evaluation; implement and evaluate information and communication technologies for efficiency, usability, and of value to users; demonstrate critical thinking; show commitment to professional ethics; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Graduation in any discipline or as the University stipulates
Degree Conferred: M.A. /MTM/MTTM(Masters of Tourism & Travel Management)

***Knowledge Area*:** Travel and Tourism Management, Tourism Management, Tourism and Hospitality Management

***Attributes/Outcomes*:** Critical awareness of current issues in the tourism and hospitality industries from economic, marketing, organizational, political and sociocultural perspectives; create favourable guest experiences by designing effective service delivery systems in a hospitality business environment; use current and relevant technology, information, and findings from research data to enhance organizational performance in a hospitality business environment; demonstrate advanced principles of strategy and leadership while working with others in a hospitality business environment; explain and apply travel and tourism knowledge and demonstrate the unique professional requirements in the travel industry; demonstrate knowledge of computer applications software, including travel reservations software, word, spreadsheets and presentation software skills; communicate effectively using written, oral and nonverbal techniques, including the use of technology in the gathering and presentation of information; interpret and analyze information in order to engage in critical thinking and problem solving with regard to the performance of travel and tourism operations; contribute to positive team performance in a hospitality business environment; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Graduation in any discipline
Degree conferred: M.A. /MHM/ MHMCT(Master of Hotel Management and Catering Technology

***Knowledge Area*:** Hotel Management

***Attributes/Outcomes*:** Demonstrate advanced knowledge of professional hotel management involving personale administration, infrastructure conduct, front office management, housekeeping, customer care, scientific catering, and service quality assurance; understand food

safety rules; demonstrate the ability to develop, examine, question, and explore perspectives or alternatives to problems in hospitality operations; manage and evaluate functional systems in lodging operations; integrate human, financial, and physical resources management into foodservice and lodging operations; understand cross-disciplinary importance of the field; demonstrate effective communication skills and adaptability to live and work in a cross-cultural environment; show commitment to professional ethics, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Graduation in any science discipline
Degree conferred: MPH(Master of Public Health)

***Knowledge Area*:** Public Health

***Attributes/Outcomes*:** Identify and apply appropriate statistical methods to analyze and describe a public health problem; use epidemiologic methods to analyze patterns of disease and injury and discuss application to control problems; understand the relationship between environmental factors and community health; discuss remediation for environmental health problems; demonstrate the ability to apply principles of leadership, policy development, budgeting and programme management in the planning, implementation and evaluation of health programs for individuals and populations; address behavioral, social and cultural factors that impact individual and population health and health disparities over the life course; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Bachelor's Degree in Fine Arts
Degree Conferred: M.A./M.F.A.(Master of Fine Arts)

***Knowledge Area*:** Fine Arts (Visual Arts)

***Attributes/Outcomes*:** Understand practice-led methodologies through investigation, analysis and synthesis of complex information to plan and execute substantial studio and/or screen-based creative research projects; generate and evaluate complex ideas and concepts at an abstract level using cognitive, technical and creative skills and relate them to their own creative works and to recent developments in the field; critically reflect upon and evaluate theoretical, conceptual and aesthetic aspects of creative practice and apply it in the production of creative works and/or professionally relevant projects; design and develop creative works, either individually or in collaboration, that communicate theoretical, aesthetic, conceptual and imaginative propositions to specialist and non-specialist audiences; complete a major piece of research in the field of visual arts; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Entry Qualification: Graduation in any discipline
Degree Conferred: MTA (Master in Theatre Arts)

***Knowledge Area*:** Theatre Arts

***Attributes/Outcomes*:** Define and evaluate the connections between theatre, entertainment, popular culture and digital media arts; describe and apply the aesthetic, sociological, political and historical frameworks of global theatre; analyze and interpret scholarly writing in the areas of world theatre history, literature and criticism; show ability to converse about and teach a survey of theatre history, as well as some specialized knowledge of a chosen era, aesthetic movement or artist in a historical-cultural context; demonstrate research skills; understand the relationship between theatre and performance and society; communicate ideas in clear and correct writing; show familiarity with various components of the art of the stage to be able to interact cross-culturally with theatre professionals; demonstrate professional ethics and social responsibility; recognize the need for pursuing lifelong learning.

Entry Qualification: Bachelor's Degree in any discipline or as the university stipulates
Degree conferred: M.A. /MHA(Master of Hospital Administration)

***Knowledge Area*:** Hospital Administration

Attributes Demonstrate the knowledge and ability to apply current business and financial principles, including theory and techniques, to the health care environment; demonstrate the ability to communicate clearly and concisely within context of professional heath care environments; exhibit the knowledge regarding various attributes of leadership and demonstrate the capacity for leadership roles in health care organizations; understand the ethical implications of decision-making and recognize ethical dilemmas; understanding of health care issues, trends and perspectives related to diversity, e.g. aging, underserved populations, health disparities, etc.; understand the regulatory environment and apply skills that improve patient safety and the quality of care; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master of Physical Education and Sports

Entry Qualification: Bachelor's Degree in Physical Education and Sports
Degree Conferred: MPEd/MPES

***Knowledge Area*:** Physical Education

***Attributes/Outcomes*:** Demonstrate knowledge based expertise in multiple forms of physical activity including, but not limited to games, sports, dance, gymnastic activities, adventure activities, aquatics, and fitness activities; explain and demonstrate connections between disciplinary and pedagogical knowledge when selecting and sequencing curriculum content; critically evaluate and utilize cues for physical activity performance to maximize successful

participation in physical activity and learning new physical activity skills on a regular basis ; apply a variety of concepts from disciplinary knowledge (pedagogy; motor development and learning; exercise science, sociology and psychology of movement; history and philosophy) when planning and implementing physical activity enhancing interventions; plan and implement health enhancing opportunities that promote individual responsibility, decision-making, problem solving while learning how to engage in physical activity on their own and adopting a physically active lifestyle; present ideas clearly, effectively, and elegantly in written and oral communications; communicate physical activity assessment results effectively to relevant constituents; collaborate effectively with colleagues on physical activity enhancement projects and interventions; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master's Programme in Teacher Education

1. M.Ed. Programme

Master's in education is the two-year postgraduate programme in teacher education. It is a continuation of the B.Ed. which is a one-year programme. B.Ed. and the undergraduate programmer in various disciplines with B.Ed. integrated are the entry qualification for the M.Ed. Programme.

***Knowledge Area*:** Advanced Pedagogic Science, Educational Psychology, Educational Sociology, Theory and Practice of Curriculum Design, Methods of Evaluation.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in pedagogical principles and their application; demonstrate cognitive abilities necessary to master relevant content in subjects commonly taught at high and higher secondary schools; design, implement, and evaluate curriculum; demonstrate skills in Content Management; demonstrate capability to focused and sequenced instruction aligned with curriculum standards and outcomes; show ability to engage students in learning with reflecting practice; apply culturally and linguistically responsive instruction; demonstrate skills in assessing the student performance; demonstrate professional ability to inculcate collaborative and growth-centered practices; understand the political, ethical and moral complexities of schooling; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

2. M.Ed. Special Education

Master's in special education is the two-year postgraduate programme in special teacher education. It is a continuation of the B.Ed. special education, which is a one-year programme. B.Ed. and the undergraduate programme in various disciplines with B.Ed. special education integrated are the entry qualification for this M.Ed. Programme.

***Knowledge Area*:** Disability Studies and Special education Pedagogic Science, Disability Educational Psychology, and Disability Educational Sociology.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in the theory and methods of teaching the students of learning disabilities; understand knowledge of the foundations of special education law, characteristics of learner disabilities, and individual learning differences; demonstrate well-grounded in current research and established theories of disability; show ability to adopt appropriate Curriculum Materials and apply special Instructional Strategies including those appropriate for students of different cultural and linguistic backgrounds; demonstrate skills in a wide range of instructional practices, approaches, methods and curricula materials to support learning by students with disabilities; understand and actively address the moral, ethical and value dimensions of disability; demonstrate ability to Assessment, Diagnosis and Evaluation of the learning process of the disabled students;

and demonstrate concern for an environment that fosters learning through careful planning, content/practice management of disability sector; show commitment to professional ethics, and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Integrated Programmes-5 Years

Entry Qualification: 10+2
Degree Conferred: Masters

B.Sc.-M.Sc. (Integrated) Biotechnology
***Knowledge Area*:** Microbiology, Biochemistry, Biophysics, and Biotechnology

***Attributes/Outcomes*:** Demonstrate deep knowledge in the specialized discipline(s): molecular biology and molecular engineering; ability to synthesize and evaluate knowledge across basic disciplines: biology, chemistry and physics; understand theory and methods used in biotechnology; demonstrate ability to apply these methods in biotechnology research to the data and interpret them; show good cross-disciplinary communication skills (oral and written); and, demonstrate awareness of the commercial, financial and regulatory context in which the biotechnology sector operates; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

B.Sc.-M.Sc. (Integrated) Climate Change Adaptation
***Knowledge Area*:** Climatology and Meteorology

***Attributes/Outcomes*:** Theoretical, conceptual, and empirical knowledge in climate change and adaptation; ability to apply concepts and theories to identify and characterize climate change for developing adaptation strategies at multiple levels as well as different sectors; practice in methodological adaptation planning; undertake research in climatology and meteorology with interdisciplinary perception; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively across cultures and disciplines with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

M.C.A. (Integrated) Dual Degree
Knowledge Area: Mathematics, Computer Science and Technology; Softwares Technology and application.

***Attributes/Outcomes*:** Demonstrate ability to apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; and devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning; show commitment to professional ethics and social responsibilities; communicate effectively

with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Integrated M.Sc. Photonics-5 Year Programme

Knowledge Area: Theoretical knowledge base in photonics and its related areas of physics (Optics, Electrodynamics, Physics of Semiconductors, Quantum Mechanics)

***Attributes/Outcomes*:** Demonstrate ability to apply fundamental laws of physics in telecommunications, optoelectronics, nano and microfabrication; understand computerized modeling of diverse optical and photonics systems; show laboratory skills in designing experiments, assembling standard optical tools for optical experimentation, carrying out measurements with customary optical instruments and analyzing acquired data; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

BS-MS Dual programmes-IISER

Knowledge Area: These are programmes in basic sciences: Physics, Chemistry, Biology, and Mathematics.

***Attributes/Outcomes*:** Demonstrate theoretical knowledge in basic sciences and laboratory skills and instrumentation thereof; demonstrate cross-disciplinary understanding; show adaptability to ICT settings and cross-cultural environment; and demonstrate ability to undertake convergence research in any of the above basic sciences.

Integrated Degree M.Sc (National Institute of Science Education and Research-NISER)

Knowledge Area: **Physics, Chemistry, Biology, Mathematics, Computer Science, Humanities and Social Sciences**.

***Attributes/Outcomes*:** Demonstrate theoretical knowledge in the specialized basic sciences: Physics, Chemistry, Biology, Mathematics, Computer Science, Humanities and Social Sciences; show advanced laboratory skills and instrumentation in the science concerned; demonstrate cross-disciplinary understanding; adaptability to ICT settings and cross-cultural environment; and demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Bachelor of Technology (B.Tech) Degrees

Entry Qualifications: 10+2
Degree Conferred: B.Tech. in the respective discipline

1. Aeronautical Engineering

***Knowledge Area*:** Aeronautical Engineering

***Attributes/Outcomes*:** Apply knowledge of mathematics, science and engineering to problems of aeronautical engineering discipline; identify, formulate and solve engineering problems in aeronautical disciplines; analyze and interpret experiments concerning aeronautical engineering and apply experimental results to improve processes; demonstrate knowledge in aerodynamics, materials and aircraft structures; understand propulsion and power plant, flight dynamics, avionics, fabrication, aircraft regulatory matters, overhaul and repair, inspection processes and procedures, and the overall aircraft; design aircraft systems, components or processes to meet specifications within realistic constraints; use fluid mechanics/structural mechanics modelling and simulation techniques/packages and computing tools; practice professional and ethical responsibility; communicate effectively with experts as well as people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

2. Applied Electronics and Instrumentation Engineering

***Knowledge Area*:** Fundamental technology, theories, concepts and application of electronics; mathematics and physics to electronic measurement and control systems, Electronics and computer technology, application to instrumentation.

***Attributes/Outcomes*:** Demonstrate knowledge and skills for performing investigation, analysis, and synthesis in the implementation of automatic control system; apply electronics and computer technology to instrumentation, industrial automation, and process control systems; demonstrate basic skills in industrial repair and maintenance; analysis of semiconductor electronic components, calibration of instruments, and use of standard signals; demonstrate ability to undertake research in any of the of the specializations in applied electronics or instrumentation; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

3. Automobile Engineering

***Knowledge Area*: Automobile Engineering**

***Attributes/Outcomes*:** Apply the fundamentals of basic science and engineering knowledge to demonstrate a critical thinking, analyze and evaluate the technological development of virtual and real vehicles; implement latest research on automotive technologies and tools in an effective manner with appropriate solutions; undertake research in fuel economy, alternate fuels and hybrid vehicle; design and develop the futuristic automobile systems in global standards; work collaboratively in team as a member or leader to debate on various multidisciplinary issues by applying the ethical principles in engineering practices through various modes of

communication; provide appropriate solution for the engineering problem in societal and environmental issues; plan and execute projects and manage finance efficiently; exhibit the habit of lifelong learning in technological development; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

4. Biomedical Engineering

***Knowledge Area*:** Biomedical Engineering

***Attributes/Outcomes*:** Understand biology and physiology; apply advanced mathematics, statistics, science and engineering to solve the problems at the interface of engineering and biology; make measurements on and interpret data from living systems; address the problems associated with the interaction between living and non-living materials and systems; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

5. Biotechnology

***Knowledge Area*: Biotechnology**

***Attributes/Outcomes*:** Demonstrate advanced knowledge in biotechnology and skills to solve the problems in environmental, food, biochemical and biomedical engineering; show solid foundation in chemical engineering and biological sciences, to enable them to work on engineering applications in biotechnology as per the requirement of the industries; demonstrate knowledge on the fundamentals of biochemistry, cell biology, microbiology and molecular biology to enable them to understand basic concept in modern biology, genetic engineering, protein engineering, and bioprocess engineering and enabling their application through bioprocess technology; understand the recent developments in the field of genomics, proteomics, cancer biology and modern drug discovery; demonstrate advanced focus on the molecular basis of diseases and development of advanced therapeutics; exhibit the importance of bioethics, entrepreneurship, communication and management skills; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

6. **Biotechnology and Biochemical Engineering**

***Knowledge Area*:** Biotechnology, Microbiology, Biochemistry and Biochemical Engineering.

***Attributes/Outcomes*:** Understand advanced knowledge in microbiology and biochemistry; apply the biological and kinetic concepts underlying bioprocesses engineering, procedures for the design and control of industrial scale fermentation and biological waste treatment processes; apply the engineering principles to biological systems and processes; understand biomolecular engineering and biosynthetic engineering; analyze and identify limiting factors in bioprocesses

and propose solutions to address biological and engineering problems; design appropriate bioreactor models based upon bio products and cell lines and other process criteria; analyze molecular biology elements used to construct recombinant cell lines and identify potential genetic instability in bioprocesses; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

7. **Biotechnology (Bioprocess Engineering**)

***Knowledge Area*:** Biotechnology, Microbiology, Biochemistry and Bio-process Engineering, Mathematics.

***Attributes/Outcomes*:** Describe the biological and kinetic concepts underlying bioprocesses engineering, procedures for the design and control of industrial scale fermentation and biological waste treatment processes; demonstrate advanced knowledge in microbiology and biochemistry; understand biomolecular engineering and biosynthetic engineering; apply the engineering principles to biological systems and processes; analyze and identify limiting factors in bioprocesses and propose solutions to address biological and engineering problems; design appropriate bioreactor models based upon bio products and cell lines and other process criteria; analyze molecular biology elements used to construct recombinant cell lines and identify potential genetic instability in bioprocesses; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

8. **Biotechnology (Industrial Biotechnology**)

***Knowledge Area*:** Biotechnology and Industrial Engineering

***Attributes/Outcomes*:** Demonstrate advanced knowledge in microbiology and biochemistry; understand biomolecular engineering and biosynthetic engineering; apply the engineering principles to biological systems and processes; describe the biological and kinetic concepts underlying bioprocesses engineering; demonstrate procedures for the design and control of industrial scale fermentation and biological waste treatment processes; analyze and identify limiting factors in bioprocesses and propose solutions to address biological and engineering problems; design appropriate bioreactor models based upon bio products and cell lines and other process criteria; analyze molecular biology elements used to construct recombinant cell lines and identify potential genetic instability in bioprocesses; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

9. Chemical Engineering

***Knowledge Area*:** Chemical Science, Industrial Chemistry, Chemical Engineering, Mathematics.

***Attributes/Outcomes*:** Demonstrate knowledge of Inorganic, Organic and Physical branches of Chemistry; apply instrumental techniques used in qualitative and quantitative chemistry; demonstrate knowledge in applications of chemistry to relevant industrial processes; interpret data obtained through instrumental analysis; apply the knowledge of unit operations and unit processes for designing a chemical plant; analyze the processes and equipment using conservation and phenomenological laws, reaction kinetics, thermodynamics, process control, economics for sustainable environment; develop mathematical models and simulation tools to design and/or optimize chemical processes; undertake laboratory investigations in a responsible, safe and ethical manner; show adaptability to work flexibly and respond to changes both individually and in teams; in any of the basic science of specialization; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

10. Civil Engineering

***Knowledge Area*:** Construction Engineering, Mathematics, Geomechanics, and Architecture, Construction Engineering

***Attributes/Outcomes*:** Plan, analyze, design, prepare cost estimates and execute all kinds of civil engineering projects; apply modern construction techniques, equipment and management tools so as to complete the project within specified time and funds. Apply knowledge of mathematics, science, and engineering; identify, formulate, review research literature, and analyze engineering problems reaching substantiated conclusions using principles of mathematics, and engineering sciences; understand the impact of the professional engineering solutions in societal and environmental contexts; apply ethical principles and commit to professional ethics, responsibilities and norms of the engineering practice; communicate effectively on complex engineering activities with the engineering community and with society at large; and recognize the need for engaging in life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

11. **Computer Engineering**

***Knowledge Area*:** Computer engineering, Mathematics, Software engineering

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning;

demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

12. Computer Science
***Knowledge Area*:** Computer Science

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

13. **Computer Science and Engineering**
Knowledge Area: Computer Science, Mathematics, and Software engineering

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

14. Computer Science and Technology
***Knowledge Area*:** Computer science, Mathematics, Software technology

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and

appreciate the importance of goal setting and to recognize the need for life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

15. Dairy Technology

Knowledge Area: Advanced knowledge of animal sciences with special focus on animal genetics, nutrition, reproduction, and other relevant disciplines

***Attributes/Outcomes*:** Demonstrate practical ability in animal production and management systems by integrating knowledge of animal genetics, nutrition, reproduction, and other relevant disciplines and applying scientific and quantitative reasoning to solve real-world challenges; communicate animal sciences; and aptitude to expand knowledge of animal sciences; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

16. **Electrical and Electronics Engineering**

***Knowledge Area*:** Electrical and Electronics Engineering, Mathematics

***Attributes/Outcomes*:** Apply the knowledge of mathematics, science and engineering to solve the electrical and electronics engineering problems; identify, formulate and solve power and energy system problems; design and conduct experiments on analog and digital electronic systems to analyze and interpret data; apply the principles of electrical circuits and machines for testing and analysis; design control systems as per needs and specifications, analysis of power electronic systems; model and simulate electrical signals and systems using modern engineering tools; practice professional ethics and engage in life-long learning; communicate effectively and work in a team to achieve project objectives with financial considerations; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

17. Electrical Engineering

***Knowledge Area*:** Electrical Engineering, Mathematics, Physics, Thermodynamics.

***Attributes/Outcomes*:** Apply the knowledge of mathematics, science and engineering to solve the electrical engineering problems; identify, formulate and solve power and energy system problems; design and conduct experiments on analog and digital electronic systems to analyze and interpret data; apply the principles of electrical circuits and machines for testing and analysis; design control systems as per needs and specifications, analysis of power electronic systems; model and simulate electrical signals and systems using modern engineering tools; practise professional ethics and engage in life-long learning; communicate effectively and work

in a team to achieve project objectives with financial considerations; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

18. Electronics and Biomedical Engineering

***Knowledge Area*:** Electronics and Biomedical Engineering

***Attributes/Outcomes*:** Understand the knowledge of mathematics, electronics, bioscience and engineering; identify, analyze, and solve biomedical engineering problems; design and conduct experiments on analog and digital electronic systems to analyze and interpret bio-medical data; design control and power electronic systems as per biomedical needs and specifications; practise professional ethics and engage in life-long learning; communicate effectively; and work in a team to achieve project objectives with financial considerations; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

19. **Electronics and Communication Engineering**

***Knowledge Area*:** Electronics and Communication Engineering

***Attributes/Outcomes*:** Apply the knowledge of mathematics, science and engineering to solve the electronics and communication engineering problems; identify, formulate and solve problems relating to electronics and communication system; design and conduct experiments on analog and digital electronic communication system engineering; analyze and interpret experimental data; design control systems as per needs and specifications, demonstrate skills in the analysis of power electronic systems; practise professional ethics and engage in life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

20. Electronics and Instrumentation Engineering

Knowledge area: Electronics, Mathematics, and Instrumentation Engineering

***Attributes/Outcomes*:** Demonstrate advanced knowledge of mathematics, ~~science~~ electronics, and instrumentation engineering; apply theories in electronics and instrumentation engineering problems; identify, formulate and solve power and energy system problems; design and conduct experiments on analog and digital electronic systems to analyze and interpret data; apply the principles of electrical circuits and machines for testing and analysis; design control systems as per needs and specifications, analysis of power electronic systems; model and simulate electrical signals and systems using modern engineering tools; practice professional ethics and engage in life-long learning; communicate effectively and work in a team to achieve the project objectives;

21. Electronics Engineering

***Knowledge Area*:** Electronic engineering, Mathematics, and Design engineering

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematics, electronics and basic engineering; apply theories of electronics and basic engineering to solve the related problems; identify, formulate and solve problems of electronic engineering; design and conduct experiments on analog and digital electronic systems to analyze and interpret data; apply the principles of electrical circuits and machines for testing and analysis; design control systems as per needs and specifications, analysis of power electronic systems; model and simulate electrical signals and systems using modern engineering tools; practice professional ethics and engage in life-long learning; communicate effectively and work in a team to achieve the project objectives; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

22. Food Technology

***Knowledge Area*:** Food Science and Technology

***Attributes/Outcomes*:** Understand the physical, chemical and biological factors of foods and its interaction during processing from farm to consumer; analyze food contamination by microbiological and chemical methods of testing to meet quality standards and food safety regulation; demonstrate skills in industrial food-waste management by adopting appropriate technology to reduce environmental pollution and hazards to humans; identify adulterants, trace elements, preservatives, organic and inorganic compounds in processed food and food substance using instrumentation techniques; adopt thermal and non-thermal processing methods to preserve and store perishable foods to minimize wastage of resources generated; effectively communicate and demonstrate to farmers, illiterates and unemployed youth to adapt technology; collaborate actively as part of a team; aware of the recent trends and statistical analysis of food processing and value addition to food; adopt new technology and design machines with high efficiency and productivity; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

23. Industrial Engineering

***Knowledge Area*:** Industrial Engineering, Mathematics, Industrial Chemistry

***Attributes/Outcomes*:** Demonstrate advanced knowledge of mathematics, science, and engineering; apply the knowledge of unit operations and unit processes for designing a chemical plant; analyze the processes and equipment using conservation and phenomenological laws, reaction kinetics, thermodynamics, process control, economics for sustainable environment; design solutions for engineering problems; demonstrate skills to meet the specified needs with appropriate consideration for the public health and safety, along with the

cultural, societal, and environmental considerations; demonstrate research-based knowledge and techniques including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

24. Information Technology

***Knowledge Area*:** Mathematics, Computer Science and Technology, Digital Information Technology.

***Attributes/Outcomes*:** Apply knowledge of mathematics, computer science and practice software technology solutions; identify, critically analyze, formulate and develop computer applications; select modern computing tools and techniques and use them with dexterity; design a computing system to meet desired needs within realistic constraints such as safety, security and applicability; devise and conduct experiments, interpret data and provide well informed conclusions; function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude; communicate effectively; and appreciate the importance of goal setting and to recognize the need for life-long learning; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

25. Instrumentation and Control Engineering

***Knowledge Area*:** Fundamental technology, theories, concepts and application of electronics; mathematics and physics to electronic measurement and control systems, Electronics and computer technology, application to instrumentation.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematics and instrumentation engineering; demonstrate ~~and~~ skills for performing investigation, analysis, and synthesis in the implementation of automatic control systems; understand use of electronics and computer technology to instrumentation, industrial automation, and process control systems; demonstrate basic skills in industrial repair and maintenance; demonstrate skills in the analysis of semiconductor electronic components, calibration of instruments, and use of standard signals; demonstrate ethical behavior and social responsibility; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

26. Instrumentation Technology

***Knowledge Area*:** Fundamental technology, theories, concepts and application of electronics; mathematics and physics to electronic measurement and control systems, Electronics and computer technology, application to instrumentation.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematics and instrumentation engineering; demonstrate skills for performing investigation, analysis, and synthesis in the implementation of automatic control systems, electronics and computer technology to instrumentation, industrial automation, and process control systems; demonstrate basic skills in industrial repair and maintenance; demonstrate skills in the analysis of semiconductor electronic components, calibration of instruments, and use of standard signals; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

27. Marine Engineering

***Knowledge Area*:** Marine Engineering and Operations Science; Mathematics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in Marine science and technology; show technical skills in handling modern tools in the knowledge area; practise Marine Engineering and operations programme; conduct, analyze and interpret experiments and apply experimental results to improve processes; create the design of systems, components or processors; do the practical shipboard work; apply mathematics; communicate orally and in writing marine technology; demonstrate skills in analytical thinking and problem solving through teamwork; apply these skills to support design applications and to solve emerging problems; demonstrate hands-on experience; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

28. Mechanical Engineering

***Knowledge Area*:** Mechanical Engineering, Mathematics

***Attributes/Outcomes*:** Demonstrate knowledge in the area of design, analysis and fabrication of mechanical systems; apply learned concepts and management skills to associate professionally in industry or as an entrepreneur; create sustainable engineering solutions through applications of mathematical, scientific and fundamental engineering concepts, methods and techniques; create sustainable engineering solutions; demonstrate proficiency in the techniques, skills and tools necessary for mechanical engineering practice; perform as an effective team member and leader in collaborative, multidisciplinary settings; communicate technical concepts and issues effectively with both technical and nontechnical audiences explain the roles and responsibilities of the professional engineer in society; analyze the impact of engineering solutions in a global, economic, societal and environmental context; demonstrate ethical conduct, accountability and equity consistent with the requirement of the profession; and recognize the need for engaging in life-long learning.

29. Mechanical Engineering (Automobile)

***Knowledge Area*:** Mechanical Engineering, Mathematics

***Attributes/Outcomes*:** Demonstrate knowledge in the area of design, analysis and fabrication of automobile mechanical systems; create sustainable engineering solutions through applications of mathematical, scientific and fundamental engineering concepts, methods and techniques; demonstrate proficiency in the techniques, skills and tools necessary for mechanical engineering practice; perform as an effective team member and leader in collaborative, multidisciplinary settings; communicate technical concepts and issues effectively with both technical and nontechnical audiences; analyze the impact of mechanical engineering on societal and environmental context globally as well as locally; demonstrate ethical conduct, accountability and equity consistent with the requirement of a production engineer; and recognize the need for engaging in life-long learning.

30. Mechanical Engineering (Production)

***Knowledge Area*:** Mechanical Engineering, Mathematics, Product Design Engineering.

***Attributes/Outcomes*:** Demonstrate knowledge in the area of design, analysis and fabrication of mechanical systems in production engineering; apply mechanical production engineering and management skills to industrial production; create sustainable engineering solutions through applications of mathematical, scientific and fundamental concepts, methods and techniques in production engineering; demonstrate proficiency in the techniques, skills and tools necessary for mechanical production engineering; perform as an effective team member and leader in collaborative, multidisciplinary settings; communicate technical concepts and issues effectively with both technical and nontechnical audiences; explain the roles and responsibilities of a production engineer; analyze the impact of production engineering solutions in a global, economic, societal and environmental context; demonstrate ethical conduct, accountability and equity consistent with the requirement of the profession; and recognize the need for engaging in life-long learning.

31. Mechatronics Engineering

***Knowledge Area*:** Mechanical Engineering, Mathematics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematics, electronics and basic engineering; apply theories of electronics and basic engineering to solve the related problems; design and calculate mechanical designs, electronic circuits; develop software for intelligent products; demonstrate ability to model and build mechatronic systems and implement these systems; identify, formulate and solve problems of electronic engineering; design and conduct experiments on analog and digital electronic systems to analyze and interpret data; design control systems as per needs and specifications, analysis of power electronic systems; model and simulate electrical signals and systems using modern engineering tools; practise professional ethics and engage in life-long learning; communicate effectively and work in a team to achieve the project objectives.

32. Metallurgical and Materials Engineering

***Knowledge Area*:** Metallurgical and Material Engineering; Material Chemistry; Mathematics; Industrial Production Engineering and Management.

***Attributes/Outcomes*:** Design processes for concentrating ores and minerals; select processes for extraction of ferrous and non-ferrous metals; assess performance of metallurgical processes; identify processes to produce products as per specifications; produce defect free products using metal forming and metal joining processes; design thermo-mechanical treatment processes to modify the properties of metals and alloys for specific engineering applications; analyze processes for protecting materials from mechanical and environmental degradation; design material systems, components, processes for specific applications considering environmental sustainability; apply modern science, engineering and project management principles to address the specific needs of metallurgical industries; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

33. Naval Architecture and Shipbuilding

***Knowledge Area*:** Naval Architecture and Shipbuilding, Oceanography, Mathematics, Remote sensing Technology; Advanced Communication Engineering.

***Attributes/Outcomes*:** Explain definitions, symbols, terminologies found in naval architecture; apply the concepts and theories of naval architecture in shipbuilding; draw the plans and analyze hydrostatic stability of ships and loading of ships; describe clearly the characteristics of modern building materials, the limits of construction materials and selection of building materials; explain the process of shipbuilding, docking facilities, fabrication of ships, and the role of ship classification society; apply appropriate knowledge and skills in designing a marine vessel using naval architecture theory; demonstrate ability to undertake convergence research in any of the basic sciences ; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

34. Polymer Engineering

***Knowledge Area*:** Polymer Chemistry, Polymer Science and Technology, Mathematics

***Attributes/Outcomes*:** Understand the basic concept of monomer, polymer and repeating units and their properties; understand the basic concepts of degree of polymerization chemistry of polymers and the possible chemical modification; demonstrate ability to understand the extraction process, the physical and chemical characterization of raw materials, the modifications of various monomers; design and conduct experiments in polymer synthesis and characterization, as well as to analyze and interpret data; design moulds, products and process for the development of polymer products to meet the needs of industries and society; employ advanced techniques, skills, and modern engineering tools necessary for synthesis, testing and processing of polymers; demonstrate ability to undertake convergence research in any of the basic science of specialization; show commitment to scientific values, professional ethics, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

35. Polymer Science and Engineering

***Knowledge Area*:** Polymer Science and Technology, Polymer Chemistry, Mathematics.

***Attributes/Outcomes*:** Understand the basic concept of monomer, polymer and repeating units and their properties; understand the basic concepts of degree of polymerization chemistry of polymers and the possible chemical modification; understand the extraction process, the physical and chemical characterization of raw materials, the modifications of various monomers; design and conduct experiments in polymer synthesis and characterization, as well as to analyze and interpret data; design moulds, products and process for the development of polymer products to meet the needs of industries and society; employ advanced techniques, skills, and modern engineering tools necessary for synthesis, testing and processing of polymers; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

36. Production Engineering

***Knowledge Area*:** Production engineering, Mathematics, Industrial Production Management.

***Attributes/Outcomes*:** Design manufacturing systems that would encompass machining technology, welding technology, metal forming, foundry technology and thermal engineering infrastructure and would meet specifications and requirements as demanded by the customers; apply design and tooling for manufacturing, finite element methods, modeling of manufacturing systems to solve production engineering problems; understand manufacturing technologies like computer controlled processes and management information systems, production management, SCM, ERP and new manufacturing concepts like TPS, agile manufacturing, pull and push system; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

37. Safety and Fire Engineering

***Knowledge Area*:** Safety and Fire Engineering, Mathematics, Thermodynamics

***Attributes/Outcomes*:** Discuss fire dynamics, fire initiation through to decay and combustion effects; investigate building regulations and fire engineering principles and their application to fire engineered alternative solutions; identify appropriate technologies used in the fire protection of buildings; describe active and passive fire safety systems and their application; discuss human behaviour and risk assessment; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

Master of Technology (M.Tech) Degrees

Entry Qualifications: Bachelor's Degree in Engineering
Degree Conferred: M.Tech.

1. Agricultural Engineering

***Knowledge Area*:** Agriculture Engineering, Agronomy, Mathematics, Irrigation Engineering, Soil and Water Conservation, Post-harvest Technology, Farm Mechanization, Renewable and Non-renewable Resource Technologies, Landscape Architecture.

***Attributes/Outcomes*:** Understand agriculture engineering solutions in global and social context to improve agriculture; demonstrate ability to solve complex problems related to farm mechanization, soil and water conservation, post-harvest technology, renewable and non-renewable resource technologies, landscape architecture and modern irrigation techniques; understand the social awareness and environment necessity along with ethical responsibility to have a successful career and to have a zeal for real world application using optimum resource and to become an entrepreneur; and recognize the need for engaging in life-long learning.

Specializations

i. Agricultural and Food Processing Engineering

***Attributes/Outcomes*:** Demonstrate knowledge of the principles of heat and mass transfer and its applications in food processing, the different energy management techniques including energy auditing of food industries, the post-harvest technology of cereals, pulses and oilseeds with special emphasis on their equipment; design different food processing equipment for fruits and vegetables, seeds, meat and meat products; demonstrate knowledge of packaging methods, packaging materials, packaging machineries, modern packaging techniques, storage structures; develop techniques of safe storage of food materials; understanding of the basic principles of biochemical and process engineering, modern and latest techniques of food engineering, the textural and rheological properties of food materials; apply the latest technologies of dehydration of food products and the design features of different dryers; demonstrate knowledge of proper utilization of agricultural waste and by-products; demonstrate skills to produce value added products from wastes; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ii. Farm Power and Machinery

***Attributes/Outcomes*:** Demonstrate the latest design procedures of farm power and machinery systems, ergonomic aspects in the design of farm machinery and tractors for safety of human beings; understand the dynamic properties of soil, soil failure and design of tillage tools, prediction of traction performance; acquaintance with energy use scenario in agricultural production system of energy efficiency, energy planning, forecasting and energy economics; demonstrate knowledge of the conventional and non-conventional energy sources; use of GIS and GPS in farm machinery; evaluate farm power and machinery as per test standards and

interpretation of results; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

iii. Soil and Water Engineering

***Attributes/Outcomes*:** Understand hydrological process and analysis of hydrological data; understand the irrigation principles, importance and phenomenon of drainage, the occurrence, development and hydraulics of groundwater flow, the process of degradation soil and water conservation and their remedial measures; demonstrate knowledge of the advanced application of irrigation and drainage system along with applicability of various models, the techniques for optimization of water resources for achieving maximum output; apply GIS for land and water resources management; demonstrate skills in watershed management modeling and modeling systems; understand the erosion process along with tools required and application of soil erosion models, the hydrodynamics of fluid and pollutant flow; demonstrate skills in the impact analysis of contaminant transport through modelling; develop simulation and modeling techniques in the soil, plant and water environment for crop-growth; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

2. **Atmospheric Science**
***Knowledge Area*:** Climatology, Meteorology

***Attributes/Outcomes*:** Describe the history and development of meteorology; demonstrate knowledge of the dynamics, physics and thermodynamics in meteorology; apply statistical time-space methods in analyses of geophysical data; demonstrate good knowledge of mathematics, physics, computer science, geosciences, climate and oceanography; demonstrate thorough knowledge of a specialized topic in meteorology; use mathematical and numerical models and be able to discuss the results in terms of theory and available observations; demonstrate ability to use the most common instruments in meteorology to carry out related data analyses and aware of the possibilities and limitations; explain and discuss meteorological phenomena with both experts and laymen; present both written and oral reports; demonstrate skills to work individually and in a team to solve a complex problem; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

3. Chemical Engineering
***Knowledge Area*:** Mathematics, Chemical Science, Chemical Engineering, Process Engineering.

***Attributes/Outcomes*:** Select and handle analytical instruments like GCMS, HPLC, UV Spectrophotometer, Atomic absorption spectrophotometer (AAS), scanning electron microscope (SEM), X-ray diffraction (XRD) analyzer etc; apply knowledge of mathematics, science, engineering fundamentals and core engineering subjects to define and apply them with proper improvisation to solve process-engineering problems; survey appropriate literature, identify, formulate, and analyze broadly-defined engineering problems in reaching substantiated conclusions using analytical/computational tools appropriate to Chemical Engineering and allied problems; show commitment towards environmentally benign design and engineering; communicate effectively on broadly-defined engineering activities with the engineering community and with society at large; comprehend and write technical reports; design documentation; function effectively as an engineering professional, as individual, and as a

member or leader in diverse technical teams (term work, practical, mini project and project); demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning

Specializations

i. Computer Aided Process Design

***Attributes/Outcomes*:** Demonstrate techniques for computer-aided analysis and design of chemical processing systems; recognize the structure of complex, interconnected chemical processes with recycle streams; apply different types of controllers and control strategies; formulate and find optimal solutions in chemical engineering problems; analyze different separation processes; demonstrate knowledge to select a separation process for efficient functioning of a chemical industry; select and design the type of reactor for a particular application; explain the advanced concepts of heat and mass transfer; understand principles and practice of process safety; undertake hazard analysis of chemical plants; demonstrate the use of nano-materials, their processing and preparation for different applications; demonstrate effective communication skills; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ii. Nano Technology

***Attributes/Outcomes*:** Understand the Mathematical tools required for Nanotechnology; understand the basic concepts of nanotechnology, nanomaterials; demonstrate the knowledge of contemporary techniques of fabrication of microelectronics and nanoelectronics; explain and illustrate the chemical and physical processes involved in the synthesis and properties of nanoparticles; demonstrate an understanding of synthesis, characterization and properties of different types of carbon based nanoparticles; demonstrate an understanding of synthesis, characterization, properties and applications of nanocomposites; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

iii. Process Control

***Attributes/Outcomes*:** Understand the concepts in matrices and power series, state space analysis; demonstrate knowledge in various advanced theories in process control; apply different types of controllers and control strategies; demonstrate the knowledge to select a separation process for efficient functioning of a chemical industry; apply various neural network models and recognize their respective field of applications; explain advanced concepts of heat and mass transfer; understand the various causes of pollution, treatment and control of pollutants and the legislations related to environment protection; understand principles and practice of process safety; undertake hazard analysis of chemical plants; demonstrate the use of nano-materials, their processing and preparation for different applications; demonstrate effective communication skills; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

iv. Process Engineering

***Attributes/Outcomes*:** Understand experimentally reactor and separation process performance, operate them safely and in a controlled manner, gather and analyze data and evaluate process unit performance; understand connection between various processing steps from a chemical production point of view; model, analyze, design, and optimize chemical processes with the help of modern tools; demonstrate the knowledge to select a separation process for efficient functioning of a chemical industry; understand the various causes of pollution, treatment and control of pollutants and the legislations related to environment protection; understand principles and practice of process safety; ability to act as a chemical engineering expert in multidisciplinary groups of experts designing economically feasible, safe and environmentally friendly chemical plants; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

4. Civil Engineering

***Knowledge Area*:** Mathematics, Structural Engineering, Geomechanics, Landscape Architecture.

***Attributes/Outcomes*:** Apply knowledge of mathematics, science, and engineering; identify, formulate, review research literature, and analyze engineering problems reaching substantiated conclusions using principles of mathematics, and engineering sciences; design solutions for engineering problems and to design a component, system, or process that meet the specified needs with appropriate consideration for the public health and safety, along with the cultural, societal, and environmental considerations; demonstrate research-based knowledge and techniques including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions; understand impact of professional engineering solutions in societal and environmental contexts; apply ethical principles and show commitment to professional ethics, responsibilities and norms of the engineering practice; communicate effectively complex engineering activities with the engineering community and with society at large; show commitment to conservation, environmental justice and social responsibilities; recognize the necessity to cultivate the habit of pursuing lifelong learning.

Specializations

i. Computer Aided Structural Engineering

***Attributes/Outcomes*:** Apply computer in construction engineering; demonstrate skills in theoretical and practical aspects of computerized engineering project management techniques; demonstrate organizational and leadership capabilities for effective management of computerized construction project; able to apply knowledge and skills in computer aided construction techniques; demonstrate necessary knowledge and skills in accounting, financing, risk analysis and contracting; apply relevant software packages for planning, scheduling, executing and controlling construction projects; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Construction Engineering and Management

***Attributes/Outcomes*:** Apply theoretical and practical aspects of project management techniques to achieve project goals; demonstrate organizational and leadership capabilities for effective management of construction project; apply knowledge and skills of modern construction practices and techniques; demonstrate necessary knowledge and skills in accounting, financing, risk analysis and contracting; apply relevant software packages for planning, scheduling, executing and controlling construction projects**;** show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Environmental Engineering/ Environmental Engineering and Management

***Attributes/Outcomes*:** Apply the statistical procedures in the modelling of data in their field of study; understand the concepts of environmental chemistry that can be put to practical applications; apply microbial technology in various environmental engineering practices; understand the existing environmental rules and legislations in the country; design and understand the treatment methods of water and waste water; understand the basic requirements of environmental management system standards and environmental auditing; understand concepts of environmental biochemistry, industrial waste management, cleaner production technologies; exhibit insight into global environmental issues; communicate effectively; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Geotechnical Engineering

***Attributes/Outcomes*:** Apply knowledge of basic sciences and engineering to analyze geotechnical problems; analyze and design geotechnical engineering structures; design techno-economic infrastructure in difficult terrains and problematic soils; communicate effectively and demonstrate leadership skills; identify and use local and environmental friendly materials in civil engineering projects; engage in team work and lifelong learning for professional advancement; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

v. Geo Informatics

***Attributes/Outcomes*:** Apply principles of remote sensing and GIS to collect, map and retrieve spatial information; plan, assess and evaluate natural and manmade systems using geospatial models and methods; use geospatial tools and techniques for hazard mitigation and resource planning; pursue research and develop capabilities to handle multi-disciplinary field projects; work in teams and demonstrate leadership skills with professional ethics; show commitment to conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

vi. Geomechanics and Structures

***Attributes/Outcomes*:** Understand geomechanics and assess stress and strain distribution in soil; apply various theories to analyze the strength and behaviour of soils under loads; demonstrate knowledge in rheological behaviour of soil and failure theories; evaluate performance of the structures; assimilate principles of exploration, different methods of exploration and sampling techniques; demonstrate knowledge about forensic analysis of geotechnical failures, offshore investigation and geotechnical instrumentation; plan and conduct soil investigation programme; give soil investigation reports of various projects and suggest suitable foundations for the structures; analyze the stability of slope and to suggest the suitable slope stabilization method; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

vii. Structural Engineering and Construction Management

***Attributes/Outcomes*:** Apply the knowledge of science, mathematics, and engineering principles for developing problem solving attitude; identify, formulate and solve engineering problems in the domain of structural engineering field; use different software tools for analysis and design structural engineering domain; apply appropriate computational tools, techniques, resources, modern engineering and structural analysis and design software for prediction and modeling of complex engineering activities with an understanding of their limitations; function as a member of a multidisciplinary team with sense of professional ethics, integrity and social responsibility; show commitment to conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

5. Traffic and Transportation Engineering

***Knowledge Area*:** Mathematics, Basic Engineering, Traffic and Transportation Engineering

***Attributes/Outcomes*:** Demonstrate advanced knowledge of road construction using suitable materials based on its properties, tests and procedures to be adopted for pavement construction; understand the stages involved in the urban transportation planning process and the principle of land use transport interaction models; understand the various elements in traffic engineering, traffic safety; design different highway facilities and apply relevant highway design standards; principles of economics and its application to transportation; detailed knowledge about design of intersection controls; understand basic theories of regional development and goods demand modelling; understand basic concepts of geoinformatics in the context of transportation and transportation network; demonstrate knowledge of different approaches and types of traffic simulation models; undertake planning activities connected with transit operations; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

6. Water Resources and Hydro Informatics

***Knowledge Area*:** Hydrology, Hydro Informatics

***Attributes/Outcomes*:** Apply knowledge of mathematics, science and engineering in regulating exploitation of groundwater and setting water allocation priorities and water resources problems; plan and design water resources system components/processes to meet the desired needs of the society within economic, social, environmental, ethical and sustainability constraints; develop remote sensing and GIS application tools and hence to create information system for data bank and data bases; identify, collect and interpret the water resources field as well as experimental data for the simulation of various hydrology and water resources engineering problems; understand, predict and quantify impacts of new projects while assessing the social economic viability; gain proficiency in the usages of tools like spreadsheets, mathematical and statistical packages, GIS and remote sensing packages, simulation models; demonstrate confidence and research aptitude for taking up challenging problems of competing global scenario; communicate effectively with multidisciplinary experts as well as ordinary people; undertake work as an effective team member in group activities; show commitment to professional ethics, conservation, environmental justice and social responsibilities; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

7. Coastal and Harbour Engineering

***Knowledge Area*:** Marine and Coastal Engineering, Mathematics, Geomatics, Computer Technology

***Attributes/Outcomes*:** Demonstrate advanced knowledge of the science of coastal and marine processes; demonstrate knowledge and expertise in the design of coastal structures and port and harbours; understand the coastal landscape ecosystem; plan, design and execute structural engineering projects; understand, predict and quantify impacts of new projects on the coastal environment; assess the ecological and social coasts to ascertain the economic viability; demonstrate skills in the sustainable management of ports and harbours; show competency to use advanced tools and instrumentation applicable to the field of harbor engineering; identify and adopt appropriate measures against coastal erosion and various other environmental hazards; show commitment to professional ethics, conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

8. Computer Aided Structural Analysis and Design

***Knowledge Area*:** Computer Technology, Software Engineering, Computer Aided Structural Analysis, Software Product Design Engineering, Mathematics

***Attributes/Outcomes*:** Demonstrate advanced conceptual understanding of the principles of CAD systems and ability to implement them; identify its connections to CAM and CAE systems; understand 2D, 3D transformations and projection transformations; demonstrate knowledge of various approaches of geometric modelling; understand mathematical representation of 2D and 3D entities; understand basic fundamentals of FEM; identify problems and find solutions through computer technology and software engineering; demonstrate aptitude to research in improving the operating systems, resolutions and functions; demonstrate ethical behavior and social responsibility; communicate effectively with

multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

9. Computer Science Engineering

***Knowledge Area*:** Computer Technology, Software Engineering, and Mathematics.

***Attributes/Outcomes*:** Understand the theoretical foundations and the limitations of computer engineering; adopt existing models, techniques, algorithms, data structures, etc. for efficiently solving problems; design, develop and evaluate new computer based systems for novel applications which meet the desired needs of industry and society; use advanced computing techniques and tools; undertake original research at the cutting edge of computer science and its related areas; function effectively individually or as a part of a team to accomplish a stated goal; communicate effectively with a wide range of audience; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

Specializations

i. Computational Linguistics

***Attributes/Outcomes*:** Describe the fundamental concepts of natural language modeling; demonstrate mastery over the methodology of using linguistic resources (corpora, dictionaries, semantic networks, etc) and make an argued choice between various linguistic resources; apply in a relevant way statistical language modeling techniques; develop linguistic engineering applications; integrate a multidisciplinary approach to the edge between computer science and linguistics, using wisely the terminology and tools of one or the other discipline; manipulate and exploit large amounts of data; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

ii. Computer and Information Science

***Attributes/Outcomes*:** Demonstrate advanced knowledge of basic mathematical concepts for computer science and its applications; design efficient algorithms for new problems with volume of data; demonstrate knowledge about the practical aspects of data communication and computer network systems, text retrieval technology, issues and methodologies in digital image processing; design and develop cloud services; understand the design of operating systems; explain the basic knowledge representation, problem solving, and learning methods of artificial intelligence, the different steps in image processing and computer vision; demonstrate knowledge of basic concepts in artificial neural networks, fuzzy logic, and genetic algorithm; use semantic web technologies; understand the basic concepts of molecular biology and device efficient algorithms for predicting the molecular structures; apply different machine learning methods for practical applications; demonstrate knowledge on the fundamental principles of IPR and computer contracts, laws related to cybercrimes, aspects of cryptographic systems; develop database system; understand concepts of wireless sensor networks; demonstrate ability in in technical communication, orally and in writing; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

iii. Computer Science and Systems Engineering

***Attributes/Outcomes*:** Knowledge in Computer Science, Computer System Design Engineering; ability to engineer computing systems across the hardware-software spectrum; competency to practise and grow as a computing professionals; apply knowledge in Computer Science and Engineering in different sectors; ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics; ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors; ability to communicate effectively with the clientele; aptitude to conduct research in Computer Systems Engineering; demonstrate professional responsibilities in engineering situations; make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts; demonstrate ethical behavior; and recognize the need for engaging in life-long learning.

iv. Cyber Forensics and Information Security; Cyber Security

***Attributes/Outcomes*:** Demonstrate advanced knowledge in computer forensics with the technical expertise and the knowledge required to investigate, detect and prevent digital crimes; demonstrate knowledge in digital forensics legislations, digital crime, forensics processes and procedures, data acquisition and validation, e-discovery tools; undertake E-evidence collection and preservation; handle efficiently the investigating operating systems and file systems, network forensics, art of steganography and mobile device forensics; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

v. Embedded Systems

***Attributes/Outcomes*:** Design, describe, validate, and optimize embedded electronic systems in different industrial application areas; define hardware and software communication and control requirements and be able to effectively bridge the gap between hardware and software design in different industrial production contexts; efficiently handle tools for the development and debugging on a variety of platforms; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

vi. Image Processing

***Attributes/Outcomes*:** Demonstrate knowledge about the concepts related to image processing; formulate solutions to general image processing problems; explain the concepts of advanced data structures and their applications; apply appropriate mathematical models to solve computer graphics problems; understand the fundamental concepts of multimedia systems; apply the principles of software engineering in modeling and testing; explain different software architectures; discuss about information security, its significance and the domain specific security issues; understand concepts data-warehousing and data-mining; demonstrate skills in soft computing based on artificial neural networks, fuzzy logic, and genetic algorithms; apply theoretical and practical knowledge of information retrieval techniques; explain the evolution

and fundamental concepts of data compression and coding techniques; demonstrate knowledge in problems and approaches related to secure network management; understand various implementation issues in database; demonstrate knowledge in different aspects and application areas of geographic information systems and satellite image processing; understand basic concept in image and video retrieval system; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

vii. Information Security

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematical foundations of computing systems, principles of information security, and network security; understand various cryptographic algorithms; explain concepts of data warehousing and data mining, awareness of data compression techniques; understand the issues and methodologies in digital image processing; design and develop cloud services; identify security vulnerabilities in networked systems; understand and apply technologies used in wireless and mobile communication; apply techniques for penetrating web applications and web server, public key infrastructure concepts; apply different machine learning methods for practical applications; demonstrate knowledge in the fundamental principles of IPR, computer contracts, and laws related to cyber crimes; cyber forensics analysis; demonstrate insight into various aspects of security policies and risk analysis; demonstrate fundamental knowledge about concepts and applications of biometric security; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

viii. Network Computing

***Attributes/Outcomes*:** Apply systematic computing approaches to address complex, multi-disciplinary real-world computing problems in a variety of domains; synthesize and proficiently apply advanced, integrated technical knowledge; demonstrate the practical knowledge of the underpinning sciences and computational methods; identify and critically evaluate current developments within the relevant areas of specialization; and demonstrate skills in other elective areas of study; understand the contextual factors that influence professional computing practice; identify the potential societal, ethical, and environmental impact of computing activities; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

ix. Networks, Networks and Security

***Attributes/Outcomes*:** Critically assess existing systems using the theories, techniques, and software tools that are available in the field of information security and computer networks; understand new and emerging technologies; understand their underpinning principles; analyze critically their design; document the core issues and requirements in building secure and effective networks systems; design architectures for secure systems and effective networks; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

10. Dairy Chemistry

***Knowledge Area*:** Dairy Chemistry

***Attributes/Outcomes*:** Understand the physico-chemical aspects of milk and milk products, their processing and quality assurance; demonstrate advanced knowledge in all aspects of milk carbohydrates, minerals and water soluble vitamins, milk lipids, milk proteins different aspects of food components; apply analytical techniques in dairy chemistry; explain the impact of processing parameters, contaminants and additives on milk constituents; analyze milk and milk products; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

11. Dairy Microbiology

***Knowledge Area*:** Dairy Microbiology, Biotechnology, Biochemistry, Environmental Science

***Attributes/Outcomes*:** Demonstrate advanced knowledge of taxonomy and morphological features of the various microorganisms, the various aspects of growth and energy generating activities of bacteria for the betterment of human life; demonstrate knowledge and skills related to microbiological analytical systems; understand the fundamentals of environmental microbiology in combating the pollution in the environment; demonstrate knowledge in the application of Biotechnology in Dairy/Food Industry; understand the starter organism, propagation, preservation and their applications; demonstrate knowledge pertaining to quality and safety functions in dairy processing unit; understand the basics of feed and rumen microbiology; demonstrate knowledge on probiotics and fermented dairy products, microbial genetics, food borne pathogens; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

12. Dairy Technology

***Knowledge Area*:** Dairy Science and Technology, Biotechnology, Biochemistry, Environmental Science

***Attributes/Outcomes*:** Demonstrate knowledge in various unit operations and basic concepts in dairy processing; understand theoretical and practical aspects of food processing; demonstrate basics of food rheology and skills to handle rheological instruments in the context of dairy and food products; understand the applications of biotechnology in dairy processing, production, preservation and packaging of dairy products; explain the basics of membrane technology and its applications in dairy processing; understand the basic principles underlying the novel/non-conventional food processing techniques; develop new food products; explain the characteristics of food proteins, their implications in processing and interactions in food systems and their nutritional role; demonstrate knowledge of patenting and transfer of technology processes; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

13. Electrical and Electronics Engineering

***Knowledge Area*:** Mathematics, electrical and electronics engineering, computer technology

***Attributes/Outcomes*:** Apply the knowledge of science and mathematics in designing, analyzing and using power converters for various industrial and domestic applications; design the modern electric machines, drives, power converters, and control circuits for specific application; efficiently handle modern tools, professional software platforms, embedded systems for the diversified applications; demonstrate critical and independent thinking; correlate the domain knowledge with the global industrial problems; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts as well as ordinary people and recognize the need for engaging in life-long learning.

Specializations

i. Control Systems

***Attributes/Outcomes*:** Demonstrate the techniques and skills in handling modern control engineering tools necessary for engineering practices; recognize design, operation, control, and testing issues; understand the modern electric machines, drives, power converters, and control circuits for specific application; efficiently handle modern tools, professional software platforms, embedded systems for the diversified applications; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts and the ordinary people, the results obtained through research and recognize the need for engaging in life-long learning.

ii. Electrical Machines

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate advanced knowledge of transformations for the dynamic analysis of machines; determine the stability of the electrical machines under small signal and transient conditions; understand the modern electric machines, drives, power converters, and control circuits for specific application; efficiently handle modern tools, professional software platforms, embedded systems for the diversified applications; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts and the ordinary people and recognize the need for engaging in life-long learning.

iii. Energy Systems

***Attributes/Outcomes*:** Understand basic principles of optimization theory; explain concepts of various renewable energy resources; demonstrate the ability to understand energy reserves, various energy scenario; assess impacts of energy usage on environment and implications in energy economics; describe the characteristics, operational features and control important power electronic devices; understand the fundamentals of industrial thermal systems, industrial chemical processes; design the lighting system for indoor and outdoor applications; apply various energy audit instruments and undertake energy audit; understand simulation of power conversion system; analyze and model deconnected solar PV systems; explain the dynamics of

grid integrated wind system; understand the principles and technologies for solar thermal energy collection, conversion and utilization, parts and operation of fuel cell and hydrogen fuel; understand the economics of planning, operation of power system, parts, fuels and safety aspects of a nuclear reactor; develop embedded controllers for power electronic based system; assess the impact of energy extraction strategies on climate, waste management and energy generation; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts and the ordinary people and recognize the need for engaging in life-long learning.

iv. Industrial Drives and Control

***Attributes/Outcomes*:** Select a drive for a particular application based on power rating; select a drive based on mechanical characteristics for a particular drive application; understand various operating regions of the induction motor drives; understand the speed control of induction motor drive from the rotor side; understand the field oriented control of induction machine; understand the control of synchronous motor drives; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts and the ordinary people and recognize the need for engaging in life-long learning

v. Industrial Instrumentation and Control

***Attributes/Outcomes*:** Demonstrate how the generalized measurement system can be realized in typical examples of industrial instrumentation; apply physical principles to discuss the static and dynamic response characteristics of a transducer; analyze specific measurement problems, describe the appropriate sensing principles and propose suitable instrumentation; summarize and compare the most widely applied signal transmission technologies for industrial instrument installations in small to medium manufacturing plants; choose appropriate control valve designs for a given flow or pressure control application; compare energy saving benefits of variable speed pumps and valves for fluid control; design a typical process instrumentation system by using graphical symbols and numbering codes in accordance with the International Standards; demonstrate ethical behavior and social responsibility; communicate effectively with multidisciplinary experts and the ordinary people and recognize the need for engaging in life-long learning.

vi. Power Electronics and Control

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic analysis of machines; determine the stability of the machines under small signal and transient conditions; demonstrate specialized knowledge in the operation and control of power; electronic converters and drives with an ability to combine existing and recent practices; analyze and solve complex problems in the field of power electronics and drives to meet the needs of industry and society; demonstrate research competence in the field of power electronics and drives to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics and drives; demonstrate ethical behavior and social

responsibility; communicate effectively with multidisciplinary experts and the ordinary people and recognize the need for engaging in life-long learning.

vii. Power Electronics and Drives

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic analysis of machines; determine the stability of the machines under small signal and transient conditions; demonstrate specialized knowledge in the operation and control of power; electronic converters and drives with an ability to combine existing and recent practices; analyze and solve complex problems in the field of power electronics and drives to meet the needs of industry and society; demonstrate research competence in the field of power electronics and drives to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics and drives; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

viii. Power Electronics and Power Systems

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic analysis of machines; determine the stability of the machines under small signal and transient conditions; demonstrate specialized knowledge in the operation and control of power; show skills in handling electronic converters and drives with an ability to combine practices relatively old and new; analyze and solve complex problems in the field of power electronics to meet the needs of industry and society; demonstrate research competence in the field of power electronics to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics ; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ix. Power Electronics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in power engineering and electronics engineering; formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic analysis of machines; demonstrate the ability to determine the stability of the machines under small signal and transient conditions; demonstrate research competence in the field of power electronics to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics ; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

x. Power Engineering and Energy Systems

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic

analysis of machines; determine the stability of the machines under small signal and transient conditions; demonstrate specialized knowledge in the operation and control of power; apply electronic converters and drives with an ability to combine the current and and recent practices; analyze and solve complex problems in the field of power electronics and drives to meet the needs of industry and society; demonstrate research competence in the field of power electronics ; to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xi. Power System and Control

***Attributes/Outcomes*:** Formulate electrodynamic equations of all electric machines and analyze the performance characteristics; demonstrate knowledge of transformations for the dynamic analysis of machines; show ability to determine the stability of the machines under small signal and transient conditions; demonstrate specialized knowledge in the operation and control of power; apply electronic converters and drives with an ability to combine current and recent practices; analyze and solve complex problems in the field of power electronics and drives to meet the needs of industry and society; demonstrate research competence in the field of power electronics to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

xii. Power Systems

***Attributes/Outcomes*:** Demonstrate specialized knowledge in the operation and control of power systems; electronic converters and drives with an ability to combine existing and recent practices; analyze and solve complex problems in the field of power electronics and drives to meet the needs of industry and society; demonstrate research competence in the field of power electronics and drives to develop innovative products to meet the industrial needs; apply modern tools, latest technologies and resources to provide solutions to complex engineering problems related to power electronics and drives; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

14. **Electronics and Communication Engineering**

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and communication Engineering (ECE); adopt existing models, tools and techniques etc. for efficiently solving problems related to ECE; understand and apply advanced hardware and software tools for development of new electronic systems; experimentally evaluate and carry out intelligent tradeoffs in design of electronic systems as per the needs of the industry and society; function effectively individually

or as a part of a team; demonstrate professional skill and ethical responsibility; communicate effectively with a wide range of audience and recognize the need for engaging in life-long learning.

Specializations

i. Advanced Communication and Information System

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and communication Engineering (ECE); adopt existing models, tools and techniques etc. for efficiently solving problems related to ECE; understand advanced hardware and software tools for developing new electronic systems; experiment, evaluate and carry out intelligent tradeoffs in design of electronic systems as per the needs of the industry and society; function individually or as a part of a team; demonstrate professional ethics and show commitment to social responsibility; communicate effectively with the professionals and user groups and recognize the need for engaging in life-long learning.

ii. Applied Electronics and Communication System

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and communication Engineering (ECE); adopt existing models, tools and techniques etc. for efficiently solving problems related to ECE; apply advanced hardware and software tools for development of new electronic systems; experiment, evaluate and carry out intelligent tradeoffs in design of electronic systems as per the needs of the industry and society; function individually or as a part of a team; demonstrate the ability to show professional ethics ; communicate effectively with all types of the clientele concerned; and recognize the need for engaging in life-long learning.

iii. Applied Electronics and Instrumentation

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and instrumentation Engineering; demonstrate ability to adapt existing models, tools and techniques etc., for efficiently solving problems related to ECE; understand advanced hardware and software tools for development of new electronic systems; demonstrate ability to experimentally evaluate and carry out intelligent tradeoffs in design of electronic systems as per the needs of the industry and society; function individually or as a part of a team; show commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iv. Applied Electronics

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and electronics engineering with a focus on applications in Electronics to analyze, synthesize and evaluate information to acquire expertise in core areas of Instrumentation; show aptitude, analytical and logical skills; demonstrate advanced Electrical Engineering; Electronics (Analog

and Digital); demonstrate skills in handling Computer Hardware, Software and interfacing techniques; identify Sensors and Signal conditioners and measurements; apply Optical and Laser based Instruments; handle Pharmaceutical and Biomedical Instruments; understand Control systems, various industrial and process control and automation techniques; understand multidisciplinary subjects such as Embedded Systems, VLSI Design, Telemetry and Tele control, Robotics and Virtual Instrumentation (Lab VIEW); demonstrate a high level of technical expertise in the allied fields of electronics; communicate effectively among professional scientists and technologists; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

v. Communication Engineering and Signal Processing

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and communication Engineering (ECE) and signal processing; adopt existing models, tools and techniques etc. for efficiently solving problems related to ECE; understand and able to use advanced hardware and software tools for development of new electronic systems and signal processing; experiment, evaluate and carry out projects in design of electronic systems as per the needs of the industry and society; function individually or as a part of a team; effectively communicate with a wide range of professionals; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

vi. Communication Engineering

***Attributes/Outcomes*:** Understand the theoretical foundations based on mathematics, science and engineering with a focus on applications in Electronics and communication Engineering (ECE); adopt existing models, tools and techniques etc. for efficiently solving problems related to ECE; understand advanced hardware and software tools for development of new electronic systems of communication; demonstrate ability to experiment, evaluate and carry out research projects in designing electronic systems of communication as per the needs of the industry and society; function effectively individually or as a part of a team; demonstrate ability to communicate effectively with professionals and commons; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

vii. Communication Systems

***Attributes/Outcomes*:** Demonstrate advanced knowledge in communication systems engineering; identify, formulate and solve engineering problems in communication systems design and networking; understand the latest theories and practices in areas like optical communication, satellite communication, wireless communication, networking, RF-microwave, antennas; demonstrate technical skills in measurements and determining standards in communication; recognize and apply the most appropriate software tools available for design, analysis and verification in the domain of communication and networking systems; undertake experiments in progressive steps such as design entry, synthesis, functional and timing simulation and obtain results; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

viii. Digital Electronics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in digital electronics; demonstrate theoretical and practical knowledge in advanced mathematics; apply binary mathematics; design a combinatorial logic circuit that solves binary logical tasks; design a sequential circuit that solves binary logical tasks; describe the structure of a logic gate; explain the principles of programmable circuits; explain the principles of analog-to-digital (AD) - and digital-to-analog (DA) conversion; design synchronous networks with sequential flow charts; design sequential circuits for programmable logic device (PLD) circuits; demonstrate skills in programming a microcomputer and describe the code with logic; exhibit professionally good communication skills and adaptability to team work; and demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ix. Microwave and Radar Electronics

***Attributes/Outcomes*:** Demonstrate advanced knowledge in Microwave physics and Electronics engineering; understand measurements and applications of microwave devices, amplifiers and RF filter circuits; identify special semiconductor devices for power applications and communication engineering; formulate and solve problems in communication systems engineering and networking; understand the latest theories and practices in areas like optical communication, satellite communication, wireless communication, networking, RF-microwave, antennas; understand Radar and Navigation Systems engineering; demonstrate technical skills in measurements and determining standards in communication; recognize and apply the most appropriate software tools available for design, analysis and verification in the domain of communication and networking systems; undertake experiments in progressive steps such as design entry, synthesis, functional and timing simulation and obtain results; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

15. Digital Signal Processing

***Attributes/Outcomes*:** Describe the characteristics and transformations of discrete time signals mathematically; apply techniques in time and transform domains to the analysis and design of discrete-time systems; estimate the spectra of deterministic and stochastic signals, and appropriately interpret the information contained therein; demonstrate the ability to manipulate signals using analytical techniques and write algorithms to implement discrete-time systems; describe the techniques for signal modulation and discriminate between the different modulation schemes used in communication systems; create software using an industry standard programming environment that provides telecommunication functionality; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

16. Electronics Design Technology

***Knowledge Area*:** Electronics Engineering, Electronics Product Design Engineering, Computer Technology, Mathematics.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in Electronics Engineering, products design, and computer technology, and mathematics; demonstrate knowledge in latest electronic devices in all fields like optical communication, satellite communication, wireless communication, networking, RF-microwave, antennas, measurements and standards in product design; understand and use different software tools for electronic products design; analyze and evaluate ergonomics and aesthetics of electronics products designs; describe an engineering design and development process; create 3D solid models of mechanical components using CAD software; demonstrate individual skill using selected manufacturing techniques, including drilling, pressing, tapping, and rapid prototyping; apply engineering, scientific, and mathematical principles to execute a design from concept to finished product fabricate an electromechanical assembly from engineering drawings; identify, formulate and solve problems in electronic product design engineering;; work collaboratively in a team to successfully complete a design project; effectively communicate the results of projects and other assignments in a written and oral format; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

17. Optoelectronics and Communication

***Knowledge Area*:** Optoelectronics, Optical Instrumentation, Laser Physics, Neural Networks, Artificial Engineering

***Attributes/Outcomes*:** Understand different optical signal processing methods, basic conceptual foundations of optical fibre transmission, different aspects of digital communication over various channels; understand various optoelectronic devices and optoelectronic detectors; advanced understanding in the interdisciplinary area of laser technology; understand the concepts of electromagnetic waves; develop innovative techniques of signal processing for computational processing and analysis of biomedical signals and to extract useful information; understand the different optoelectronics devices; design an optical sensors for a particular application, different concepts of photonics packaging; understand the role of neural networks in engineering, artificial intelligence, and cognitive modelling; understand the principle of operation and applications of optical instrumentation; design laser tweezers and laser scissors for treatment of various disease; demonstrate the professional knowledge of applications of laser spectroscopy in industry; show skills in effective communication with teams; and demonstrate work ethics in the field; and recognize the need for engaging in life-long learning.

18. Optoelectronics and Optical Communication

***Knowledge Area*:** Optoelectronics, optical fibre transmission physics, Computer technology, Mathematics.

***Attributes/Outcomes*:** Understand advanced optoelectronics and optical fibre transmission physics; comprehend different optical signal processing methods, basic conceptual foundations of optical fibre transmission, different aspects of digital communication over various channels; understand various optoelectronic devices and optoelectronic detectors; advanced

understanding in the interdisciplinary area of laser technology; comprehend the concepts of electromagnetic waves; develop innovative techniques of signal processing for computational processing and analysis of biomedical signals and to extract useful information; understand the different optoelectronics devices; design an optical sensors for a particular application, different concepts of photonics packaging; demonstrate the role of neural networks in engineering, artificial intelligence, and cognitive modelling; understand the principle of operation and applications of optical instrumentation; design laser tweezers and laser scissors for treatment of various diseases; recognize applications of laser spectroscopy in industry; effectively communicate and work efficiently in groups; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

19. Microwave and TV Engineering

***Knowledge Area*:** Mathematics, Opto electronics, Optical Communication Engineering, Miocrowave physics, Electronic Cryptography

***Attributes/Outcomes*:** Demonstrate knowledge of the basic concepts of mathematics, probability; understand various digital communication receivers and equalization; design microwave oscillators and amplifiers; understand various principles of optical communications system operating characteristics; simulate and analyze the performance of a communication system; understand various image processing systems, signal detection in the presence of noise, basics of network communication; analyze and design of antennas and antenna arrays, microwave transmission lines; demonstrate knowledge of fundamentals of radar signal processing; understand audio and video compression standards used for digital TV, the different digital television systems, basics of VLSI design; identify and describe soft computing techniques and their roles in building intelligent machines; understand network analyzer and spectrum analyzer; apply CAD software; demonstrate knowledge of numerical methods for solving complex electromagnetic problems; understand mathematics behind the cryptography and the cryptographic standards; comprehend basics of modern wireless communication systems and technologies; perform cryptography, watermarking and STEG analysis; use various data hiding techniques; effectively communicate and work efficiently in groups; demonstrate commitment to ethics of the profession and social responsibility; and recognize the need for engaging in life-long learning.

20. Robotics and Automation

***Knowledge Area*:** Electronic engineering, Artificial Intelligence, Mathematics, Computer technology.

***Attributes/Outcomes*:** Understand the advanced technology of robotics; recognize various parts of robots and fields of robotics; demonstrate the theory of various kinematics and inverse kinematics of robots; demonstrate the trajectory planning for robot; show skills in the control of robots for some specific applications; classify robots and decide specifications depending on the applications; effectively communicate and work efficiently in groups; and demonstrate commitment to ethics of the profession and social responsibility; and recognize the need for engaging in life-long learning.

21. Signal Processing and Embedded Systems

***Knowledge Area*:** Electrical and Electronic engineering, Optics Communication engineering, Computer technology, Mathematics.

***Attributes/Outcomes*:** Apply the knowledge of science, mathematics, and engineering principles for developing problems solving attitude; identify, formulate and solve engineering problems in the signal processing areas such as developing robust and problem specific algorithms for acquisition, processing, analysis, synthesis of signals, to be applied in Signal Processing, Machine Vision and Communication Networks; understand and use different software tools in the domain of signal processing, analysis and verification of algorithms, functional and timing simulation on platforms like MATLAB code composer studio and assembly language; design and conduct experiments, analyze and interpret data; imbibe programming skills for development of simulation experiments; function as a member of a multidisciplinary team with a sense of ethics, integrity and social responsibility; and recognize the need for engaging in life-long learning.

22. Telecommunication Engineering

***Knowledge Area*:** Electrical and Electronic engineering, Optics Communication engineering, Computer technology, Mathematics.

***Attributes/Outcomes*:** Understand concepts of abstract algebra, linear transformations, probability; different aspects of digital communication over various channels; understand the basic concepts and advantages of fiber optics communication; simulate a communication system, analyze the performance of the communication system; comprehend concept of spread spectrum; understand signal detection in the presence of noise; design of and analysis of practical antennas; explain the radio propagation characteristics, understand the basic concepts of adaptive systems and their applications, the structure of digital microwave systems; programme a microcontroller; design channels with different channel capacity; understand the different types of image and video compression techniques; understand network architectures, protocols, control and performance; provide a framework for unification, construction and development of neuro-fuzzy systems; demonstrate the different cryptanalysis procedures; understand WDM optical network and its features; understand the working of different types of RF MEMS devices; effectively communicate and work efficiently in groups; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

23. VLSI/ VLSI and Embedded Systems/ VLSI Design

***Knowledge Area*:** Device Physics and Technology, EPGA based System Design, Computer Technology, Nano electronics

***Attributes/Outcomes*:** Apply the knowledge of science, mathematics, and engineering principles for developing problem solving attitude; identify, formulate and solve engineering problems in the broad areas like System Design using VLSI and Embedded Platforms and tools, Semiconductor Technologies, Applications in Signal Processing, Machine Vision and Communication Networks; apply different software tools in the domain of VLSI and Embedded Systems Design, Analysis and Verification such as Design entry, Synthesis, Functional and Timing Simulation, floor-planning, Place and route, Layout editors, RTL schematic, Platform

specific EDA sets, MATLAB; design and conduct experiments; analyze and interpret data; imbibe programming skills for development of simulation experiments; function as a member of a multidisciplinary team with a sense of ethics, integrity and social responsibility; and recognize the need for engaging in life-long learning.

24. Wireless Technology

***Knowledge Area*:** Electronics and Electrical Engineering; Communication Technology

***Attributes/Outcomes*:** Evaluate the different aspects of various probability distributions and the convergence concepts, define, describe and enumerate the concepts of stationary processes; describe and enumerate the various methods of radio propagation, concept of personal mobile communication, concepts associated with antenna; identify and describe different techniques in modern digital communications; define and describe the different routing algorithms associated with networks; understand industrial applications of embedded systems; understand the various integrated circuits and their manufacturing and testing; define and describe the fundamentals concepts of wireless ad-hoc and sensor networks; illustrate the most common numerical techniques adopted for the electromagnetic modeling of microwave and millimeter-wave circuits and antennas; describe the human speech system and how it is analyzed and synthesized; design and analyze radio receivers; understand image and video compression techniques; evaluate the different cooperative communication protocols and their trade-off; identify and solve various aspects in designing a GPS system; effectively communicate and work efficiently in groups; and demonstrate commitment to professional ethics and social responsibility; and recognize the need for engaging in life-long learning.

25. Engineering Statistics

***Knowledge Area*:** General theories and principles of Engineering, Mathematics and Statistics, Computer application.

***Attributes/Outcomes*:** Demonstrate advanced knowledge in general theories and principles of engineering statistics; apply recent statistical tools in the industrial sector; demonstrate the ability to use statistical methods like reliability engineering, experimental design, statistical process control and ISO 9000, operation research, forecasting, software quality and reliability, six sigma tools and SAS programming; assess and improve the quality and productivity in industrial sector; effectively communicate and work efficiently in groups; demonstrate commitment to professional ethics and social responsibility; and recognize the need for engaging in life-long learning.

26. Health, Safety and Environment Management

***Knowledge Area*:** Health Hazards Science, Safety Measures and Strategies Management, and Environment Studies; Ergonomics

***Attributes/Outcomes*:** Recognize, anticipate, evaluate hazardous conditions and work practices in the overall areas of HSE; demonstrate hazard control in production systems, industrial hygiene, system safety and environment; demonstrate skills in risk management; understand fire protection; manage hazardous waste; demostrate QHSE program management; understand ergonomics and human factors; develop/implement engineering and administrative control strategies for managing identified hazardous conditions; demonstrate work practices in the

overall areas of HSE; produce professional-quality technical summaries/reports; express ideas and thoughts effectively; work individually and in teams; demonstrate research skills relevant to the discipline within HSE**;** effectively communicate with experts and ordinary people; demonstrate commitment to ethics of the profession and social responsibility; and recognize the need for engaging in life-long learning.

27. Industrial Catalysis

Knowledge Area**:** Chemical Engineering based on fundamental theories and principles of Organic, Inorganic, Physical, and Analytical Chemistry. Mathematics

Attributes/Outcomes**:** Demonstrate knowledge in the major branches of Chemical Science; understand the functioning of catalytic systems for chemical synthesis relevant to industrial reactions; demonstrate knowledge to distinguish between homogeneous and heterogeneous catalysts; demonstrate knowledge in industrial catalytic processes; comprehend industrial synthetic processes; apply chemistry to industrial production of polymers; demonstrate competency to use chromatography, mass spectrometry, nuclear magnetic resonance and other selected spectroscopic techniques; effectively communicate and work efficiently in groups; and demonstrate commitment to ethics of the profession and social responsibility; and recognize the need for engaging in life-long learning.

28. Information Technology

Knowledge Area**:** Mathematics, Computer Science and Technology, Digital Information Technology.

Attributes/Outcomes**:** Demonstrate a comprehensive understanding of the broad themes in Information Technology; use and apply current technical concepts and practices in the core information technologies of networking, data management, software engineering, computer security; demonstrate a deep understanding of the IT methodologies and frameworks used to solve complex computing problems related to at least one IT body-of-knowledge; identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems; effectively integrate IT-based solutions into the user environment; develop and implement optimal solutions to complex computing problems using industry-recognized best practices and standards; apply ethical and social responsibilities in decision making in the development, implementation, and management of IT systems; and recognize the need for engaging in life-long learning.

Specializations

i. Network Engineering

Attributes/Outcomes**:** Demonstrate conceptual understanding of mathematical foundations of computing systems; demonstrate in-depth awareness of routing in circuit switched and packet switched networks; analyze mobile networks; understand basic issues, concepts, principles, and mechanisms in network security; apply the concepts of data warehousing and data mining; describe the basic principles used in the design of modern operating systems; perform database analysis, design, and implementation activities; understand network management; identify the common issues associated with networks configuration, management and security; understand

issues and techniques in improving performance of processor; determine appropriate cryptographic solutions for protecting the networked system; understand technologies used in wireless and mobile communication; understand IP networks, streaming characteristics of multimedia, various multimedia communication standards and frameworks for wired and wireless networks; develop a web application; perform various types of testing on a variety of applications; understand embedded network requirement; verify component health, network communications and infrastructure devices; effectively communicate and work efficiently in groups; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ii. Software Systems

***Attributes/Outcomes*:** Understand advanced software engineering; demonstrate skills in software product design; develop a product or process by applying knowledge of programming, web technologies, database management, big data analytics etc; participate effectively as a member of a development team; apply communication skills to effectively promote ideas, goals or products; demonstrate skills in the development, implementation, and management of software systems; undertake appropriate leadership roles; make positive contributions to community by applying skills and abilities; make decisions based on professional ethics and social responsibility; and recognize the need for engaging in life-long learning.

29. Integrated Coastal Zone Management

***Knowledge Area*:** Coastal Resource Studies and Management Strategies

***Attributes/Outcomes*:** Describe basic relationships and processes in integrated coastal zone planning; understand various actors in the coastal zone, their specific interests and common areas of conflict; understand the particular problems related to climate change, fisheries, tourism, biodiversity protection and maritime transport; explain scientific background values necessary for successful planning; apply knowledge about ecosystem values and management in the planning process; plan and carry out a simplified consultation process for activities in the coastal zone; reflect on how social structures and questions about justice influence the planning process; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

30. Marine Biotechnology

***Knowledge Area*:** Marine biotechnology, Microbiology, Biochemistry

***Attributes/Outcomes*:** Understand taxonomy and diversity of fresh water and marine ecosystems, fish biology and diversity; demonstrate advanced knowledge of basic statistics, biochemistry of aquatic organisms and principles of genetics; demonstrate knowledge of inland fisheries; understand mariculture/aquaculture; demonstrate skills for field work, data collection, aquarium management and ornamental fish culture; demonstrate knowledge of fishing methods, various methods of fish preservation and several regulations/policies for the judicious usage of fisheries; conduct research work independently or in a team; communicate effectively in speech and writing; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

31. Marine Engineering

***Knowledge Area*:** Marine Engineering, Calculus, Hydrodynamics, Applied Marine Thermodynamics, Dynamics of Ocean Systems

***Attributes/Outcomes*:** Demonstrate foundational and in-depth knowledge in marine engineering; perform engineering using advanced mathematics and insights from hydrodynamics in general and oceanic systems dynamics in particular; apply numerical simulation techniques, differential equations and applied marine thermodynamics; work in teams and communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

32. Mechanical Engineering

***Knowledge Area*:** Mathematics, Physics, and Mechanical Engineering

Attributes/Outcomes: Demonstrate knowledge and understanding of the engineering and management principles; apply the knowledge of mathematics, science, engineering fundamentals, and mechanical engineering to the solution of complex engineering problems; design solutions for complex engineering problems; design system components or processes for specified needs with due consideration for the public health and safety; demonstrate commitment to the cultural, societal, and environmental factors; use research methods including design of experiments, analysis and interpretation of data; synthesize the information into valid conclusions; create, select, and apply appropriate techniques, resources, and modern engineering; handle IT tools; demonstrate skills in prediction and modelling of complex engineering activities; demonstrate commitment to professional ethics and social responsibilities; work effectively as an individual and collaboratively; communicate effectively in oral and written forms; and engage in independent and life-long learning in the broadest context of technological change.

Specializations

i. **Advanced Manufacturing and Mechanical Systems Design**

***Attributes/Outcomes*:** Demonstrate advanced knowledge in mathematics and mechanical engineering; demonstrate knowledge in the areas of advanced manufacturing methods; show adaptability to work in interdisciplinary groups in professional, industrial and research organizations; demonstrate the aptitude to broaden and deepen the capabilities in analytical and experimental research; provide guidance in research; formulate relevant research problems; conduct experimental and/or analytical work; analyze results using modern mathematical and scientific methods; review the knowledge developed by scholarly predecessors and critically assess the relevant technological issues; design technological solutions to defined problems; communicate effectively; communicate orally, in writing and in applied context the fundamental knowledge and understanding of production and industrial engineering; effectively work individually and in teams demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

ii. Advanced Manufacturing and Production Management

***Attributes/Outcomes*:** Demonstrate deep knowledge and understanding in the theory and practice of production management and industrial engineering; demonstrate knowledge in in the areas of advanced production methods; undertake analytical and experimental research; demonstrate competency to supervise research; identify research problems in the field; analyze using mathematical and scientific methods; effectively work individually and in teams; communicate effectively with professionals as well as ordinary people; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

iii. Computer Integrated Manufacturing

***Attributes/Outcomes*:** Demonstrate theoretical and practical knowledge in computer integrated industrial production; demonstrate knowledge in advanced computer aided production technology; show advanced skill in computer aided product design engineering; demonstrate ability to analytical and experimental research and competency to supervise research; identify research problems in the field; analyze using mathematical and scientific methods; demonstrate professional ethics and social responsibility in the development, implementation, and management of IT systems; and recognize the need for engaging in life-long learning.

iv. Energy Management

***Attributes/Outcomes*:** Demonstrate skill to manage available resources; understand energy management methods, procedures and functions as performed in modern residential, commercial and industrial facilities; show insights to make the best use of energy in a sustainable way; demonstrate efficiency to manage energy systems in environment-friendly methods; demonstrate competency to manage energy engineering tools and procedures; demonstrate capability to identify the cost-optimal mix of different energy technologies; effectively work individually and in teams; communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

v. Energy Systems Analysis and Design

***Attributes/Outcomes*:** Demonstrate proficiency in energy systems analysis; show competency in systems design engineering; demonstrate practical skills in technologies, methods, procedures and functions of energy systems operation; demonstrate sustainable energy systems design engineering out of available resources by using insights from environmental science; demonstrate ability to efficiently use energy systems and evolve practical solutions; demonstrate technical skill in handling tools and adopting procedures to identify the cost-optimal mix of different energy systems technologies; work effectively in teams and individually; communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning

vi. Engineering Design

***Attributes/Outcomes*:** Understand the broad scope of design engineering; recognize the main drivers for design engineering; describe how human variation impacts design engineering;

apply basic concepts and methods of design engineering to explore creative solutions to clearly defined real world problems; demonstrate skills in managing the product, specifications, process, service, and system; understand ergonomics and aesthetics in product design engineering; show skills in communication with professional and ordinary people; effectively work in teams and individually; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning

vii. Financial Engineering

***Attributes/Outcomes*:** Demonstrate advanced knowledgein Financial Engineering; show practical skills in the modeling and analysis of probabilistic and stochastic systems which of applications in diverse areas of engineering; apply techniques for analyzing and interpreting real-world datasets relevant to varied fields of business and industry; critically evaluate reports presenting statistical data; translate and communicate the results of statistical analyses; understand financial statements, their analyses and applications in financial performance measurement; understand corporate finance and portfolio management processes; demonstrate skills in the application of numerical methods to solve practical problems in mathematical finance; demonstrate knowledge of advanced complex techniques in C++ and real-life applications in financial engineering; demonstrate working knowledge of data analysis software packages; apply suitable optimization techniques in financial optimization problem; describe the characteristics of equity investments, security markets and indices; analyze derivative investments; explain financial markets and institutions and how the financial services component industries interact**;** demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

viii. Internal Combustion Engines and Energy Systems

***Attributes/Outcomes*:** Understand the principles, working and performance of IC engines and their heat balance calculation; understand turbines, refrigeration, compressor and cryogenic engineering; demonstrate advanced knowledge in energy systems, alternative energy source, energy conservation and sustainable energy engineering; apply mathematics and science in energy systems engineering; demonstrate skills in the assessment of the functioning of IC engines; identify research problems; demonstrate ability to solve them**;** work efficiently in teams and as an individual; communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning

ix. Industrial Engineering and Management

***Attributes/Outcomes*:** Understand industrial engineering and management, mechanical and chemical engineering, energy systems engineering, integrated systems engineering, industrial facilities management, and applied mathematics; apply energy management methods, procedures and functions followed in modern industrial engineering; demonstrate efficiency in industrial engineering management; show competency to manage energy engineering tools and procedures; identify the problems in industrial engineering and solve them; work in teams and communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

x. Industrial Engineering

***Attributes/Outcomes*:** Understand advanced industrial engineering, mechanical and chemical engineering, energy systems engineering, integrated systems engineering, and applied mathematics; apply mathematical methods and procedures in modern industrial engineering; demonstrate efficiency in industrial engineering management; show competency to manage industrial engineering tools; demonstrate capability to identify the problems in industrial engineering and solve them; work in teams and communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xi. Industrial Refrigeration and Cryogenic Engineering

***Attributes/Outcomes*:** Demonstrate knowledge in the theory and working of industrial refrigeration and cryogenic engineering; demonstrate knowledge in energy engineering to understand turbines, refrigeration, compressor, and cryogenic engineering; show deeper understanding of the principles of refrigeration and cryogenic engineering; apply advanced mathematics in refrigeration and cryogenic engineering applications; demonstrate skill in analyzing and assessing the performance of industrial refrigerators and cryogenic engines; identify their problems; effectively work in teams as well as individually; communicate effectively with professionals as well as ordinary people; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xii. Internal Combustion Engines and Turbo Machinery

***Attributes/Outcomes*:** Demonstrate advanced engineering knowledge related to various IC engines and turbo machines; understand the principles, working and performance of IC engines and turbo machinery; understand energy engineering of turbines, refrigeration, compressor, cryogenic engines; identify and resolve problems of IC engines and turbo machines; demonstrate skills in the evaluation of the performance of IC engines and turbo machinery; identify the problems thereof, and solve them; work in teams and communicate effectively; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xiii. Machine Design

Attributes/Outcomes: Demonstrate advanced knowledge in the theories, concepts and methods of design engineering; show aptitude to machine design engineering; recognize the main drivers for design engineering; describe how human variation impacts design engineering; apply basic concepts and methods of design engineering; explore creative solutions for real world problems; demonstrate skills in managing the product, specifications, process, service, and system; demonstrate skill in communication, presentation and information handling through the completion of activities; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xiv. Manufacturing Design

***Attributes/Outcomes*:** Demonstrate advanced knowledge in the theories, concepts and methods of Design Engineering; show aptitude to machine design engineering; recognize the main drivers for design engineering; describe how human variation impacts on design engineering; apply basic concepts and methods of design engineering to explore creative solutions to clearly defined real world problems, demonstrate skills in managing the product, specifications, process, service, and system; and demonstrate skill in communication, presentation, information handling and numeracy through the completion of activities; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xv. Manufacturing Systems Management

***Attributes/Outcomes*:** Demonstrate knowledge in Manufacturing Systems Management, Production Engineering Management including Product Design Engineering, Aesthetics, Ergonomics, Systems Analysis, Solutions, and Mathematics; apply knowledge in the manufacturing systems management, production engineering management including product design engineering and aesthetics, ergonomics, systems analysis and solutions; demonstrate advanced knowledge in mathematics; demonstrate ability to manage industrial manufacturing systems**;** communicate effectively in teams as well as individually; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xvi. Production and Industrial Engineering

***Attributes/Outcomes*:** Understand Industrial Production Engineering, Mechanical and Chemical Engineering, Energy Systems Engineering, Integrated Systems Engineering, and Applied Mathematics; apply mathematical methods and procedures in modern industrial engineering; demonstrate efficiency in industrial engineering management; demonstrate competency to manage industrial engineering tools; identify the problems in industrial engineering and solve them; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

xvii. Production Engineering

***Attributes/Outcomes*:** Understand industrial production engineering, mechanical and chemical engineering, energy systems engineering, integrated systems engineering, and applied mathematics; apply mathematical methods and procedures in modern industrial engineering; efficiency in industrial engineering management; competency to manage industrial engineering tools; demonstrate capability to identify the problems in industrial engineering and solve them; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

33. Propulsion Engineering

***Knowledge Area*:** Advanced Mathematics, Thermodynamics, Aerodynamics, Gas Dynamics, Computational Orbital Mechanics, Energy Systems Analysis, Environmental Science.

***Attributes/Outcomes*:** Demonstrate knowledge of the basic tools in higher mathematics; understanding the science and technology of thermodynamics, aerodynamics and gas dynamics; understand theories of ignition and flammability; understand combustion characteristics; demonstrate ability to do heat transfer experiments; show competency to perform simple computations in orbital mechanics; demonstrate skill in handling various types of thermal turbo machines; demonstrate skill in mathematical modelling to reach solution for problems of fluid flow and heat transfer; identify the hazard potentials, know the hazard regulations; design and analyze various rocket engine components and cryogenic propulsion systems; demonstrate ethical behavior and social responsibility; and recognize the need for engaging in life-long learning.

34. Thermal Engineering

Knowledge Area: Thermal Engineering, Thermodynamics, Energy Systems Analysis and Design Engineering, Mathematics, Environmental Science.

***Attributes/Outcomes*:** Demonstrate proficiency in thermal systems engineering; demonstrate competency in systems design engineering; show practical skills in technologies, methods, procedures and functions of energy systems operation; adopt sustainable thermal systems design engineering out of available resources; demonstrate ability to efficiently use energy systems and evolve practical solutions; demonstrate technical skill in handling tools and adopting procedures to identify the cost-optimal mix of different thermal systems technologies; apply knowledge of mathematics to thermal engineering solutions; design and develop thermal engineering systems; identify and analyze problems in related multiple disciplines including fluid dynamics, turbomachinery, thermodynamics and energy management; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Specializations

i. Thermal Power Engineering

***Attributes/Outcomes*:** Demonstrate proficiency in thermal power engineering; comprehend energy systems engineering; demonstrate practical skills in technologies; understand methods, procedures and functions of energy systems operation; identify sustainable energy systems design engineering out of available resources and using insights from environmental science; demonstrate ability to efficiently use energy systems and evolve practical solutions; show technical skill in handling tools and adopting procedures to identify the cost-optimal mix of different energy systems technologies; apply knowledge of mathematics and science to thermal engineering solutions; design and develop thermal engineering systems; identify and analyze problems in related multiple disciplines including fluid dynamics, turbomachinery, thermodynamics and energy management; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with

multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

ii. Thermal Science

***Attributes/Outcomes*:** Demonstrate advanced knowledge in thermal science; demonstrate proficiency in thermal science and technology and applications of thermodynamics; demonstrate competency in energy systems analysis; show practical skills in technologies, methods, procedures and functions of energy systems operation; demonstrate knowledge in sustainable energy systems design engineering; show ability to the efficient use of energy systems and evolve practical solutions; demonstrate technical skill in handling tools; adopt procedures to identify the cost-optimal mix of different energy systems technologies; apply knowledge of mathematics and science to thermal engineering solutions; design and develop thermal engineering systems; identify and analyze problems in related multiple disciplines including fluid dynamics, turbomachinery, thermodynamics and energy management; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

iii. Thermal Systems and Design

***Attributes/Outcomes*:** Demonstrate proficiency in thermal systems analysis; demonstrate competency in thermal systems design engineering; show practical skills in technologies, methods, procedures and functions of energy systems operation; recognize sustainable energy systems design engineering out of available resources by using insights from environmental science; efficiently use energy systems and evolve practical solutions; demonstrate technical skill in handling tools; adopt procedures to identify the cost-optimal mix of different energy systems technologies; apply knowledge of mathematics and science to thermal engineering solutions; design and develop thermal engineering systems; identify and analyze problems in related multiple disciplines including fluid dynamics, turbomachinery, thermodynamics and energy management; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

35. Nano Science and Technology

Knowledge Area: Nano Science and Nano Technology, Quantum Mechanics, Nanomaterial science, Mathematics, Microelectronics and Nano electronics engineering,

***Attributes/Outcomes*:** Demonstrate knowledge in fundamental concepts, theories and methods in nano science and nanotechnology; understand the quantum mechanical aspects of nanotechnology; understand structure and applications of different types of nanomaterials; demonstrate the skill in contemporary techniques of fabrication of microelectronics and Nano electronics; describe, explain, and illustrate the chemical and physical processes involved in the synthesis of nanoparticles; understand, synthesize, and characterize properties of different types of nanoparticles, nanocomposites and polymer nanocomposites; demonstrate practical skill in various applications of nanotechnology; show commitment to nano ethics, energy

conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

36. Ocean and Coastal Safety Engineering

***Knowledge Area*:** Marine Engineering, Ocean and Coastal Safety Engineering, Mathematics, Geomatics, Computer Technology

***Attributes/Outcomes*:** Demonstrate knowledge on coastal and marine processes that lead to coastal and marine hazards and accidents; demonstrate expertise in coastal and marine safety engineering for implementing measures to prevent coastal and marine accidents and manage mitigation measures through technological and social intervention; demonstrate skill development for technological interventions for the safety of fishery related activities, and management of coastal erosion and flooding; show commitment to professional ethics, energy conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

37. Ocean Technology

Knowledge Area: Different Branches of Marine Engineering, Mathematics, Computer Technology, and Geomatics.

***Attributes/Outcomes*:** Demonstrate advanced knowledge of core topics in ocean technology, marine measurement and control technology, and marine installations; understand existing ocean technology while focusing on possibilities for further development of ocean technology; demonstrate knowledge of marine acoustics and optics; understand marine construction, operation; undertake maintenance of marine installations; handle and present measurement data; discuss precision and accuracy; apply software programming tool to analyze and process measurement data; demonstrate the ability to work independently or in groups; show commitment to professional ethics, nature conservation, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

38. Optoelectronics and Laser Technology

***Knowledge Area*:** Quantum Physics, Optoelectronics Engineering, Laser Physics, Laser Technology, and Mathematics.

***Attributes/Outcomes*:** Demonstrate theoretical knowledge in Physics, Quantum Physics, Mathematics, and Optoelectronic systems engineering; understand the physics of Optoelectronic Components like LEDs, electrodidodes, photovoltaics, photodiodes, and laser; understand metrics of Optoelectronics; demonstrate skills to operate optoelectronics devices by incorporating them into systems for optimal performance; identify problems in the operation of optoelectronics devices and solve them; show commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as the ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

39. Polymer Technology

***Knowledge Area*:** Polymer Chemical Engineering, Mathematics

***Attributes/Outcomes*:** Explain central concepts within the fields of polymer physics and polymer technology; describe temperature and frequency dependence of rigidity; identify phenomena in terms of properties of polymer systems at molecular level; describe the relationship between microscopic and macroscopic levels for polymer systems; account for different classes of additives impact mechanisms; solve simple polymer-related problems arising in industrial contexts; show commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

40. Software Engineering

***Knowledge Area*:** Computer Software Science and Technology, Mathematics

***Attributes/Outcomes*:** Demonstrate deep knowledge in science, mathematics, and engineering; apply this fundamental/theoretical knowledge to software engineering tasks; apply software engineering practice over the entire system lifecycle which includes analysis, prototyping, designing, implementation, testing, maintenance activities and management of risks involved in software and embedded systems; understand classical and evolving software engineering methods; select and tailor appropriate methods for projects; apply basic software quality assurance practices to ensure that software designs, development, and maintenance; meet or exceed applicable standards; show commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

41. Technology Management

***Knowledge Area*:** Basic theories and Principles of Engineering, Mathematics, Management Studies.

***Attributes/Outcomes*:** Understand advanced knowledge in technology and management; identify and evaluate the impact of the changing technology; design programmes to identify, develop and implement innovative technological solutions; demonstrate ability to plan and execute technology based initiatives; integrate their results into the mainstream of an enterprises' strategy, processes and operations; understand sustainable technology management; show commitment to professional ethics, and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Architectural Programmes

Bachelor of Architecture

Entry Qualifications: 10+2
Degree Conferred: B. Arch. in the respective discipline

***Knowledge Area*:** Advanced mathematics, Geomechanics, Architecture, Structural Engineering,

***Attributes/Outcomes*:** Demonstrate the skills required to interpret a work of architecture; evaluate, identify, and analyze artistic and technological expression of architectural forms; differentiate the various structural elements in a building and types of loads acting on it; analyze and solve basic problems involving graphics for architectural applications; understand the application of stone and clay products in building construction; identify appropriate mortar mixes in various construction needs; understand the basic principles and techniques of drawing, painting and sculpture; explain visual meanings, and understand the relationship of art and architecture; critically analyze different art and architectural works; understand technical drawing techniques and architectural presentation; use contemporary as well as traditional building material; analyze climatic factors in relation to the human comfort; use all relevant instruments for surveying; understand the techniques for preparation of measured drawings and setting out buildings on site; understand design philosophies and fundamentals of interior design; show commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Master's Degree- 2 Year Programme

Master of Architecture

Entry Qualifications: Bachelor's Degree in Architecture
Degree Conferred: Masters in the concerned Discipline (M. Arch)
Architecture

***Knowledge Area*: Housing**

***Attributes/Outcomes*:** Understand international perspectives on housing development, national housing policies and programmes, housing finance, housing design, building materials and technology, housing project formulation, housing development and construction industry, real estate planning, design and development, non-formal housing development and slums, and housing for disaster affected areas; design various housing projects and develop the ability to fulfill spatial needs for various sections of the society; demonstrate the ability to deal with contemporary issues affecting housing demands; anticipate future directions both in housing and urbanization; show social and cultural sensitivity towards people of different economic backgrounds; create housing policies; demonstrate practical, analytical and managerial skills; introduce innovative solutions for housing issues like parking, services, light and ventilation for overcrowded societies; demonstrate knowledge of design principles and elements in residential architecture, understanding of housing functions as generator for architectural expressions and knowledge of current questions related to housing design; demonstrate general competence in design methods, materiality and detailing; show commitment to professional ethics and social responsibilities; communicate effectively with experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

***Knowledge Area*: Urban Design**

***Attributes/Outcomes*:** Understand and analyze real site conditions in an urban area; apply advanced survey and document techniques; assess needs and programming for design intervention; deal with varying site-based natural and ecological systems with reference to urban design projects and the city at large; understand different methodological approaches, technologies and foundation theories of urban design; understand the contemporary issues related to urbanism; comprehend the theories related to city space, economics, politics and governance; critically evaluate the historical evolution of urban space; understand the morphological dimensions of public spaces; conceive urban design projects for green-field sites; understand urban infrastructure such as social and physical, transportation systems; evaluate standards, policies and techniques for designing pedestrian spaces, parking spaces, and modes of travels, etc. in relation to the urban design; show commitment to professional ethics, environmental justice and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

Research Degree Programmes

Research Degree Programmes are dissertation oriented and course supported post-graduate programmes. They are the M.Phil., Ph.D./D.Phil., and D.Litt. Degree Programmes. Post-graduation is the entry qualification for the M.Phil. and Ph.D. Programmes. Several universities offer M.Phil.-Ph.D. integrated Programmes. D.Litt. is an entirely research based post-doctoral Degree.

1. M.Phil. Programme

M.Phil. (Master of Philosophy) is a one-year post-graduate programme of research leading to a degree. It is dissertation oriented and course supported intermediate Degree between the first Post-Graduate Degree and the Doctorate Degree. It is discipline based although interdisciplinary M.Phil. programmes are on the increase. Post-graduate Degree Programmes in almost all disciplines have their M.Phil. Degree Programmes.

Knowledge Area: Research methodology and advanced fields in the discipline and the topic of research.

***Attributes/Outcomes*:** Demonstrate advanced theoretical knowledge in the discipline or the sub-discipline concerned; apply concepts and frameworks involved in research relating to the knowledge area concerned; demonstrate advanced knowledge base in the discipline concerned with central research questions and debates around them; demonstrate the competency to assess the suitability and validity of different methodologies; show competency to compare, contrast and evaluate different approaches; identify relevant topics and questions within the subject area for research; identify and locate source materials for the research; show potential to expand research questions to move on to doctoral studies; demonstrate adaptability to work in the interdisciplinary perspective and multicultural environment; demonstrate commitment to professional ethics and social responsibilities; communicate effectively with multidisciplinary experts as well as ordinary people; and recognize the necessity to cultivate the habit of pursuing lifelong learning.

2. Doctoral Programmes

A Doctoral Programme is a university's highly specialized independent and self-directed academic enterprise leading to individualistic production of new knowledge through intense research of methodological preoccupation, carried out with the support of one or more supervisors. The new knowledge thus produced is called a thesis. A university adjudicates the thesis produced after three to five years of research and recommends the award of doctorate commonly called Ph.D. (Doctor of Philosophy). Ph.D. is also abbreviated as D.Phil. (Doctor of Philosophy) in certain countries and both Ph.D. and D.Phil. are the same.

***Knowledge Area*:** Theoretically the knowledge area of Ph.D. is the highest or the most advanced and it is ever enlarging through *terra incognita.* Being the most advanced knowledge and predominantly beyond the frontiers of the discipline, it has been called

philosophy in the past. Therefore, the term holds good even today. However, the knowledge areas being inescapably entrenched on the basis of disciplines, often the advanced knowledge areas also get identified first as sub-disciplines and subsequently as independent disciplines. Branched off from basic sciences, natural and human, they all have mother disciplines that continue to zealously guard their boundaries are in command of jobs in colleges and universities. Naturally graduates after specialization in advanced fields require equivalency with their mother disciplines. Actually Ph.D. /D.Phil. has to be understood and recognized in terms of the freshness of the advanced knowledge it demonstrates. Employers should decide upon their eligibility on the basis of their mother disciplines and suitability on the basis of the relevance of their specialization to the job. As an academic programme of the university, Ph.D. has certain knowledge areas of its own such as:

a) Advanced knowledge base in the relevant basic science, technology, social sciences, humanities, arts etc.;
b) Advanced knowledge in research methodology/tools/ instrumentation of research;
c) Advanced logic/science/art of knowledge communication.

***Attributes/Outcomes*:** Demonstrate mastery of theoretical knowledge in the relevant basic science/knowledge area; critically apply theories, methodologies, and knowledge to address fundamental questions in their primary area of study; show skills to critically and creatively conceive new researches and allied tasks and complete them within predetermined time frames; show proficiency to interact productively with professionals in the field; demonstrate skills to critically review and evaluate research works; demonstrate high adaptability to do research in interdisciplinary and cross-cultural environments; demonstrate thoroughness with the fundamentals of one's mother science or primary field of knowledge sufficient for teaching undergraduates, and most advanced theories for guiding learning as well as research at the postgraduate and Ph.D. levels; demonstrate skills in oral and written communication fair enough to put across new knowledge nationally and internationally among experts; demonstrate competency to continue research and production of knowledge as a life-long academic enterprise; show competency of the social communication of the value of the knowledge field of his/her specialization with ethical commitments.

3. D.Litt. (Doctor of Letters)

D. Litt., is a post-doctoral degree programme or a higher doctorate programme. In some countries it is equal to the Doctor of Science. It is awarded in many countries by universities and learned bodies in recognition of distinct achievements in social sciences and humanities, and original contributions to the domain of creative arts. It is awarded as an honorary degree as well.

The Degree of Doctor of Letters is the highest Post-Doctoral degree awarded to candidates with doctorate. A Post-Doctoral degree is awarded on the basis of original and independent research in an advanced knowledge area of super specialization. It is also conferred upon a rare scholar as an honorary degree in recognition of distinct contributions to the advancement of knowledge in any particular area of specialization.

The contributions could be in the form of a new theory or an influential perspective or successful methodology, which bring about a notable hermeneutic turn in the knowledge area concerned. Such awardees are outstanding scholars of original thinking, critical comprehension, creative depth, and sound judgment.

III. **Appendices**

Appendix A: Washington Accord-excerpt
Appendix B: Policies and Procedure for according Equivalence of Qualifications/ Degrees: Association of Indian Universities (AIU)
Appendix C: Consolidated List of Universities- University Grants Commission

Appendix A
Washington Accord

Overview

The development of a professional engineer to the level required for independent practice or licensure/registration has two stages. The education stage, normally provided by an externally accredited programme of four or five years post-secondary school, is followed by a period of supervised training while gaining experience in engineering practice. The individual may then have his or her competence assessed, and be eligible for recognition as a competent individual engineering practitioner.

The Washington Accord is a self-governing, autonomous agreement between national organizations (signatories) that provide external accreditation to tertiary educational programmes that qualify their graduates for entry into professional engineering practice. The signatories undertake a clearly-defined process of periodic peer review to ensure each other's accredited programmes are substantially equivalent and their outcomes are consistent with the published professional engineer graduate attribute exemplar.

Signatories agree to grant (or recommend to the relevant national registration body, if different) graduates of each other's accredited programmes the same recognition, rights and privileges as they grant to graduates of their own accredited programmes. By these provisions, the Accord facilitates mobility of graduates between signatory jurisdictions and deeper understanding and recognition of their engineering education and accreditation systems. Amongst the signatories' educational providers, adherence to local accreditation requirements that are consistent with the professional engineer graduate attribute exemplar contributes to international benchmarking of programme outcomes.

There are currently 15 signatories to the Washington Accord that together deliver over 7,000 programmes producing graduates that are significantly similar in competencies.

Graduate Attributes

The graduate attributes adopted by the Washington Accord signatories are generic to the education of professional engineers in all engineering disciplines. They categorize what graduates should understand, the skills they should demonstrate and the attitudes they should possess. The graduate attributes have been refined over more than a decade and in 2013 were adopted by the signatories as the exemplar (or reference point) against which substantial equivalence of their own accreditation requirements are to be assessed. In addition, the graduate attributes are intended to assist signatories and provisional members to develop outcomes-based accreditation criteria for use by their respective jurisdictions.

The key features of the graduate attributes are summarized in the following tables. A defining characteristic of professional engineering is the ability to work with complexity and uncertainty, since no real engineering project or assignment is exactly the same as any other (otherwise the solution could simply be purchased or copied). Accordingly, the attributes place as central the notions of complex engineering problems and complex problem solving.

The Washington Accord Graduate Attribute Profile has 12 elements, supported by a Knowledge Profile, WK1-WK8, and a definition of the Level of Problem Solving, WP1-WP7, both given below:

Engineering knowledge	WA1 Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to the solution of complex engineering problems.
Problem analysis	WA2 Identify, formulate, research literature and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences (WK1 to WK4).
Design/ development of solutions	WA3: Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health, and safety, cultural, societal and environmental considerations (WK5).
Investigation	WA4: Conduct investigations of complex problems using research-based knowledge (WK8) and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
Modern tool usage	WA5: Create, select and apply appropriate techniques, resources and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations (WK6).
The engineer and society	WA6: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems (WK7).
Environment and Sustainability	WA7: Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts (WK7).
Ethics	WA8: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice (WK7).
Individual and teamwork	WA9: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
Communication	WA10: Communicate effectively on complex engineering activities with the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation,

	make effective presentations and give and receive clear instructions.
Project management and finance	WA11: Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work as a member and leader in a team, to manage projects and in multi-disciplinary environments.
Life-long learning	WA12: Recognize the need for, and have the preparation and ability to engage in, independent and life-long learning in the broadest context of technological change.

The Washington Accord Knowledge Profile has eight elements:

WK1	A systematic, theory-based understanding of the natural sciences applicable to the discipline.
WK2	Conceptually-based mathematics, numerical analysis, statistics and formal aspects of computer and information science to support analysis and modelling applicable to the discipline.
WK3	A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.
WK4	Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline
WK5	Knowledge that supports engineering design in a practice area.
WK6	Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.
WK7	Comprehension of the role of engineering in society and identified issues in engineering practice in the discipline: ethics and the professional responsibility of an engineer to public safety; and the impacts of engineering activity – economic, social, cultural, environmental and sustainability.
WK8.	Engagement with selected knowledge in the research literature of the discipline

Complex engineering problems have a range of attributes. At least some of the following may be encountered within a professional engineering education programme:

Depth of knowledge required	WP1: Cannot be resolved without in-depth engineering knowledge at the level of one or more of WK3, WK4, WK5, WK6 or WK8 which allows a fundamentals-based, first principles analytical approach.
Range of conflicting requirements	WP2: Involve wide-ranging or conflicting technical, engineering and other issues
Depth of analysis required	WP3: Have no obvious solution and require abstract thinking and originality in analysis to formulate suitable models.

Familiarity of issues	WP4: Involve infrequently encountered issues.
Extent of applicable codes	WP5: Outside problems encompassed by standards and codes of practice for professional engineering.
Extent of stakeholder involvement and needs	WP6: Involve diverse groups of stakeholders with widely varying needs.
Interdependence	WP 7: High level problems including many component parts or sub-problems.

The attributes of complex engineering activities, some of which might reasonably be encountered by a professional engineering undergraduate (e.g. during capstone design or a period of industry experience):

Range of resources	EA1: Involve the use of diverse resources (and for this purpose resources include people, money, equipment, materials, information and technologies).
Level of interactions	EA2: Require resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues
Innovation	EA3: Involve creative use of engineering principles and research-based knowledge in novel ways.
Consequences to society and the environment	EA4: Have significant consequences in a range of contexts, characterized by difficulty of prediction and mitigation.
Familiarity	EA5: Can extend beyond previous experiences by applying principles-based approaches.

Source: Washington Accord, 2014
http://www.ieagreements.org/assets/Uploads/Documents/History/25YearsWashingtonAccord-A5booklet-FINAL.pdf

Appendix B

Policies and Procedure for According Equivalence of Qualifications/Degrees-Information Brochure

(Reproduced from the webaite of the Association of Indian Universities)

http://www.aiu.ac.in/AIUTEST/documents/evaluation/AIU%20Equivalence%20Information%20Brochure%2013.07.2015.pdf

ASSOCIATION OF INDIAN UNIVERSITIES
16 Comrade Indrajit Gupta Marg,
New Delhi 110 002

AN INTRODUCTION:

1. Section 2(f) of the UGC Act specifies that a "University "means a University established or incorporated by or under a Central Act, a Provincial Act or a State Act, and includes any such institution as may, in consultation with the University concerned, be recognized by the Commission in accordance with the regulations made in this behalf under this Act. Further, Section 12A (b) of the UGC Act mentions that a "college "means any institution, whether known as such or by any other name which provides for a course of study for obtaining any qualification from a university and which, in accordance with the rules and regulations of such university, is recognized as competent to provide for such course of study and present students undergoing such course of study for the examination for the award of such qualification;
2. Section 22(1) of the UGC Act clearly mentions that the right of conferring or granting degrees shall be exercised only by a University established or incorporated by or under a Central Act, a Provincial Act or a State Act or an institution deemed to be a University under section 3 or an institution specially empowered by an Act of Parliament to confer or grant degrees. Section 22(2) of the UGC Act further clarifies that "Save as provided in sub-section (1), no person or authority shall confer, or grant, or hold himself or itself out as entitled to confer or grant, any degree "and Section 22 (3) of the UGC Act also mentions that "For the purposes of this section, "degree "means any such degree as may, with the previous approval of the Central Government, be specified in this behalf by the Commission by notification in the official Gazette".
3. With the above safeguards in place, the power to award and recognize degrees in India have been vested in the Universities in accordance with the provisions of their Acts & Statutes. Universities in India are expected to adhere to the rules and regulations prescribed in this regard by the Ministry of Human Resource Development (MHRD), University Grants Commission (UGC) or any other regulatory body empowered to do so;

ROLE OF THE AIU

4. Since degrees awarded by an Indian University are generally recognized by all universities in the country, the AIU is not involved in the Equivalence of Degrees offered by Indian Universities but it impresses upon the member Universities of the AIU to recognize each other's Degree in order to save students from hassles;

5. Similarly, the AIU, since its establishment in 1925 as the **INTER UNIVERSITY BOARD (IUB)** and later registered as a Society as the **ASSOCIATION OF INDIAN UNIVERSITIES (AIU)** IN 1973, being the Apex Body of Universities in the country has been, inter alia, serving its Member Universities by facilitating Equivalence of Degrees awarded by Foreign Universities to help people with foreign degrees pursue higher studies in Indian Universities;

6. AIU is the only body in India which is recognized to grant Equivalence of Degrees awarded by the Foreign Universities. Acknowledging its role and work **the Ministry of Human Resource Development (MHRD), Government of India (GOI) vide their letter No. F.15-17/94-TS IV dated 13th March 1995** issued a Notification that**"those foreign qualifications which are recognized/equated by the AIU, are treated as recognized for the purpose of employment to post and services under the Central Government".**

EQUIVALENCE COMMITTEE

7. As we live in dynamic world, the issues and challenges faced in considering and processing requests for Equivalence become complex. To address such complexities and to ensure that the Member Universities are taken into confidence in this regard, the policies relating to Equivalence are framed by the Governing Council of the AIU generally on the recommendations of the Equivalence Committee constituted under rules.

8. It may be important to note that all Members of the Governing Council of the AIU are Vice Chancellors of one University or the other while the Secretary General of the Association is a former Vice Chancellor. The composition of the Governing Council of the AIU is as under:
   - President of the Association of Indian Universities
   - Vice President of the Association of Indian Universities
   - Immediate Past President of the Association of Indian Universities
   - Secretary General of the Association of Indian Universities
   - Fifteen Vice Chancellors - Three from each of the five Zones of the country, of which two are selected by rotation on the basis of their seniority as Vice Chancellor/Director and the third is selected by rotation on the basis of the seniority of the university/organization in the zone concerned.
   - Two members are coopted
9. The Equivalence Committee also comprises of the Vice Chancellors/Directors including the members of the Governing Council

The composition of the Equivalence Committee is as under:
- President of the Association of Indian Universities
- Vice President of the Association of Indian Universities
- Secretary General of the Association of Indian Universities
- Four Vice Chancellors representing different disciplines nominated by the Governing Council
- Two additional Members from different zones nominated by the
- President AIU.
- Head of the Equivalence Division serves as Secretary of the
- Equivalence Committee

10. The Equivalence Committee/Governing Council may also constitute expert committees/sub-committees on specific issues to help the Equivalence Committee/Governing Council to take informed decision;

EVALUATION DIVISION

11. The operative work of the Equivalence is handled by the **Evaluation Division** of the AIU which was established since the inception of IUB/AIU;
12. The Evaluation Division is entrusted with the responsibility of receiving, processing and granting equivalence of degrees awarded by foreign Universities for the purpose of admission to higher studies in accordance with the policies and rules framed by the AIU;
13. The Evaluation Division of the AIU has been carrying out the responsibility of according Equivalence to individuals for the last ninety years and has thus been helping the students in accessing higher studies in India;
14. With the MHRD notifying that the equivalence granted by the AIU shall also be valid for employment purposes, the Evaluation Division has also been helping students in this regard as well and has thus been providing Equivalence related services to various Central &State Employment agencies, Union Public Service Commission (UPSC) and State Recruitment Boards etc.
15. The Equivalence Division has been facilitating the Ministry of Human Resource Development (MHRD) and other Ministries of the Government of India in formulating proposals on mutual recognition of degrees under Educational Exchange Programmes.
16. Besides, the Division also provides assistance on the status of foreign qualifications to Universities, Ministries of the Government of India, Union Public Service Commission (UPSC), Indian Council for Cultural Relations (ICCR) and other Agencies concerning with the nomination/selection of foreign students in Indian Universities. The application forms of all the foreign students who are sponsored under various Central Government Scholarships/Ministries are also sent to the Evaluation Division, in order to assess their eligibility, to the courses, in which they are seeking admission in Indian Universities.
17. The Division has established accountability as a reliable accrediting source/ agency on the assessment/certification of equivalence of qualifications. It also receives number of enquiries from Credential Evaluation Service Agencies in other countries.

PAST PRACTICE OF ACCORDING EQUIVALENCE

18. Initially, the equivalence was accorded by the AIU on course to course basis only after the proposal for equivalence of foreign qualification was received from an Indian Mission aboard or from the university concerned. For this purpose the information on the following point was obtained: (a) Structure from Primary to University education; (b) Entry requirements; (c) Nomenclature of the course certificate/degree; (d) Accreditation status of the University/Institution in the home Country; (e) Syllabus/course curriculum and regulation of the course; (f) System of

evaluation; (g) Requirement for passing; (h) Parity of the degree outside the country –documentation thereof; (i) Sample copy of the degree and academic transcript; and (j) Any other relevant information

19. Each case for equivalence was examined with reference to International documentation available with the AIU, which included

(a) International Handbook of Universities (Published by IAU); (b) Commonwealth Universities Yearbook (Published by ACU); (c) International guide to qualifications in education-British Council Publication; (d) American Association of Collegiate Registrars and Admission Officers (AACRAO) publication; (e) World Guide to Qualifications in Higher Education - a UNESCO Publication; (f) Accredited Institutions of Postsecondary Education- an American Council on Education (ACE) Publication;

20. In addition to the above, supporting information was also obtained from Foreign Mission in New Delhi and wherever necessary, the matter was referred to International Agencies like United States Educational Foundation in India (USEFI), British Council Division, German Academic Exchange Service (DADD) etc;
21. Each case of equivalency was referred to the Expert(s) for their Expert opinion and after the opinion was received, the same was placed before the Equivalence Committee for consideration and approval and finally was being placed before the Governing Council for their ratification.

PRESENT POLICY RELATING TO THE EQUIVALENCE BY THE AIU

22. As the mobility of students increased across a wide range of universities in many different countries and the number of cases seeking AIU equivalence multiplied, the then practice of case by case evaluation of each request was found time consuming and unsustainable;
23. The policy was therefore changed to recognize the system of education on the basis of such parameters as (a) Eligibility requirements for admission; (b) Duration of the programme; and (c) Accreditation status of the University concerned;
24. Following the change in the Policy, the AIU now accords Eéquivalence to such foreign degrees which: (a) are awarded by the foreign universities which are approved/recognized/accredited in its own country: (b) are pursued by a student as a full time regular student on the campus of the university of its Origin; (c) the minimum prescribed duration of the programme of the studies is at least the same as applicable in case of Indian universities and (d) the minimum eligibility requirements for admission in the programme of studies is at least the same as applicable in case of Indian Universities;
25. Recognizing the difficulties faced by students on account of the fact that many a foreign universities allow students to complete their programme of studies in less than the prescribed duration either due to exemption from certain number of credits, or due to acceptance of certain credits already taken or because a student is permitted to take certain credits during vacation etc, the AIU has also started granting certain

relaxation in according equivalence so long as the prescribed duration of the programme of studies is at least the same as prescribed in India. Thus, Equivalence may also be considered under the following situations:

26. **Degrees awarded in lesser duration in terms of years of studies than applicable in case of Indian universities even though the student may have completed all the credits specified by the university and/or the semesters as applicable in case of Indian universities: W***hile the AIU must not relax the requirements of the minimum duration of degrees, the duration should, instead shall be measured in terms of precise number of months/years, be measured in terms of completion of the number of Semesters/Trimesters and all such cases where the degrees have been awarded upon completion of as many semester/trimester as are prescribed in case of Indian universities be awarded equivalence;*

    (a) **Degrees awarded where the University has accepted credits taken by students from other universities/degree-awarding institutions including those in India: I***n view of the acceptance of credits and credit transfer is a normal practice in most foreign universities and that the same is also being encouraged in India, the AIU may accord equivalence to such foreign degrees where the duration have been shortened on account of credits accepted by the foreign universities so long as the degrees awarded by foreign universities meets all other parameters specified by the AIU;*

    (b) **Degrees awarded where the University has granted exemption to the student from certain number of credits or certain number of semesters: G***iven the fact that foreign universities grant exemptions to their students on the basis of their academic records/attainment/transfers from other higher educational institutions, the AIU may grant equivalence to such foreign degrees where the duration have been shortened on account of exemption granted by the foreign universities so long as the degree meets all other parameters specified by the AIU;*

    Further, taking note of the fact that the UGC/AICTE have issued regulations/ guidelines allowing foreign degrees to be awarded for studies undertaken in India, the AIU has started certain relaxation in this regard subject to the fulfillment of certain conditions;

27. The rules and procedures for processing applications for Equivalence of Degrees/Qualifications based on the policy specified above, are detailed below for the guidance of all those who intend to apply for Equivalence of their Degrees/Qualification

COVERAGE & SCOPE OF AIU EQUIVALENCE

28. AIU presently considers and processes applications for Equivalence of the following qualifications/degrees:
    a. Equivalence of School Level Examinations conducted by recognized foreign Boards in India;
    b. Equivalence of School Level Examinations conducted by the Accredited Schools/Boards/Bodies in various countries;

c. Equivalence of Degrees awarded by the Foreign Universities;
d. Equivalence of Degrees awarded by the Indian Universities for studies undertaken in their offshore campuses;
e. Equivalence of PG Diploma awarded by the AICTE approved stand alone institutions outside the purview of Universities;

LIMITATIONS OF AIU EQUIVALENCE

29. AIU does not entertain applications for equivalence of such professional degrees awarded by foreign universities which also entitle the holder of the degree to practice a profession in India. Thus, degrees in disciplines like Medicine, Nursing, Pharmacy, Law, Architecture etc are presently outside the purview of the AIU as such cases are handled by the respective professional councils;
30. AIU is not involved in the Equivalence of Degrees awarded by Indian Universities because as per rules the degrees awarded by an Indian University is recognized by all other Indian universities as all universities are required to award degrees in accordance with their Acts & Statutes and in adherence to the rules, regulations and guidelines prescribed in this regard by the MHRD/UGC/AICTE or any other competent regulatory bodies in the country;
31. The AIU is not involved in the Equivalence of qualifications in vocational stream and non-degree qualifications such as proficiency, certificate or diploma level examination conducted either by universities or by non-university level bodies except the Diploma in Engineering;
32. Equivalence Certificate issued by the AIU is aimed at certifying the parity of a qualification in terms of level as it says that this particular qualification/degree is equivalence to the degree awarded at that level by the Indian Universities;
33. AIU is not involved in determining the disciplinary parity between different qualifications and/or in determining suitability or adequacy of a qualification/ degree for eligibility for admission or employment and that such decisions rests with the concerned university/recruitment agency;
34. AIU does not issue Equivalence Certificate for two year (FAST TRACK) Degrees awarded by foreign accredited universities;

POLICIES & PARAMETERS FOR ACCORDING EQUIVALENCE OF DEGREES/QUALIFICATIONS BY THE AIU
(UPDATED AS ON 30TH JUNE 2015)
EQUIVALENCE OF SCHOOL LEVEL QUALIFICATION
SCHOOL LEVEL QUALIFICATIONS FROM SCHOOLS AFFILIATED TO INDIAN BOARDS

35. Certificates awarded by such School Boards that are affiliated to the Council of the Board of Secondary Education (COBSE) for the purpose of equivalence are equated with the corresponding examination conducted by the CBSE;

SCHOOL LEVEL QUALIFICATIONS FROM SCHOOLS AFFILIATED TO FOREIGN BOARD/OFFERING FOREIGN SYSTEM OF EDUCATION

36. AIU recognizes the system of education from across all countries of the world and equivalence is granted provided that (i) the foreign system of education prescribes a minimum of 12 years of regular schooling; (ii) the school is affiliated by a Board that has been approved/recognized; (iii) the school leaving certificate has been issued by the Board that has been approved/recognized/accredited in the country concerned;
37. Since the basic eligibility requirements for admission to Bachelor Degree Programme in India is Grade 12 OR an Equivalent Examinations, AIU accords equivalence to the School Level Examinations of a good number of Countries of the World so far, Conventionally;
38. Equivalence issued by AIU is accepted by the Universities in India for the purposes of admission or employment. Besides, the Centre/State Employment Agencies, UPSC etc. also accept the equivalence issued by the AIU;
39. As of now, the AIU has accorded Equivalence to some of the most popular Systems of School Education of the world i.e. the British System (GCE „O"&„ A"Level), American System (High School Diploma), International Baccalaureate (IB) awarded by the International Baccalaureate Organization Geneva, Switzerland, French International Baccalaureate, 12 year General Secondary School Certificate Examination conducted in most of the Gulf countries etc;
40. The following is a list of +2 level qualifications and their nomenclatures recognized by AIU subject to that the education has been pursued only on REGULAR MODE;

    a. 12 years Baccalaureate Certificate of Chad, Gabon, France and Tunisia;
    b. International Baccalaureate Diploma awarded by International Baccalaureate Organisation, Geneva, Switzerland;
    c. 12 years General Secondary Education Certificate of the Ministry of Education Bahrain, Egypt, Jordan, Kuwait, Oman, Saudi Arabia, United Arab Emirates and other Gulf Countries.
    d. GCE/IGCSE/GCSE examinations of the approved British Examination Bodies, with Minimum 5 (Five) subjects in A, B, C Grades including English at ORDINARY("O") Level and 2/3 subjects at ADVANCED ("A")LEVEL has been equated with +2 stage qualification. Candidates intending to join Professional courses are required to have passed the subjects of Physics, Chemistry, Biology/Mathematics in ADVANCED LEVEL & English at AS LEVEL;
    e. 12 Year High School Diploma from accredited Schools of USA
    f. Intermediate/Senior Secondary/Higher Secondary examinations of the approved Boards in Pakistan, Bangladesh, Bhutan and Nepal;
    g. 12 year Secondary Stage qualification of National Examinations Board of the Ministry of Education, Ethiopia, Sudan
    h. 12-year Secondary Stage examination conducted by various Provinces in Canada and Australia provided that the candidate having passed Ontario

Secondary School Diploma of the Ministry of Education, Ontario, should have acquired minimum6 (Six) "U/M"(University Preparatory Courses);

i. GCE "Ordinary and Advanced"level examination of the Department of Education, Government of Sri Lanka, Singapore, Hong Kong & Mauritius provided that candidates having passed O and A level Examinations should fulfil the same conditions as prescribed at Sr. No.iv above;
j. 12 year STPM examination of Malaysia;
k. 12 year Secondary Stage qualification of Indonesia, Japan, Korea, Republic of Vietnam and Yemen Arab Republic;
l. "Abitur"examination of Germany;
m. 12 year High School Diploma awarded by the accredited American Schools/International Schools in other countries following American System of Education subject to the condition that the High School Diploma awarded by the American Schools in USA and other parts of the world should be accredited either by the State Departments of Education OR by one of the Six Regional Accrediting Agencies in USA i.e (a) Middle States Association of Schools and Colleges; (b) New England Association of Schools and Colleges; (c) North Central Association of Schools and Colleges; (d) Northwest Association of Schools and Colleges; (e) Southern Association of Schools and Colleges; and (f) Western Association of Schools and Colleges.
n. Pre University Certificate Examination of the Ministry of Education, Iran;
o. 12 year Secondary School Certificate Examination of the Ministry of Education, Islamic Republic of Afghanistan;
p. 12 Year Secondary School Certificate Examination of the Ministry of Education, Republic of Iraq;
q. 12 Year Senior School certificate Examination of West African Examinations Council (WACE) in A, B, C Grades with minimum 5 (Five) subjects on a scale of 1-4 (A-1, B-2, B-3, C-4) conducted in the countries of Nigeria etc;
r. EXAMEN D‟ ETAT of the Ministry of Primary, Secondary & Professional Education in the Democratic Republic of Congo;
s. 12 year Kenya Certificate of Secondary Education Examination with minimum 5 (Five) subjects in the Grades A, B, & C of the Kenya National Examinations Council, Nairobi, Kenya;
t. Advanced Certificate of Secondary Education Examination with minimum 2 (Two) Principal Passes & 2(Two) Subsidiary Passes of the National Examinations Council of Tanzania;
u. Uganda Advanced Certificate of Education Examination with minimum 2 (Two) Principal Passes & 2(Two) Subsidiary Passes of the Uganda Examinations Board;
v. 12 year Certificat D" Enseignement Secondaire Generale (D" Humanities General) of the Ministry of NationalEducation, Republic of Burundi;
w. Eritrean Secondary Education Certificate of the Ministry of Education , State of Eritrea;
x. Baccalaureat De L" Enseignement Secondaire General (Baccalaureat of General Secondary Education) of the Ministry of National Education, Republic of Cameroon;

y. Baccalaureat De L" Enseignement DU Second Degre (Baccalaureate of Secondary Education) of Republic of Chad;
z. Higher School Certificate Examination of Department of Education, Papua New Guinea;
aa. Level III of NZQA

41. As American High School is not conducted by any Board, the AIU may be able to accord equivalence only if the school has been accredited by one of the six regional accrediting agencies; Middle State Association of Schools & Colleges, New England Association of Schools and Colleges, North Central Association of Schools and Colleges, Northwest Association of Schools and Colleges, Southern Association of Schools and Colleges, Western Association of Schools and Colleges.
42. Since AIU recognizes the system of school education, even in cases where school level qualification has been obtained from the Board of a country which has not been accorded equivalence, AIU may consider requests for equivalence provided the above conditions are fulfilled;
43. As of now, the High School Diploma(GED)/other school qualifications pursued through ONLINE/DISTANCE Mode are not considered for Equivalence by the AIU;
44. Students having completed their SCHOOL education in lesser duration (number of years), than the prescribed one, no Equivalence Certificate is issued in such cases.
45. Students having completed their education through HOME STUDIES/PRIVATE CANDIDATE shall not be issued equivalence certificate;
46. AIU does not accord approval/recognition to any School/College/Universities in India/Abroad.

EQUIVALENCE OF THE FELLOW PROGRAMME AWARDED BY THE AICTE APPROVED STAND ALONE INSTITUTIONS OUTSIDE THE PURVIEW OF THE UNIVERSITIES

47. As of now, the AIU is able to consider request for the equivalence of the Fellow Programmes offered by the Indian Institutes of Management (IIM) only;

EQUIVALENCE OF PGDM AWARDED BY THE AICTE APPROVED STAND ALONE INSTITUTIONS OUTSIDE THE PURVIEW OF THE UNIVERSITIES

48. AIU has been involved in granting equivalence to the Post Graduate Diploma in Management since late 1960s. Originally, such equivalence was granted only to the PGDM programme offered by the IIMs but with the advent of the AICTE approved institutes offering PGDM, this facility was extended to them as well;
49. Only such PGDM programmes be granted Equivalence which meet the following conditions: (a) The Institute has applied for the AIU equivalence and has furnished all the required information/documents as prescribed by the AIU; (b) the PGDM Programme has been duly approved by the All India Council for Technical

Education (AICTE), New Delhi; (c) a Minimum Two Batches of the programme must have passed out successfully; and (d) The PGDM programme has been duly accredited by the National Board of Accreditation (NBA);

50. Equivalence to the PGDM programme meeting the above conditions be granted for the period for which the NBA accreditation is valid;
51. To simplify the process, the procedural requirements of sending visiting teams for the evaluation of the PGDM programme be done away with and the decision be taken on the basis of the documentary evidences obtained from the Institute offering the PGDM programmes. The AIU shall, however, reserve the right to get the programme evaluated by a visiting team as and when it deem necessary.
52. In such cases where proposals have been received for the Renewal of AIU Equivalence for the PGDM programmes that have yet not been accredited, the Renewal may be accorded, for the sake of continuity and as a one-time exceptional measure, from the date it has become due and further for the period of two years with a condition that the institute be asked to obtain NBA accreditation failing which the programme shall not be eligible for AIU Equivalence

EQUIVALENCE OF DEGREES AWARDED BY FOREIGN UNIVERSITIES FOR STUDIES UNDERTAKEN ON THEIR CAMPUS OF ORIGIN

53. Equivalence is granted to students if he/she meets the following eligibility conditions:
    a. The degree has been awarded by a university which is duly approved/recognized/accredited in its own country;

    b. The student has pursued the programme of studies as a full time regular student on the campus of the university in the foreign country;

    c. The minimum eligibility qualification for admission to the programme of the study is at least the same as prescribed in India; and

    d. The duration of the programme of study is at least the same as prescribed in India;

54. The minimum prescribed duration and minimum eligibility of various Programmes of Studies in India, shall be such as are specified by the University Grants Commission (UGC) vide Gazette Notification published from time to time;
55. In such cases where the prescribed programme duration is at least the same as prescribed in India but a student was awarded degree within a shorter duration due to credit transfer, exemption and summer/winter courses, the AIU may accord equivalence in the following situations:

    (a) **Degrees awarded in lesser duration in terms of years of studies than applicable in case of Indian universities even though the student may have completed all the credits specified by the**

university and/or the semesters as applicable in case of Indian universities: *While AIU must not relax the requirements of the minimum duration of degrees, the duration should, instead of being measured in terms of precise number of months/years, be measured in terms of completion of the number of Semesters/Trimesters and all such cases where the degrees have been awarded upon completion of as many semester/trimester as are prescribed in case of Indian universities be awarded equivalence;*

(b) **Degrees awarded where the University has accepted credits taken by students from other universities/degree-awarding institutions including those in India:As** *acceptance of credits and credit transfer is a normal practice in most foreign universities and that the same is also being encouraged in India, the AIU may accord equivalence to such foreign degrees where the duration have been shortened on account of credits accepted by the foreign universities so long as the degrees awarded by foreign universities meets all other parameters specified by the AIU;*

(c) **Degrees awarded where the University has granted exemption to the student from certain number of credits or certain number of semesters: G***iven the fact that foreign universities grant exemptions to their students on the basis of their academic records/ attainment/transfers from other higher educational institutions, the AIU should grant equivalence to such foreign degrees where the duration have been shortened on account of exemption granted by the foreign universities so long as the degree meets all other parameters specified by the AIU.*

DIPLOMA IN ENGINEERING AWARDED BY THE FOREIGN UNIVERSITIES

56. As Diploma in Engineering conducted by various Boards of Technical Education/Universities in India makes a person eligible for admission to 2nd year (Lateral Entry) of the B.E./B.Tech Degree Programmes, such Diplomas awarded by the recognized institutions in India and abroad are accorded equivalence subject to the fulfillment of the following condition:

    a. The Diploma in Engineering is awarded by the approved/recognized/ accredited universwities abroad;
    b. The Minimum Eligibility Requirement for Entry into the Programme is at least the same as prescribed in India; presently such programme requires a class 10/Matriculation/secondary school or above;
    c. The Minimum Duration of the Programme is at least the same as prescribed in India; presently the prescribed duration for such Diploma programmes is a minimum of 3 years
    d. The Medium of Instruction is English;
    e. A minimum of 30 courses are covered in the programme;

f. A minimum of 6 courses in Physics, Chemistry and Mathematics are coved in the curriculum; and
g. A minimum of 20 courses in Engineering out of 6 Science subjects are covered in the curriculum,

DEGREES AWARDED BY THE FOREIGN UNIVERSITIES FOR STUDIES UNDERTAKEN IN INDIA:

57. Degrees awarded by foreign universities for studies undertaken in India may be equated with the corresponding degrees awarded by the Indian universities provided they fulfill the following conditions:
    a. the foreign university awarding the degree must be duly approved/ recognized by the competent authorities in its own country and/or must be duly accredited by the recognized accrediting agency in its own country;

    b. the institute/college/university where studies were undertaken in India must be duly approved/recognized by the competent authorities in India and/or duly accredited by the recognized accrediting agencies in India;

    c. the institute/college/university where studies were undertaken in India must be duly approved by the competent authorities in India (UGC/ AICTE/Government of India) to award degree of the foreign university;

    d. the degree has been awarded in accordance with the Rules & Regulations framed by the Statutory/Regulatory Bodies in India;

    e. the student has completed his studies as a full time regular student throughout the prescribed duration of the programme of the studies;

    f. that all other parameters as laid down by AIU for according equivalence to foreign degrees have been fulfilled.

DEGREES AWARDED BY FOREIGN UNIVERSITIES FOR STUDIES UNDERTAKEN IN THEIR OFFSHORE CAMPUSES/COLLABORATING EDUCATIONAL INSTITUTIONS IN OTHER COUNTRIES EXCEPT INDIA:

58. Degrees awarded by foreign universities for studies undertaken in their offshore campuses/collaborating institutions may be equated with the corresponding degrees awarded by the Indian Universities provided they fulfill the following conditions:

    1.1.a. the foreign university awarding the degree must be duly approved/recognized by the competent authorities in its own country and/or must be duly accredited by the recognized accrediting agency in its own country;

1.1.b. the offshore campus/collaborating educational institution where studies were undertaken must be duly approved/recognized by the competent authorities in the country where they are operating and/or is accredited by the accrediting agencies that has been duly recognized in that country;

1.1.c. the offshore campus/collaborating educational institution where studies were undertaken must be duly approved by the competent authorities in that country to award degree of the foreign university;

1.1.d. the degree has been awarded in accordance with the Rules & Regulations prescribed by the competent authorities of the country where the offshore campus/collaborating educational institution operates;

1.1.e. the student has completed his studies as a full time regular student throughout the prescribed duration of the programme of the studies;

1.1.f. all other parameters as laid down by AIU for according equivalence to foreign degrees have been fulfilled.

DEGREES AWARDED BY THE INDIAN UNIVERSITIES FOR STUDIES UNDERTAKEN IN THEIR OFFSHORE CAMPUSES/COLLABORATING EDUCATIONAL INSTITUTIONS ABROAD:

59. Degrees awarded by Indian universities for studies undertaken in their offshore campuses/collaborating educational institutions may be equated with the corresponding degrees awarded by the Indian Universities subject to the fulfillment of the following conditions:

1.1.a. The Indian University must have obtained due approval/permission from the concerned appropriate regulatory bodies/competent authorities in India (UGC/AICTE/MHRD/Government of India) for establishing and operating the offshore campus/entering into such agreements/MoUs with collaborating educational institutions;

1.1.b. The programme of studies for which the degree has been awarded for studies undertaken in the offshore campus/collaborating institution abroad has been duly approved by the concerned appropriate regulatory bodies/competent authorities in India (UGC/AICTE/MHRD/Government of India);

1.1.c. The offshore campus/collaborating educational institution abroad has been duly approved/recognized by the competent authorities/regulatory bodies of that country and/or has been accredited by the accrediting agency duly recognized in that country;

1.1.d. the degree has been awarded in accordance with the Rules & Regulations prescribed by the competent authorities of India as well as by the competent authorities/regulatory bodies of the country where the offshore campus/collaborating educational institution operates;

1.1.e. the student has completed his studies as a full time regular student throughout the prescribed duration of the programme of the studies;

1.1.f. all other parameters as laid down by AIU for according equivalence to foreign degrees have been fulfilled.

DEGREES AWARDED BY THE FOREIGN UNIVERSITIES TO THE STUDENTS ADMITTED THROUGH PATHWAYS/DIPLOMA LEVEL INSTITUTIONS:

60. As of now, the AIU does NOT accord Equivalence to such degrees offered by the foreign universities where students are admitted through pathway/diploma level institutions;

DEGREES AWARDED BY THE FOREIGN UNIVERSITIES FOR STUDIES UNDERTAKEN THROUGH OPEN/DISTANCE/CORRESPONDENCE/ONLINE/ VIRTUAL MODE etc:

61. As of now, the AIU does NOT accord Equivalence to such foreign degrees that have been obtained for studies undertaken through open/distance/correspondence/online/virtual modes(s) etc ;

Appendix C: Consolidated List of Universities

(This list is being constantly updated by the University Grants Commission)
Reproduced from the website of University Grants Commission
https://www.ugc.ac.in/oldpdf/Consolidated%20list%20of%20All%20Universities.pdf
as on 31.3.2019

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
ANDHRA PRADESH		
1.	Acharya Nagarjuna University, Nagarjuna Nagar-522510, Dt. Guntur, Andhra Pradesh. (State University)	1976
2.	Adikavi Nannaya University, 25-7-9/1, Jayakrishnapuram, Rajahmundry – 533105, East Godavari District, Andhra Pradesh. (State University)	2006
3.	Andhra University, Waltair, Visakhapatnam-530 003, Andhra Pradesh. (State University)	1926
4.	Centurion University of Technology and Management, Gidijala Junction, Anandapuram Mandal, Visakhapatnam – 531173, Andhra Pradesh. (Private University)	23.05.2017
5.	Damodaram Sanjivayya National Law University, Plot No. 116, Sector 11 MVP Colony, Visakhapatnam – 530 017, Andhra Pradesh. (State University)	2008
6.	Dr. Abdul Haq Urdu University, Kurnooi- 518001, Andra Pradesh (State University)	14.12.2018
7.	Dr. B.R. Ambedkar University, Etcherla, Dt. Srikakulam-532410, Andhra Pradesh. (State University)	2008
8.	Dravidian University, Srinivasanam, 517 425, Chittoor District, Andhra Pradesh. (State University)	1997
9.	Dr. Y.S.R. Horticultural University, PO Box No. 7, Venkataramannagudem, West Godavari District – 536 101, Andhra Pradesh. (State University)	2011
10.	Dr. N.T.R. University of Health Sciences (Formerly Andhra Pradesh University of Health Sciences), Vijayawada-520 008, Andhra Pradesh. (State University)	1986
11.	Gandhi Institute of Technology and Management (GITAM), Gandhi Nagar Campus, Rushikonda, Visakhapatman – 530 045, Andhra Pradesh.(Deemed University)	13.08.2007
12.	Jawaharlal Nehru Technological University, Anantpur-515 002, Andhra Pradesh (State University)	2008
13.	Jawaharlal Nehru Technological University, Pithapuram Road, Kakinada- 533003, East Godvari District, Andhra Pradesh.(State University)	2008

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
14.	Koneru Lakshmaiah Education Foundation, Greenfields, Kunchanapalli Post, Vaddeswaram, Guntur District-522002, Andhra Pradesh. (Deemed University)	20.02.2009
15.	KREA university, 5655, Central, Expressway, Sri. City -517646, Andra Pradesh (Private University)	30.04.2018
16.	Krishna University, Andhra Jateeya Kalasala, Campus, Rajupeta, Machllipatanam – 521 001, Krishna District, Andhra Pradesh. (State University)	2008
17.	Rashtriya Sanskrit Vidyapeeth, Tirupati-517 507, Chittoor District, Andhra Pradesh. (Deemed University)	16.11.1987
18.	Rayalaseema University, Pasupula Village, Nandyal Road, Kurnool – 518 002, Andhra Pradesh.,(State University)	2008
19.	Saveetha Amaravathi University, 3rd Floor, Vaishnavi Complex, Opposite Executive Club, Vijayawada-520008, Andra Pradesh (Private University)	30.04.2018
20.	Sri Krishnadevaraya University, Anantapur-515 003, Andhra Pradesh. (State University)	1981
21.	Sri Padmavati Mahila Vishwavidyalayam, Tirupati-517 502, Andhra Pradesh. (State University)	1983
22.	Sri Sathya Sai Institute of Higher Learning, Prasanthinilayam, Anantapur-515134, Andhra Pradesh. (Deemed University)	10.11.1981
23.	Sri Venkateswara University, Tirupati-517 502, Andhra Pradesh. (State University)	1954
24.	Sri Venkateswara Vedic University, Alipiri-Chandragiri Bypass Road, Tirupati- 517502, Andhra Pradesh. (State University)	2006
25.	Sri Venkateswara Veterinary University, Dr. YSR Bhavan, Tirupati – 517 502, Andhra Pradesh. (State University)	2005
26.	Sri Venkateswara Institute of Medical Sciences, Alipuri Road, Tirupati – 517507, Andhra Pradesh. (State University)	1993
27.	SRM University, Neerukonda-Kuragallu Village, Mangalagiri Mandal, Guntur District-522502, Andhra Pradesh. (Private University)	23.05.2017
28.	Vignan's Foundation for Science, Technology and Research, Vadlamudi, Guntur District – 522213, Andhra Pradesh. (Deemed University)	19.12.2008
29.	Vikram Simhapuri University, Dargamitta, Nellore – 524 003, Andhra Pradesh. (State University)	2008
30.	VIT-AP University, Amravati – 522237, Andhra Pradesh. (Private University)	23.05.2017
31.	Yogi Vemana University, Vemanapuram, Kadapa – 516 003, Andhra Pradesh. (State University)	2006

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
ARUNACHAL PRADESH		
32.	Apex Professional University, Pasighat, District East Siang, Arunachal Pradesh - 791102. (Private University)	10.05.2013
33.	Arunachal University of Studies, NH-52, Namsai, District Lohit – 792 103, Arunachal Pradesh. (Private University)	26.05.2012
34.	Arunodaya University, E-Sector, Nirjuli, Itanagar, Distt. Papum Pare, Arunachal Pradesh-791109.	21.10.2014
35.	Himalayan University, 401, Takar Complex, Naharlagun, Itanagar, Distt – Papumpare – 791110, Arunachal Pradesh. (Private University)	03.05.2013
36.	North East Frontier Technical University, Sibu-Puyi, Aalo (PO), West Siang (Distt.), Arunachal Pradesh –791001.	03.09.2014
37.	North Eastern Regional Institute of Science & Technology, Nirjuli, Itanagar- 791109, Arunachal Pradesh. (Deemed University)	31.05.2005
38.	Rajiv Gandhi University, Rono Hills, PO Doimukh, Itanagar-791 112, Arunachal Pradesh. (Central University)	1985 Central University w.e.f. 2007
39.	The Global University, Hollongi, Itanagar, Arunachal Pradesh. (Private University)	18.09.2017
40.	The Indira Gandhi Technological & Medical Sciences University, Ziro, Arunachal Pradesh. (Private University)	26.05.2012
41.	Venkateshwara Open University, Itanagar, Arunachal Pradesh. (Private University)	20.06.2012
ASSAM		
42.	Assam Agricultural University, Jorhat- 785 013, Assam. (State University)	1968
43.	Assam Don Bosco University, Azara, Guwahati-781017, Assam. (Private University)	12.02.2009
44.	Assam Down Town University, Sankar Madhab Path, Gandhi Nagar, Panikhaiti, Guwahati – 781 036. (Private University)	29.04.2010
45.	Assam University, PO Assam University, Silchar -788 011, Assam. (Central University)	1994
46.	Assam Rajiv Gandhi University of Co-operative Management, 2nd Floor, Baruah Complex, Above SBI, Sivasagar-785040, Assam. (State University)	2010
47.	Assam Science & Technology University, Kahilipara, Guwahati – 19, Assam. (State University)	2011
48.	Assam Women‟ s University, Jorhat-785004, Assam. (State University)	2013

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
49.	Bodoland University, Debragaon, PO Rangalikhata, kokrajhar – 783 370, BTC, Assam. (State University)	2009
50.	Cotton College State University, Panbazar, Guwahati, Assam. (State University)	2011
51.	Central Institute of Technology (CIT), Dist: Kokrajhar, Balagaon, BTAD, Assam (Deemed University)	13.12.2018
52.	Dibrugarh University, Dibrugarh-786 004, Assam. (State University)	1965
53.	Gauhati University, Gopinath Bardoloi Nagar, Guwahati- 781 014, Assam. (State University)	1948
54.	Krishna Kanta Handique State Open University, Housefed Complex, Last Gate, Dispur, Guwahati – 781 006, Assam. (State University)	2007
55.	Kumar Bhaskar Varma Sanskrit & Ancient Studies University, Village – Namati, PO – Hati Namati, Dist. - Nalbari – 781 337, Assam. (State University)	2011
56.	Krishnaguru Adhyatmik Visvavidyalaya, Nasatra, Barpeta, Assam-781307(Private Univerisity)	11.04.2017
57.	Mahapurusha Srimanta Sankaradeva Viswavidyalaya, Srimanta Sankaradeva Sangha Complex, Haladhar Bhuyan Path, Kalongpar, Nagaon-782001, Assam. (Private University)	14.08.2013
58.	National Law University and Judicial Academy, NEJOTI Building, B.K. Kakati Road, Bholanath Mandir Path, Ulubari, Guwahati – 781 007, Assam. (State University)	2012
59.	Srimanta Sankaradeva University of Health Sciences, Narakasur Hilltop, Bhangagarh, Guwahati, Assam. (State University)	2007
60.	Tezpur University, Napaam, Sonitpur, Assam- 784 028 (Central University)	1994
61.	The Assam Kaziranga University, Jorhat, Assam. (Private University)	11.04.2012
62.	The Assam Royal Global University, Betkuchi, Opp. Tirupati Balaji Temple, NH-37, Guwahati – 781035, Assam. (Private University).	23.08.2013
BIHAR		
63.	Amity University, Rupaspur, Bailey Road, Patna – 801503, Bihar. (Private University)	18.08.2017
64.	Aryabhatta knowledge University, 8, Off Polo Road, Patna – 800 001, Bihar (State University)	2008
65.	Babasaheb Bhimrao Ambedkar Bihar University, Muzaffarpur-842 001, Bihar. (State University)	1952
66.	Bhupendra Narayan Mandal University, Laloo Nagar, Madhepura –852 113, Bihar. (State University)	1993

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
67.	Bihar Agricultural University, Sabour, Bhagalpur – 813210, Bihar. (State University)	2010
68.	Bihar Animal Sciences University, Bihar Veterinary College Campus, Patna -800014(State University)	29.08.2016
69.	Central University of South Bihar, BIT Campus, PO-B.V. College, Patna- 800014. (Central University).	2009
70.	Chanakya National Law University, Nyaya Nagar, Mithapur, Patna-800 001, Bihar. (State University)	2006
71.	Dr. C.V. Raman University, Block – Bhagwanpur, NH-77 (Patna-Muzaffarpur Highway), District-Vaishali – 844114, Bihar. (Private University)	29.01.2018
72.	Gopal Narayan Singh University, Jamuhar, Dist. - Rohtas – 821305, Bihar. (Private University)	15.06.2018
73.	Jai Prakash Vishwavidyalaya, Rahul Sankrityan Nagar, Chhapra – 841 301, Bihar. (State University)	1995
74.	Kameshwara Singh Darbhanga Sanskrit Vishwavidyalaya, Kameshwar Nagar, Darbhanga- 846008, Bihar. (State University)	1961
75.	K.K. University, Berauti, Nepura, Biharsharif, Nalanda, Bihar – 803115. (Private University)	08.06.2017
76.	Lalit Narayan Mithila University, Kameshwarnagar, Darbhanga-846004, Bihar. (State University)	1972
77.	Magadh University, Bodh Gaya.-824 234, Bihar. (State University)	1962
78.	Mahatma Gandhi Central University, BIT Campus, PO-B.V. College, Patna- 800014. (Central University).	2014
79.	Mata Gujri University, Purabpali Road, Kishanganj-855107, Bihar (Private University)	20.02.2019
80.	Maulana Mazharul Haque Arabic & Persian University, 34, Ali Imam Path (Harding Road), Near Raj Bhawan, Patna-800 001, Bihar. (State University)	2004
81.	Munger University, Munger, Bihar. (State University)	06.01.2017
82.	Nalanda University, Rajgir, Dt. Nalanda, Bihar-803116. (Established under Central Act)	2010
83.	Nalanda Open University, Patna.-800 001 (State University)	1995
84.	Nava Nalanda Mahavihara, Nalanda – 803 111. (Bihar) (Deemed University)	13.11.2006
85.	Patna University, Patna–800 005, Bihar. (State University)	1917
86.	Patliputra University, Kankarbagh Road, Near Rajendra Nagar Terminal, Patna- 800020, Bihar (State University)	17.08.2018
87.	Purnea University, Purnea – 854301, Bihar. (State University)	17.08.2016

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
88.	Rajendra Agricultural University, Pusa, Samastipur- 848 125, Bihar. (State University)	1970
89.	Sandip University, Village – Sijoul, Dist.–Madhubani– 847235, Bihar. (Private University)	08.06.2017
90.	T.M. University, Bhagalpur- 812 007, Bihar. (State University)	1960
91.	Veer Kunwar Singh University, Arrah- 802 301, Bihar. (State University)	1994
92.	Al- Karim University, Near Kathiar- Purenea Road, Sirsa, Karim BAgh, Katihar- 854106, Bihar, (Private university)	15.06.2018
CHHATTISGARH		
93.	AAFT University of Media and Arts, Vill-Maath, Tehsil- Tilda, Dist- Raipur, Chhattisgarh (Private University)	17.04.2018
94.	Amity University, Village-Manth, Tehsil-Tilda, Distt-Raipur, Chhattisgarh. (Private University)	21.08.2014
95.	Ayush and Health Sciences University of Chhattisgarh, G.E. Road, Raipur-492 001, Chhattisgarh. (State University)	2008
96.	Bastar Vishwavidyalaya, Jagdalpur (Dharampura), Distt. – Bastar-494005, Chhattisgarh. (State University)	2008
97.	Atal Bihari Vajpai Viswavidyalaya (Formerly Bilaspur Viswavidyalya)Old Highcourt Buildin, Gandhi Chowk, Bilaspur - 495001, Chhattisgarh. (State University) Name changed wef 12.09.2018	2011
98.	Chhattisgarh Kamdhenu Vishwavidyalaya, Raipur College of Dairy Technology Campus, G.E. Road, Raipur, Chhattisgarh. (State University)	2011
99.	Chhattisgarh Swami Vivekanand Technical University, North Park Avenue, Sector-8, Bhilai, Dt. Durg-490009, Chhattisgarh. (State University).	2004
100.	Dr. C.V. Raman University, Kargi Road, Kota, Bilaspur-495113, Chhattisgarh. (Private University)	03.11.2006
101.	Durg Vishwavidyalaya, Government Vasudev Vaman Patankar Girls‟ PG College Campus, Raipur Naka, Durg, Chhattisgarh. (State University)	2015
102.	Guru Ghasidas Vishwavidyalaya, Koni, Bilaspur- 495 009, Chhattisgarh. (Converted State University to Central University) (Central University)	1983 (Central University w.e.f. 2009)
103.	Hidayatullah National Law University, Uparwara Post, Abhanpur, Raipur- 493661, Chhattisgarh. (State University)	2003
104.	ICFAI University, NH-6, Raipur-Bhilai Road (Km Stone 20), Gram-Chorha, PO Kumhari, District Durg, Chhatttisgarh-490032. (Private University)	24.03.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
105.	International Institute of Information Technology, Plot No. 7, Sector 24, Near Purkhoti, Muktangan, Naya Raipur-493661, Chhattisgarh. (State University)	28.01.2014
106.	ISBM University, Village – Nawapara (Kosmi) Block, tehsil – Chhura, Dist – Gariyaband – 493996, Chhattisgarh. (Private University)	09.09.2016
107.	Indira Gandhi Krishi Vishwavidyalaya, Krishak Nagar, Raipur- 492 012, Chhattisgarh. (State University)	1987
108.	Indira Kala Sangeet Vishwavidyalaya, Khairagarh, Dt. Rajnandgaon- 491 881, Chhattisgarh. (State University)	1956
109.	ITM University, PH No. 137, Uparwara, Naya Raipur, Dt. Raipur – 493661, Chhattisgarh. (Private University)	03.02.2012
110.	Kushabhau Thakre Patrakarita Avam Jansanchar Vishwavidyalaya, Kathadih, Post Office Sunder Nagar, Raipur – 492 013, Chhattisgarh. (State University).	2004
111.	Kalinga University, Raipur, Chhattisgarh. (Private University)	24.03.2011
112.	Maharishi University of Management and Technology, Post: Mangla, Bilaspur – 495 001, Chhattisgarh (Private University).	18.04.2002
113.	MATS University, Arang Kharora Highway, Gram Panchayat: Gullu, Village: Gullu, Tehsil : Arang, District: Raipur-493441, Chhattisgarh (Private University)	03.11.2006
114.	O.P. Jindal University, Knowledge Park, Gharghoda Road, Punjipathra, Raigarh-496001, Chhattisgarh (Private University)	21.08.2014
115.	Pt. Ravishankar Shukla University, Raipur-492 010, Chhattisgarh. (State University)	1964
116.	Pt. Sundarlal Sharma (Open) University, Village & PO Birkona, Koni-Birkona Road, Distt. Bilaspur-495009, Chhatisgarh. (State University)	2004
117.	Sarguja University, Darripara, Ambikapur, Sarguja-497001, Chhattisgarh (State University)	2008
118.	Shri Rawatpura Sarkar University, Raipur, Chhattisgarh. (Private University)	17.04.2018
GOA		
119.	Goa University, Sub Post Office Goa University, Taleigao Plateau, Goa- 403 206. (State University)	1985
GUJARAT		
120.	Ahmadabad University, AES Bungalow # 2, Near Commerce Six Roads, Navrangpura, Ahmedabad – 380 009, Gujarat. (Private University)	07.07.2009
121.	Anand Agricultural Univerisity, Anand, Gujarat-388110. (State University)	2004

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
122.	Anant National University, Sanskardham Campus, Bhopal-Ghuma-Sanand Road, Ahmedabad, Gujarat – 382115. (Private University)	09.05.2016
123.	Atmiya University, Yogidham Gurukul, Kalawad Road, Rajkot – 360005, Gujarat. (Private University)	13.04.2018
124.	AURO University of Hospitality and Management, Surat, Gujarat. (Private University)	12.10.2011
125.	Bhakta Kavi Narsinh Mehta University, C/o Government Polytechnic College, Bilkha Road, Khadiya, Junagadh – 362640, Gujarat. (State University)	28.09.2015
126.	Birsa Munda Tribal University, Adarsh Nivasi School Campus, Vavdi Road, Rajpipla Dist- Narmada , Gujarat (State University)	25.07.2018
127.	Calorx Teacher‟ s University, Ahmadabad. (Private University)	07.07.2009
128.	Central University of Gujarat, Sector-30, Gandhinagar-382030, Gujarat (Central University).	2009
129.	Centre for Environmental Planning and Technology University, University Road, Narvrangpura Ahemdabad-380 009 (Gujarat) (Private University)	12.04.2005
130.	Charotar University of Science & Technology, Akshar Dham, 12, Surya Valley, Bakrol Lambhavel Road, Bakrol, Anand – 388315, Gujarat. (Private University)	04.11.2009
131.	Children‟ s University, Subhash Chandra Bose Shikshan Sankul, Sector-20, Gandhinagar - 382020, Gujarat. (State University)	2009
132.	C.U. Shah University, Surendranagar-Ahmedabad State Highway, Near Kothariya Village, Wadhwan City – 363030, Dt. Surendranagar, Gujarat. (Private University)	22.04.2013
133.	Dharmsinh Desai University, Post Box No. 35, College Road, Nadiad-387 001, Gujarat. (converted from Deemed University to State University)	2000
134.	Dhirubhai Ambani Institute of Information and Communication Technology, Near Indroda Circle, Gandhinagar, Post Box No. 4, Gandhinagar-382 007, Gujarat. (Private University)	06.03.2003
135.	Dr. Babasaheb Ambedkar Open University, R.C. Technical Institute Campus, Opp. Gujarat High Court, Sarkhej-Gandhinagar Highway, Sola, Ahmedabad – 380 060, Gujarat. (State University)	1995
136.	Ganpat University, Ganpat Vidyanagar, Mehsana, Goazaria Highway, Tal & District Mehsana – 384012, Gujarat. (Private University)	23.03.2005
137.	G.L.S. University, Gujarat Law Society Campus, Opp. Law Garden, Ellisbridge, Ahmedabad-380006, Gujarat. (Private University)	15.04.2015
138.	Gokul Global University, Gokul Educational Campus, Near GRSL, Sujanpur Patia, Sidhpur, Dist. Patan, Gujarat. (Private University)	23.03.2018

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
139.	GSFC University, Vigyan Bhavan, PO Fertilizernagar – 391750, Dist. Vadodara, Gujarat. (Private University)	19.12.2014
140.	Gujarat Agricultural University, Sardar Krushinagar, Banaskantha-385506(State University)	1972
141.	Gujarat Ayurveda University, Chanakya Bhavan, Jamnagar-360 118, Gujarat. (State University)	1968
142.	Gujarat National Law University, Attalika Avenue, Knowledge Corridor, Koba, Gandhinagar, Gujarat – 382 007. (State University)	2003
143.	Gujarat Technlogical University, Near Vishwakarma Government Engineering College, Near Visat Three Roads, Visat-Gandhinagar Highway, Chandkheda, Ahmedabad-382414, Gujarat. (State University)	2007
144.	Gujarat University, Post Box 4010, Navrangpura, Ahmedabad- 380 009, Gujarat. (State University)	1950
145.	Gujarat University of Transplantation Sciences, IKDRC-ITS Premises, Civil Hospital Campus, Asarwa, Ahmedabad – 380016, Gujarat. (State University)	2015
146.	Gujarat Vidyapith, PO Navjivan, Ashram Road, Ahmedabad-380 014, Gujarat. (Deemed University)	16.07.1963
147.	Gujarat Forensic Sciences University, Sector – 18/A, Near Police Bhavan, Gandhinagar – 382 007 Gujarat. (State University)	2008
148.	Hemchandracharya North Gujarat University, University Road, Patan-384 265, Gujarat. (State University)	1986
149.	Indian Institute of Public Health-Gandhinagar, Sardar Patel Institute of Economics and Social Research Campus, Drive-in-Road, Thaltej, Ahmedabad – 380054, Gujarat. (Private University)	02.05.2015
150.	Indian Institute of Teacher Education, Government College Campus, Near Mahatma Mandir, G-4, Sector-15, Gandhinagar – 382 016, Gujarat. (State University)	2010
151.	Indrashil University, Ratanpur, Dhandhuka, Ahmedabad – 382465, Gujarat. (Private University)	31.03.2017
152.	Indus University, Indus Campus, Rancharda, Via-Thaltej, Ahmedabad–382115, Gujarat. (Private University)	02.05.2012
153.	Institute of Infrastructure Technology Research and Management, Near Khokhra Circle, Maninagar (East), Ahmedabad-380026, Gujarat. (State University)	2013
154.	Institute of Advanced Research, Institutional Area, Koba, Gandhinagar–382007, Gujarat. (Private University)	12.10.2011
155.	ITM-Vocational University, Plot 6512, Ajwa Nimeta Road, Ravaal Taluka, Waghodia, Vadodara, Gujarat. (Private University)	08.05.2014

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
156.	Junagarh Agricultural University, University Bhavan, Motibaug, Junagarh – 362001, Gujarat. (State University)	2004
157.	Kadi Sarva Vishwavidyalaya, Sector-15, Gandhinagar-382015, Gujarat. (Private University)	16.05.2007
158.	Kamdhenu University, "Krushibhavan", Sector 10 A, Block B, Podium Level, Gandhinagar – 382010, Gujarat. (State University)	07.07.2009
159.	Karnavati University, 907/A, Uvarsad – 382422, Dt. Gandhinagar, Gujarat. (Private University)	31.01.2017
160.	Krantiguru Shyamji Krishna Verma Kachchh University, Mundra Road, Bhuj, Kachchh-370001, Gujarat. (State University)	2004
161.	Lakulish Yoga University, "Lotus View" Opp. Nirma University, S.G. Highway, Chharodi, Ahmedabad-382481, Gujarat. (Private University)	16.04.2013
162.	Maharaja Krishnakumarsinji Bhavnagar University, S.V. Patel Campus, Gaurishanker Lake Road, Bhavnagar- 364 001, Gujarat. (State University)	1978
163.	Maharaja Sayajirao University of Baroda, Opp Foods & Drugs Laboratory, Fatehganj, Vadodara-390 002, Gujarat. (State University)	1949
164.	Marwadi University, Rajkot-Morbi Highway, Rajkot – 360003, Gujarat. (Private University)	09.05.2016
165.	National Rail and Transportation Institute (NRTI), Nair Campus Lalbaug, Vadodara -390004 Gujrat (Deemed to be University)	26.07.2018
166.	Navsari Agricultural University, Navsari-396450, Gujarat. (State University)	29.04.2004
167.	Nirma University, Sarkhej-Gandhinagar Highway, Village-Chharodi, Ahmedabad-382481, Gujarat (Private University).	12.03.2003
168.	Navrachana University, Vasna-Bhayli Road, Vadodara – 391410, Gujarat (Private University)	07.07.2009
169.	Pandit Deendayal Petroleum University, Knowledge Corridor, Raisan, Dist. Gandhinagar – 382007, Gujarat.(Private University)	04.04.2007
170.	Parul University, PO Limda, Tal – Waghodia, Dist. Vadodara-391760, Gujarat. (Private University)	21.04.2015
171.	Plastindia International University, Dungra, GIDC, VAPI, Dist. Valsad – 396195, Gujarat. (Private University)	09.05.2016
172.	P.P. Savani University, NH-8, GETCO, Near Biltech, Village – Dhamdod, Kosamba, Ta – Mangrol, Dist – Surat – 394125, Gujarat. (Private University)	31.03.2017
173.	Raksha Shakti University, New Mental Corner, Meghaninagar, Ahmedabad–380 016, Gujarat. (State University)	2011
174.	R.K. University, Rajkot-Bhavnagar Highway, Kasturbadham, Rajkot, Gujarat. (Private University)	14.10.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
175.	Rai University, Ahmedabad, Gujarat. (Private University)	10.04.2012
176.	Sankalchand Patel University, Sankalchand Patel Vidyadham, Visanagar- 384315, Gujarat. (Private University)	09.05.2016
177.	Sardar Krushinagar Dantiwada Agricultural University, Sardar Krushinagar – 385506, Dist. – Banaskantha, Gujarat. (State University)	29.04.2004
178.	Sardar Patel University, Vallabh Vidyanagar, Dt. Anand – 388 120, Gujarat. (State University)	1955
179.	Saurashtra University, University Road, Rajkot- 360 005, Gujarat. (State University)	1955
180.	Shree Somnath Sanskrit University, Somnath-Veraval, District Junagarh- 362265, Gujarat. (State University)	2005
181.	Shri Govind Guru University, Government Polytechnic Campus, Gadukpur, Godhra, Dist. Panchmahals-389001, Gujarat. (State University)	2015
182.	Sumandeep Vidyapeeth, Village Piparia, Taluka Waghodia, District Vadodara (Deemed University)	17.01.2007
183.	Swarnim Gujarat Sports University, PTC Building, Near Inquiry Office, Sector- 19, Punit Van Road, Near – Suvidha Kendra, PTC Building Campus, Gandhinagar – 382 019, Gujarat. (State University)	2011
184.	Swarnim Startup & Innovation University, Bhoyan Rathod Rathod, Opp. IFFCO, Adalaj-Sertha Road, Gandhinagar – 382420, Gujarat. (Private University)	31.03.2017
185.	Team Lease Skills University, Tarsali-Vadodara Road, Tarsali Bypass, Vadodara – 390009, Gujarat. (Private University)	22.04.2013
186.	UKA Tarsadia University, Maliba Campus, Gopal vidyanagar, Baroli-Mahuva Road, Tal. Mahuva, Dist. Surat-394350, Gujarat. (Private University)	14.10.2011
187.	Veer Narmad South Gujarat University, University Campus, Udhna-Magdalla Road, Surat-395007, Gujarat. (State University)	1965
HARYANA		
188.	Al-Falah University, Faridabad, Haryana (Private University)	02.05.2014
189.	Amity University, Amity Education Valley, Panchgaon, Manesar, Distt. – Gurgaon-122 413, Haryana. (Private University)	26.04.2010
190.	Ansal University, Guraon, Haryana. (Private University)	10.02.2012
191.	Apeejay Stya University, Sohna-Palwal Road, Sohna, Gurgaon – 122 103, Haryana. (Private University)	02.11.2010
192.	Ashoka University, Plot No. 2, Rajiv Gandhi Education City, Kundli, NCR, Sonepat, Haryana. (Private University)	02.05.2014

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
193.	Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur Kalan, Sonipat-1313-5, Haryana. (State University)	2006
194.	Baba Mast Nath University, Rohtak, Haryana. (Private University)	10.02.2012
195.	BML Munjal University, 67th KM Stone, NH-8, Sidhrawali, Dist. Gurgaon – 123 413, Haryana.	02.05.2014
196.	Central University of Haryana, Jant-Pali Villages, Mahendergarh, Haryana- 123029. (Central University)	2009
197.	Chaudhary Bansi Lal University, Bhiwani – 127021, Haryana. (State University)	2014
198.	Chaudhary Devi Lal University, Barnala Road, Sirsa-125055, Haryana. (State University)	200
199.	Chaudhary Ranbir Singh University, Jind, Haryana. (State University)	2014
200.	Choudhary Charan Singh Haryana Agricultural University, Hisar-125 004, Haryana. (State University)	1970
201.	Deen Bandhu Chhotu Ram University of Science & Technology, Murthal, Sonepat-131039, Haryana. (State University)	2006
202.	G.D. Goenka University, G.D. Goenka Education City, Gurgaon sohna Road, Gurgaon, Haryana – 122 103. (Private University)	03.05.2013
203.	Guru Jambeshwar University of Science and Technology, Hisar,-125 001, Haryana. (State University)	1995
204.	Gurugram University, Rao Tula Ram College of Commerce & Science Sector-51, Gurugram-122018 (State University)	07.06.2018
205.	Haryana Vishwakarma Skill University (Dudhola, Palwal), Sector-18, Gurugram, Haryana. (State University)	20.09.2016
206.	IILM University, 1, Knowledge Centre, Golf Course Road, Sector-53, Gurugram – 122003, Haryana. (Private University)	06.04.2018
207.	Indira Gandhi University, Meerpur, Rewari – 122502, Haryana. (State University)	2013
208.	Jagan Nath University, State Highway 22, Bahadurgarh-Jhajjar Road, Jhajjar – 124 507, Haryana. (Private University)	03.05.2013
209.	K.R. Mangalam University, Sohna Road, Gurgaon, Haryana – 122 103. (Private University)	03.05.2013
210.	Kurukshetra University, Kurukshetra- 136 119, Haryana. (State University)	1956
211.	Lingaya'sVidyapeeth, Nachaull, Old Faridabad, Jasana Road, Faridabad – 121 002, Haryana. (Deemed University)	05.01.2009
212.	Lala Lajpat Rai University of Veterinary & Animal Sciences, Premises of CCS HAU, Hisar – 125 004 Haryana. (State University)	2010
213.	Maharana Pratap Horticultural University, Karnal – 132001, Haryana. (State University)	28.11.2016

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
214.	Maharishi Balmiki Sanskrit University, Mundri, Kaithal- 136027, Haryana (State University)	09.05.2018
215.	Maharishi Dayanand University, Rohtak-124 001, Haryana. (State University)	1976
216.	Maharishi Markandeshwar, Mullana, Ambala – 133003, Haryana. (Deemed University).	12.06.2007
217.	Maharishi Markandeshwar University, Sadopur-Ambala, VPO Sadopur, Chandigarh Road, Ambala-134007, Haryana. (Private University)	29.10.2010
218.	Manav Rachna International Institute of Research & Studies, MRIU Aravali Campus, Sector 43, Surajkund-Delhi Road, Faridabad-121001, Haryana (Deemed University)	21.10.2008
219.	Manav Rachna University, Sector – 43, Delhi-Surajkund Road, Faridabad, Haryana. (Private University)	06.08.2014
220.	M.V.N. University, Palwal, Haryana. (Private University)	10.02.2012
221.	National Brain Research Centre, Gurgaon-122 001. (Deemed University)	20.05.2002
222.	National Dairy Research Institute, Karnal-132 001, Haryana. (Deemed University)	28.03.1989
223.	National Institute of Food Technology, Entrepreneurship & Management (NIFTEM), Plot No 97, Sector 56, HSIIDC Industrial Estate, Kundli, Dt. Sonepat- 131038, Haryana. (Deemed University)	08.05.2012
224.	NIILM University, 9 KM Milestone, NH-65, Kaithal – 136 027, Haryana (Private University)	27.09.2011
225.	O.P. Jindal Global University, Sonepat-Narela Road, Near Jagdishpur Village, Sonipat-131001, Haryana.(Private University)	10.11.2006
226.	PDM University, Post Box No. 15, Sector – 3A, Sarai Aurangabad, Bahadurgarh-124507, Haryana. (Private University)	14.01.2016
227.	Pt. Bhagwat Dayal Sharma University of Health Sciences, Rohtak, Haryana (State University)	2008
228.	Shree Guru Gobind Singh Tricentenary University, Farukh Nagar Road, Budhera, Distt. Gurgaon, Haryana. (Private University)	03.05.2013
229.	SRM University, Plot No. 39, Rajiv Gandhi Education City, Delhi-NCR, Sonepat-Kundli Urban Complex, Haryana – 131 029. (Private University)	03.05.2013
230.	Starex University, NH-8, Village – Binola, PO – Bhorakalan, Gurugram, Haryana. (Private University)	25.08.2016
231.	State University of Performing and Visual Arts, Integrated Campus, Sector-6, Rohtak, Haryana. (State University)	2014
232.	The Northcap University, HUDA Sector 23 A, Gurgoan-122107, Haryana. (Private University)	21.10.2009

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
233.	World University of Design, Plot No.1, Rajiv Gandhi Education City, Rai, Delhi- NCR, Sonipat – 131029, Haryana. (Private University)	07.02.2018
234.	YMCA University of Science & Technology, Delhi-Mathura Road, Sector 6, Faridabad – 121 006, Haryana. (State University)	2009
HIMACHAL PRADESH		
235.	Abhilashi University, Chailchowk (Chachiot), Distt. Mandi, Himachal Pradesh. (Private University)	23.01.2015
236.	Arni University, Kathgarh, Tehsil Indora, Distt. Kangra-176401, Himachal Pradesh. (Private University).	03.11.2009
237.	A.P.G.(Alakh Prakash Goyal) University, Village – Pujarli, Shohgi Mehli Bypass Road, Near Panthaghati, Shimla-171009, Himachal Pradesh. (Private University)	07.06.2012
238.	Baddi University of Emerging Sciences & Technology, Makhnumajra, BADDI, District – Solan, (Private University)	15.10.2009
239.	Bahra University, VPO – Waknaghat, Tehsil – Kandaghat, Distt.- Solan, Himachal Pradesh (Private University)	21.01.2011
240.	Career Point University, Bhoranj (Tikker-Kharwarian), Hamirpur – 176 041, Himachal Pradesh. (Private University)	03.05.2012
241.	Central University of Himachal Pradesh, PO Box No. 21, Dharamshala, Dist. Kangra, Himachal Pradesh-176215. (Central University).	2009
242.	Chitkara University, HIMUDA Education Hub, Kallujhanda (Barotiwala), Distt. Solan – 174 103, Himachal Pradesh (Private University).	21.01.2009
243.	Dr. Y.S.Parmar University of Horticulture & Forestry, Nauni- 173 230, District Solan, Himachal Pradesh. (State University)	1986
244.	Eternal University, Baru Sahib, Distt – Sirmour, Pin - 173101 Himachal. (Private University)	22.10.2009
245.	Chaudhary Sarwan Kumar Himachal Pradesh Krishi Vishvavidyalaya, Palampur-176 062, District Kangra, Himachal Pradesh. (State University).	1978
246.	Himachal Pradesh National Law University, Ghandal, Shimla, PO Shakrah, Sub-Tehsil Dhami, Dist – Shimla – 171011, Himachal Pradesh. (State University)	30.06.2016
247.	Himachal Pradesh University, Summer Hills, Shimla-171 005, Himachal Pradesh.(State University)	1970
248.	Himachal Pradesh Technical University, Gandhi Chowk, Hamirpur - 177001, Himachal Pradesh. (State University)	2010
249.	ICFAI University, HIMUDA Education Hub, Kalujhinda, PO Mandhala, Via Barotiwala, Baddi, Solan Distt., Himachal Pradesh – 174 103. (Private University)	20.10.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
250.	I.E.C. (India Education Centre) University, Plot No. 7 & 10, Atal Shiksha Kunj, Baddi, Dt. Solan, Himachal Pradesh. (Private University)	11.05.2012
251.	Indus International University, V.P.O. Bathu, Tehsil Haroli, Distt. – Una, Himachal Pradesh– 174 301.(Private University)	01.02.2010
252.	Jaypee University of Information Technology, PO Waknaghat, Tehsil Kandaghat, District-Solan-173 234, Himachal Pradesh. (Private University)	22.05.2002
253.	Maharishi Markandeshwar University, Sultanpur Road, Kumarhatti, Solan – 173 229, Himachal Pradesh.(Private University)	19.09.2010
254.	Maharaja Agrasen University, Atal Shiksha Kunj, Distt – Solan – 174 103, Himachal Pradesh. (Private University)	15.01.2013
255.	Manav Bharti University, Laddo, Sultanpur, Kumarhatti, Solan-173 229, Himachal Pradesh. (Private University)	22.09.2009
256.	Shoolini University of Biotechnology and Management Sciences, Solan. H.P.(Private University)	15.10.2009
257.	Sri Sai University, Palampur, Himachal Pradesh. (Private University)	27.01.2011
JAMMU & KASHMIR		
258.	Baba Ghulam Shah Badshah University, Dhanour, Rajouri-185131, Jammu & Kashmir. (State University).	2005
259.	Central Institute of Buddhist Studies, Choglamsar, Leh (Ladakh), Jammu & Kashmir. (Deemed University)	15.01.2016
260.	Central University of Kashmir, Transit Campus – Sonwar, Near GB Pant Hospital, Srinagar-190005, Jammu & Kashmir. (Central University).	2009
261.	Central University of Jammu, 8/8, Trikuta Nagar, Jammu-180012, Jammu & Kashmir. (Central University)	2009
262.	Cluster University of Jammu, Government College for Women, Gandhi Nagar, Jammu – 180004, Jammu & Kashmir. (State University)	08.07.2016
263.	Cluster University of Srinagar, S.P. College, Srinagar, Jammu & Kashmir. (State University)	08.07.2016
264.	Islamic University of Science & Technology University, 1, University Avenue, Awantipora, Pulwama–92 122, Jammu & Kashmir. (State University)	2005
265.	Sher-e-Kashmir University of Agricultural Science & Technology, Shalimar, Srinagar-191121, Jammu & Kashmir. (State University).	1982
266.	Sher-e-Kashmir University of Agricultural Science & Technology, Chatha, Jammu – 180009, Jammu & Kashmir. (State University).	1999

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
267.	Shri Mata Vaishno Devi University, Sub-Post Office, Katra-182320, Jammu & Kashmir. (State University)	2004
268.	University of Jammu, Babasaheb Ambedkar Road, Jammu -180 006, Jammu & Kashmir. (State University)	1968
269.	University of Kashmir, Hazratbal, Srinagar-190 006, Jammu & Kashmir. (State University)	1949
JHARKHAND		
270.	AISECT University, Matwari Chowk, Infront of Gandhi Maidan, Hazaribagh, Jharkhand. (Private University)	13.05.2016
271.	Amity University, Ranchi City Campus, Niwaranpur, Main Road, Ranchi, Jharkhand. (Private University)	13.05.2016
272.	ARKA Jain University, Opp. Kerala Public School, Mohanpur, Gamharia, Dist – Seraikela Kharsawan – 832108, Jharkhand. (Private University)	04.07.2017
273.	Binod Bihar Mahto Koylanchal University, Dhanbad, Jharkhand. (State University)	23.03.2017
274.	Birla Institute of Technology, Mesra, Ranchi-835 215, Jharkhand. (Deemed University)	28.08.1986
275.	Birsa Agricultural University, Kanke, Ranchi-834 006, Jharkhand. (State University)	1980
276.	Capital University,Ranchi-Patna Main Road, District – Koderma, Jharkahnd 825410 (Private University)	11.10.2018
277.	Central University of Jharkhand, Ratu-Lohardaga Road, Brambe, Ranchi- 835205, Jharkhand (Central University).	2009
278.	Dr. Shyama Prasad Mukherjee University, Ranchi, Jharkhand. (State University)	23.03.2017
279.	Jharkhand Rai University, Kamre, Ratu Road, Ranchi- 835222, Jharkhand. (Private University)	02.02.2012
280.	Jharkhand Raksha Shakti University, Old Judicial Academy (Shri Krishna Lok Prashashan Sansthan Parisar), Mayors Road, Ranchi – 834002, Jharkhand. (State University)	30.09.2016
281.	Kolhan University, Chaibasa, West Singhbhum, Jharkhand – 833 201. (State University)	2007
282.	Nilamber-Pitamber University, Administrative Block, Nawatoli, Madininagar, Palamu – 822 101, Jharkhand. (State University)	2007
283.	National University of Study & Research in Law, Polytechnic campus, BIT Mesra, Ranchi – 835 217 Jharkhand. (State University)	2010
284.	Netaji Subhas University, Pokharim, P.o Bhilai Pahari, PS-MGM, Dist-East Singhbhum, Jamshedpur -831012, Jharkand (Private University)	19.09.2018
285.	Pragyan International University, Bariatu Road, Booty More, PO – RMCH, Ranchi – 834009, Jharkhand (Private University)	16.05.2016

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
286.	Radha Govind University, Radha Govind Nagar, Lalki Ghati, Ramgarh -829122, Jharkhand (Private University)	11.10.2018
287.	Ramachandra Chandravansi University, Nawadihkala, PO & PS Bishrampur, Palamu – 822132, Jharkhand (Private University)	19.09.2018
288.	Ranchi University, Near Saheed Chowk, Ranchi-834 001, Jharkhand. (State University)	1960
289.	Sai Nath University, Ranchi, Jharkhand. (Private University)	27.04.2012
290.	Sarla Birla University, Birla Campus, Village – Ara, PO – Mahilong, Ranchi- Purulia Highway, Ranchi – 835103, Jharkhand. (Private University)	20.07.2017
291.	Sido Kanhu Murmu University, Santa Pargana, Dumka-814 101, Jharkhand. (State University).	1992
292.	The Institute of Chartered Financial Analysts of India University, Ashok Nagar, Between Road No. 1 & 2, Ranchi-834002, Jharkhand. (Private University)	17.06.2008
293.	Usha Martin University, 12 Mile, Ranchi Khunti Road, NH-75, Ranchi – 835221, Jharkhand. (Private University)	16.07.2013
294.	Vinoba Bhave University, PB No. 31, Hazaribagh-825 301, Bihar.(State University).	1993
295.	YBN University, Panchwati South Railway Colony, Ranchi – 834001, Jharkhand. (Private University)	04.07.2017
KARNATAKA		
296.	Adichunchanagiri University, NH -75, Tq – Nagamangala , Dist – Mandya, B.G NAgara-571448, Karnataka (Private University)	22.01.2018
297.	Alliance University, Bangalore (Karnataka) (Private University)	16.09.2010
298.	Azim Premji University, 134, Doddakanneli, Next to Wipro Corporate Office,Sarjapur Road, Bangalore, Karnataka.(Private University)	13.10.2010
299.	B.L.D.E. Bijapur, Karnataka (Deemed University)	29.02.2008
300.	Bangalore University, Jnanabharathi, Bangalore-560 056, Karnataka. (StateUniversity).	1964
301.	Bengaluru Central University, Central College Campus, Dr. Ambedkar Veedhi, Bengaluru – 560 001, Karnataka. (State University)	29.06.2017
302.	Bengaluru North University, Devaraj Urs Extension, Tamaka, Kolar – 563103, Karnataka. (State University)	29.06.2017
303.	Central University of Karnataka, Kadaganchi, Aland Road, Aland Taluk, Gulbarga-585311, Karnataka (Central University).	2009
304.	Christ, Hosur Road, Bangalore – 560 029, Karnataka.(Deemed University)	22.07.2008

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
305.	CMR University, 2,3rd, „C‟ , 6th Main Road, 2nd Block, BRBR Layout, Kalyan Nagar, Bangalore – 560 043, Karnataka. (Private University)	16.05.2013
306.	Davangere University, Shivagangothri, Davangere – 577 002, Karnataka. (State University)	2009
307.	Dayanand Sagar University, Shavige Malleshwara Hills, Kumaraswamy Layout, Bangalore-560078, Karnataka. (Private University)	16.05.2014
308.	Garden City University, GCC House, 340, 5th Main, Indira nagar Double Road, 1st Stage, Indiranagar, Bangalore – 560038, Karnataka. (Private University)	24.06.2013
309.	Gulbarga University, Jnana Ganga, Gulbarga-585 106, Gujarat. (State University).	1980
310.	Indian Institute of Science, Sir C.V. Raman Avenue, Bangalore-560 012, Karnataka. (Deemed University)	12.05.1958
311.	International Institute of Information Technology, 26/c, Opp. Infosys (Gate - 1), Electronic City, Hosur Road, Bangalore – 560 100, Karnataka (Deemed University)	28.02.2005
312.	JSS Academy of Higher Education & Research, Sri Shivarathreeshwara Nagar, Mysore-570015, Karnataka. (Deemed University)	28.05.2008
313.	Jain, Jain Global Campus, 45th Km, NH-209, Jakkasandra Post, Kanakapura Taluk, Ramanagara District-562112, Karnataka.(Deemed University)	19.12.2008
314.	JSS Science & Technology University, JSS Technical Institutions Campus, Mysuru – 570006. Karnataka. (Private University)	16.01.2016
315.	Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur Campus, Bangalore-560 064. (Deemed University)	17.08.2002
316.	Karnataka Janapada Vishwavidyalaya, Gatagodi, NH-4, Taluk-Shiggaon, Dist- Haveri, Karnataka – 581197. (State University)	2012
317.	Kannada University, Hampi, Vidyaranya, Hospet Taluk, Bellary District-583276, Karnataka. (State University).	1992
318.	Karnataka State Law University, Navanagar, Hubli – 580 025, Karnataka. (State University)	2009
319.	Karnataka State Open University, Muktha Gangotri, Mysore-570 006, Karnataka. (State University)	1996
320.	Karnataka State Rural Developoment and Panchayat Raj University, Raitha Bhavana, Bhoomraddi Circle, Gadag – 582101, Karnataka. (State University)	26.07.2016
321.	Karnataka State Women University, Jnana Shakti Campus, Athani Road, Bijapur-586 108, Karnataka. (State University).	2004

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
322.	Karnataka University, Pavate Nagar, Dharwad-580 003, Karnataka. (State University).	1949
323.	Karnataka Veterinary, Animal & Fisheries Science University, Nandinagar, PB No. 6, Bidar-585 401 (Karnataka) (State University).	2004
324.	Karnataka Sanskrit University, Pampa Mahakavi Road, Chamarijpet, Bangalore-560018, Karnataka (State University)	2011
325.	Karnataka Folklore University, Gotagodi – 581197, Shiggaon Taluk, Haveri District, Karnataka. (State University)	2011
326.	Khaja Bandanawaz University, Administrative Building, Khaja Bandanawaz University Campus, Rauza –i- Buzurg, Kalaburagi – 585104, Karnataka (Private University)	21.04.2018
327.	KLE Academy of Higher Education and Research, JNMC Campus, Nehru Nagar, Belgaum – 590010, Karnataka. (Deemed University)	13.04.2006
328.	KLE Technological University, B.V. Bhoomaraddi College Campus, Vidyanagar, Hubballi – 580031, Karnataka. (Private University)	04.04.2014
329.	KSGH Music and Performing Arts University, LJB Road, Near Ashoka Circle, Lakshmipuram, Mysore– 570 004, Karnataka (State University)	2009
330.	Kuvempu University, Jnana Sahyadri, Shankaraghatta-577 451, Shimoga District, Karnataka. (State University).	1987
331.	Mangalore University, Mangalagangothri, Mangalore-574 199, Karnataka. (State University).	1980
332.	Manipal Academy of Higher Education, University Building, Madhava Nagar, Manipal-576 104, Karnataka. (Deemed University)	01.06.1993
333.	M.S. Ramaiah University of Applied Sciences, Administrative Block, New BEL Road, MSRIT Post, Bangalore – 560 054, Karnataka. (Private University)	09.07.2013
334.	National law School of India University, Nagarbhavi, PB No. 7201, Bangalore- 560 072, Karnataka. (State University).	1992
335.	NITTE, University Enclave, Medical Sciences Complex, Deralkatte, Mangalore 575018, Karnataka. (Deemed University)	04.06.2008
336.	PES University, 100 Feet Ring Road , BSK III Stage, Bangalore – 560 085 (Karnataka) (Private University)	16.05.2013
337.	Presidency University (Karnataka), Dibbur & Igalpur Village, Hesaraghatta Hobli, Bangalore (Karnataka). (Private University)	16.05.2013
338.	Rai Technology University, Doddaballapur Nelmangala Road, SH-74, Off Highway 207, Doddaballapur Taluk, Bangalore-561204 (Karnataka) (Private University)	17.09.2014
339.	Rajiv Gandhi University of Health Sciences, 4th T Block, Jayanagar, Bangalore-560 041, Karnataka. (State University).	1994

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
340.	Rani Channamma University, Vidyasangama, PB National Highway-04, Bhootramatti, Belagavi-591 156, Karnataka. (State University)	2010
341.	Reva University, Kattigenhalli, Yelhanka, Bangalore – 560 064. (Private University)	16.05.2013
342.	Sharnbasva University, Kalaburgi (Gulbagra) – 585103, Karnataka. (State University)	29.07.2017
343.	Sri Devraj Urs Academy of Higher Education and Research, Tamaka, Kolar, Karnataka (Deemed University)	25.05.2007
344.	Sri Siddhartha Academy of Higher Education, Tumkur district – 572 102, Karnataka. (Deemed University)	30.05.2008
345.	Srinivas University, Srinivas Group of Colleges Campus, Srinivas Nagar, Mukka, Surathkal, Mangalore-574146, Karnataka. (Private University)	20.02.2015
346.	Swami Vivekananda Yoga Anusandhana Samsthana, Bangalore. (Deemed University)	08.05.2002
347.	The University of Trans-Disciplinary Health Sciences and Technology, 74/2, Jarakabande Kaval, Yelahanka, Via Attur Post, Bangalore-560064, Karnataka. (Private University)	26.06.2013
348.	Tumkur University, B.H. Road, Tumkur-572 103, Karnataka. (State University).	2004
349.	University of Agricultural Sciences, GKVK Campus, Bangalore-560 065. (State University).	1964
350.	University of Agricultural Sciences, Yettinagudda Campus, Krishinagar, Dharwad –580 005, Karnataka. (State University).	1986
351.	University of Agricultural Sciences, Lingasuguru Road, Raichur-584104, Karnataka. (State University).	13.05.2010
352.	University of Horticultural Sciences, Bagalkot, Udayanagiri, Near Seemikeri Cross, Bagalkot-587104, Karnataka. (State University)	2010
353.	University of Mysore, Crawford Hall, Mysore-570 006, Karnataka. (State University).	1916
354.	Visveswaraiah Technological University, "Jnana Sangama", Belgaum-590 018, Karnataka. (State University).	1999
355.	Vijayanagara Sri Krishnadevaraya University, Jnana Sagara Campus, Vinayaka Nagar, Contonment, Bellary – 583 104 Karnataka. (State University)	2010
356.	Yenepoya, Deralkatte, Mangalore-575018, Karnataka (Deemed University)	27.02.2008
KERALA		
357.	APJ Abdul Kalam Technological University, CET Campus, Thiruvananthapuram -695016, Kerala (State University)	2015

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
358.	Central University of Kerala, BKM Towers, Nayanmar Moola, Vidyanagar PO, Kasargod-671123, Kerala (Central University).	2009
359.	Chinmaya Vishwavidyapeeth, Adi Sankara Nilayam, Veliyanad, Ernakulam -692313, Kerala. (Deemed University)	16.01.2017
360.	Cochin University of Science & Technology, Cochin University PO, Kochi-682022, Kerala. (State University).	1971
361.	Indian Institute of Space Science and Technology, Valiamala PO, Thiruvananthapuram – 695547, Kerala. (Deemed University).	03.07.2008
362.	Kannur University, Thavakkara, Civil Station Post, Kannur-670 002, Kerala. (State University).	1997
363.	Kerala Agricultural University, Vellanikkara, KAU Campus PO, Thrissur-680 656, Kerala. (State University).	1972
364.	Kerala Kalamandalam, Vallathol Nagar, Cheruthuruthy, Thrissur. (Deemed University).	14.03.2006
365.	Kerala University of Fisheries & Ocean Studies, Panagad PO, Kochi-682506, Kerala (State University)	2011
366.	Kerala University of Health Sciences, Medical College PO, M.G. Kavu, Thrissur-680 596, Kerala. (State University)	2011
367.	Kerala Veterinary & Animal Sciences University, Lakkidi Post, Pookode, Wayanad-673576, Kerala (State University)	2011
368.	Mahatma Gandhi University, Priyadarshini Hills, Kottayam –686 560, Kerala. (State University).	1983
369.	National University of Advanced Legal Studies (NUALS) NUALS Campus, HMT Colony, PO Kalamassery, Ernakulam-683503, Kerala. (State University)	2009
370.	Shree Sankaracharya University of Sanskrit, Sree Sankarapuram PO, Kalady- 683 574, Dt. Ernakulam, Kerala. (State University).	1994
371.	Thunchath Ezhuthachan Malayalam University, Mohan Vilas, Pukayil PO, Tirur, Malappuram Distt., Kerala – 676 107. (State University)	2013
372.	University of Calicut, Calicut University PO, Thenhipalam, Malappuram District-673635, Kerala. (State University).	1968
373.	University of Kerala, Thiruvananthapuram –695 034, Kerala. (State University).	1937
MADHYA PRADESH		
374.	A.K.S. University, Satna, Madhya Pradesh. (Private University)	31.12.2011
375.	Atal Bihari Vajpai Hindi Vishwavidyalaya, M.P. Bhoj (Open) University Campus, Kolar Road, Bhopal – 462016, Madhya Pradesh. (State University)	2011
376.	Avantika University, Vishwanathpuram, Lekoda Village, Ujjai – 456 006, Madhy Pradesh. (Private University)	12.01.2017

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
377.	Awadesh Pratap Singh University, Rewa-486 003, Madhya Pradesh. (State University).	1968
378.	Amity University, Maharajpura Dang, Gwalior-474005, Madhya Pradesh. (Private University)	30.12.2010
379.	Barkatullah University, Hoshangabad Road, Bhopal-462 026, Madhya Pradesh. (State University).	1970
380.	Bhabha University, NH-12, Hoshangabad Road, Jatkhedi, Bhopal – 462026, Madhya Pradesh. (Private University)	11.01.2018
381.	Devi Ahilya Vishwavidyalaya, "Nalanda Parisar", 165, R.N. Tagore Marg, Indore.-452 001, Madhya Pradesh. (State University).	1964
382.	Dharmashastra National Law University, BharatRatna Bhim Rao Ambedkar Institute of Telecom Training, Ridge Road, Civil Lines, Jabalpur, Madhya Pradesh (State University)	28.07.2018
383.	Dr. A.P.J. Abdul Kalam University, Indore-Devas Bypass Road, Village – Arandia, Post – Jhalaria, Madhya Pradesh – 452016. (Private University)	04.01.2016
384.	Dr. B.R. Ambedkar University of Social Sciences, Dr. Ambedkar Nagar, Mhow– 453 441, Dist. – Indore, Madhya Pradesh. (State University)	2016
385.	Dr. C. V Raman University, Khandwa – Indore Road, Post-ChhaigaonMakhan, Khandwa- 450771, Madhya Pradesh (Private University)	28.07.2018
386.	Dr. Harisingh Gour Vishwavidyalaya, Sagar-470 003, Madhya Pradesh. (Converted from State University to Central University) (Central Unviersity)	1946 (Central University w.e.f. 2009)
387.	G.H. Raisoni University, Village – Saikheda, Dhoda Borgaon, Tah – Saunsar, Dist – Chhindwara, Madhya Pradesh. (Private University)	27.08.2016
388.	ITM University, ITM Campus, Opp. Sithouli Rly. Station, NH – 75, Jhansi Road, Gwalior-475 001, Madhya Pradesh. (Private University)	04.05.2011
389.	Jagran Lakecity University, Gram Panchayat Mugaliya Chhap, Tehsil Huzur, Bhopal – 462 044, Madhya Pradesh. (Private University)	24.04.2013
390.	Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur-482 004 (State University).	1964
391.	Jaypee University of Engineering & Technology, AB Road, Raghogarh, Distt. Guna – 473 226 (M.P.) (Private University)	13.08.2010
392.	Jiwaji University, Gwalior-474011, Madhya Pradesh. (State University).	1964

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
393.	Lakshmibai National Institute of Physical Education, Shakti Nagar, Mela Road, Gwalior-474002, Madhya Pradesh. (Deemed University)	21.09.1995
394.	LNCT University, JK Town, Sarvadharam C Sector, Kolar Road, Bhopal – 462042, Madhya Pradesh. (Private University)	08.01.2015
395.	Madhya Pradesh Medical Science University, NSCB Medical College Campus, Bhedaghat Road, Jabalpur, Madhya Pradesh. (State University)	2011
396.	Madhyanchal Professional University, Patel Group of Institutions Campus, Ratibad, Bhopal – 462044, Madhya Pradesh. (Private University)	11.01.2018
397.	Maharaja Chhatrasal Bundelkhand Vishwavidyalaya, Chhatarpur, Madhya Pradesh. (State University)	2014
398.	Mahatma Gandhi Chitrakoot Gramoday Vishwavidyalaya, Chitrakoot-485 331, District Satna, Madhya Pradesh. (State University).	1993
399.	M.P.Bhoj (open) University, Raja Bhoj Marg, Kolar Road, Damkheda, Chunabhatti, Bhopal- 462016, Madhya Pradesh. (State University).	1995
400.	Maharishi Mahesh Yogi Vedic Vishwavidyalaya, Jabalpur-482 001 (Private University)	29.11.1995
401.	Maharishi Panini Sanskrit Evam Vedic Vishwavidyalaya, B.M. Birla Shodha Sansthan Parisar, Dewas Road, Ujjain-456010, Madhya Pradesh. (State University)	2008
402.	Makhanlal Chaturvedi Rashtriya Patrakarita National University of Journalism, B-38, Vikas Bhawan, M.P. Nagar, Sone I, Bhopal - 462 039, Madhya Pradesh. (State University)	1993
403.	Malwanchal University, Index City, NH – 59 A, Nemawar Road, Near Khudel, District – Indore-452016, Madhya Pradesh. (Private University)	04.01.2016
404.	Mandsaur University, Rewas Dewda Road, SH-31, Mandsaur – 458001, Madhya Pradesh. (Private University)	19.08.2015
405.	Mansarovar Global Universtiy, Village- Gadia and Ratnakhedi, Block – Bilkisganj, Sehore, Madhyapradesh (Private University)	11.01.2018
406.	Medi-Caps University, A.B. Road, Pigdamber, Rau, Indore-453331, Madhya Pradesh. (Private University)	22.07.2015
407.	Nanaji Deshmukh Pashu Chikitsa Vigyan Vishwavidyalaya, Civil Lines, Jabalpur – 482 001 Madhya Pradesh. (State University)	2009
408.	National Law Institute University, Kerwa Dam Road, Bhopal – 462044. (State University).	1999
409.	Oriental University, Opp. Rewati Range Gate No. 1, Sanwer Road, PO Box No.311, Vijay Nagar Post Office, Indore – 452 010, Madhya Pradesh. (Private University)	04.05.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
410.	Pandit S.N. Shukla University, Shahdol – 484001, Madhya Pradesh. (State University)	15.09.2016
411.	People's University, Bhanpur, Bhopal – 462 037, Madhya Pradesh. (Private University)	04.05.2011
412.	P.K. University, Village – Thanara, Tehsil – Karera, NH – 27, Shivpuri, Madhya Pradesh-473551. (Private University)	19.08.2015
413.	Raja Mansingh Tomar Music & Arts University, Needam Road, Chandravadni Naka Chouraha, Gwalior– 474 009, Madhya Pradesh. (State University)	2009
414.	Rajiv Gandhi Proudyogiki Vishwavidyalaya, Airport Road, Gandhi Nagar, Bhopal-462 033, Madhya Pradesh. (State University)	1998
415.	Rani Durgavati Vishwavidyalaya, Saraswati Vihar, Pachpedi, Jabalpur - 482001, Madhya Pradesh. (State University).	1957
416.	RKDF University, By-Pass Road, Near RGPC Campus, Bhopal, Madhya Pradesh. (Private University)	19.07.2011
417.	Rajmata Vijayaraje Scindia Krishi Vishwavidyalaya, Opp. Mela Ground, Race Cource Road, Gwalior – 474 002, Madhya Pradesh. (State University)	2009
418.	Rabindranath Tagore University, Village – Mendua, Bhopal-Chiklod Road, Tehsil – Goharganj, Dist. – Raisen, Madhya Pradesh. (Private University)	30.12.2010
419.	Renaissance University, Survey Number 34/2, 51/1/1, Gram Reoti, Sanwer Road, Behind Aurobindo Hospital, Indore – 452015, Madhya Pradesh. (Private University)	24.08.2017
420.	Sage University, Kailod Kartal, Indore-Dewas Bypass Road, Rau, Indore- 452020, Madhya Pradesh. (Private University)	24.08.2017
421.	Sanchi University of Buddhist-Indic Studies, 2nd Floor, Institute of Good Governance & Poicy Analysys, Bhadbhada Square, Bhopal-462003, Madhya Pradesh. (State University)	2013
422.	Sardar Patel University, Sardar Patel Knowledge City, Waraseoni Road, Dongariya, Balaghat, MadhyaPradesh, (Private University)	28.07.2018
423.	Sarvepalli Radhakrishnan University, NH-12, Hoshangabad Road, Jatkhedi, Bhopal, Madhya Pradesh. (Private University)	08.01.2015
424.	Shri Krishna University, NH- 86, Village Chowka, Sagar Road, Chhatarpur- 471001, Madhya Pradesh (Private University)	28.07.2018
425.	Shri Vaishnav Vidyapeeth Vishwavidyalaya, Sanwer Road, Indore-453111, Madhya Pradesh. (Private University)	08.01.2015
426.	Sri Satya Sai University of Technology & Medical Sciences, Bhopal-Indore Road, Opposite Pachama Oil Fed Plant, Pachama, Sehore – 466001, Madhya Pradesh. (Private University)	12.02.2014
427.	Swami Vivekananda University, Sagar, Madhya Pradesh. (Private University)	31.12.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
428.	Symbiosis University of Applied Sciences, Bada Bangadda, Super Corridor, Indore – 452001, Madhya Pradesh. (Private University)	27.08.2016
429.	Techno Global University, Lateri Road, Sironj (Near Gosala), Dist – Vidisha, Madhya Pradesh – 464 228. (Private University)	09.01.2013
430.	The Indira Gandhi National Tribal University, Amarkantak - 484886, Madhya Pradesh (Central University)	2008
431.	Vikram University, Kothi Road, Ujjain-456 010, Madhya Pradesh. (State University)	1957
432.	VIT Bhopal University, Bhopal-Indore National Highway, Kothrikalan, Sehore- 466114, Madhya Pradesh. (Private University)	24.08.2017
MAHARASHTRA		
433.	Ajeenkya D.Y. Patil University, Charholi Badruk, Via Lohegaon, Pune- 412105, Maharashtra. (Private University)	25.02.2015
434.	Amity University, Mumbai - Pune Expressway, Bhatan, Post – Somathne, Panvel, Mumbai, Maharashtra – 410206.	25.07.2014
435.	Bharati Vidyapeeth, Lal Bahadur Shastri Marg, Pune-411 030, Maharashtra.(Deemed University)	26.04.1996
436.	Central Institute of Fisheries Education, Panch Marg, Off Yari Road, Versova, Andheri (West), Mumbai-400 061. (Deemed University)	27.03.1989
437.	Chhatrapati Shivaji Maharaj University, Near Sgedung Toll Plaza, Old Mumbai Pune Highway,Panvel, Navi Mumbai, Maharashtra (Private University)	09.08.2018
438.	D.Y. Patil Educational Society, 869 E, D.Y. Patil Vidyanagar, Kolhapur-416006. Maharashtra. (Deemed University)	31.05.2005
439.	D.Y. Patil International University, Sector – 29, Pradhikaran, Akurdi, Pune –411044, Maharashtra.(Private University)	14.03.2018
440.	Datta Meghe Institute of Medical Sciences, Sawangi (Meghe), Wardha – 442004, Maharashtra. (Deemed University)	24.05.2005
441.	Deccan College of Post-Graduate & Research Institute, Alandi Road, Yerwada, Pune-411 006, Maharashtra. (Deemed University)	05.03.1990
442.	Dr. Babasaheb Ambedkar Marathwada University, University Campus, Near Soneri Mahal, Aurangabad-431 004, Maharashtra. (State University).	1958
443.	Dr. Babasaheb Ambedkar Technological University, Vidyavihar, Lonere-402 103, Dt. Raigad, Maharashtra. (State University)	1992
444.	Dr. D.Y. Patil Vidyapeeth, Sant Tukaram Nagar, Pimpri, Pune-411 018, Maharashtra.(Deemed University)	11.01.2003
445.	Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Krishi Nagar, Akola-444 104, Maharashtra. (State University).	1969

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
446.	Dr. Vishwanath Karad MIT World Peace University, S.No. 124, Paud Road, Kothrud, Pune – 411038, Maharashtra. (Private University)	05.06.2017
447.	Flame University, GAT No. 1270, Village Lavale, Taluka Mulshi, Pune-411042, Maharashtra. (Private University)	13.02.2015
448.	G.H Raisoni University, Badnera, Anajngaon, Bari Road, Amravati – 411042 Maharashtra (Private University)	20.07.2018
449.	Gokhale Institute of Politics & Economics, 846, Shivajinagar, Deccan Gymkhana, BMC Road, Pune-411 004, Maharashtra. (Deemed University)	07.05.1993
450.	Gondwana University, MIDC Road Complex, Gadhchiroli – 442 605, Maharashtra. (State University)	1994
451.	Homi Bhabha National Institute, Regd. Office: Knowledge Management Group, Bhabha Atomic Research Centre, Central Complex, Mumbai-400 085. (Deemed University)	03.06.2005
452.	Indira Gandhi Institute of Development Research, Gen. A.K Vaidya Marg, Santosh Nagar, Goregaon (E), Mumbai-400065. (Deemed University)	05.12.1995
453.	Institute of Armament Technology, Pune-411 025. (Deemed University)	10.09.1999
454.	Institute of Chemical Technology, Matunga, Mumbai, Maharashtra. (Deemed University)	12.09.2008
455.	International Institute for Population Sciences, Govandi Station Road, Deonar, Mumbai-400088. (Deemed University)	31.07.1985
456.	Kavi Kulguru Kalidas Sanskrit Vishwavidyalaya, Prashaskiya Bhavan, Mouda Road, Ramtek Dist., Nagpur-441 106, Maharashtra. (State University)	1997
457.	Konkan Krishi Vidyapeeth, Dapoli-415712, District Ratnagiri, Maharashtra. (State University)	1972
458.	Krishna Institute of Medical Sciences, Karad, Satara (M.S). (DeemedUniversity)	24.05.2005
459.	Maharashtra Animal & Fishery Sciences University, Futala Lake Road, Nagpur- 440 001, Maharashtra. (State University)	2002
460.	Maharashtra Natinoal Law University, Government B.Ed. College Campus, Padampura, Aurangabad – 431005, Maharashtra. (State University)	23.02.2017
461.	Maharashtra National Law University, Post Box No. 8338, Deonar, Mumbai – 400 088, Maharashtra. (State University)	2014
462.	Maharashtra National Law University, Training Institute (JOTI), C.P. Club Road, Nagpur – 440001, Maharashtra. (State University)	15.05.2015
463.	Maharashtra University of Health Sciences, Mhasrul, Vani-Dindori Road, Nashik-424004, Maharashtra. (State University)	2000

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
464.	Mahatma Gandhi Antarrashtriya Hindi Vishwavidyalay, Post Box No. 16, Panchtila, Umri Village, Arvi Road, Wardha, Maharashtra.(Central University).	1997
465.	Mahatma Phule Krishi Vidyapeeth, Rahuri-413 722, Dt. Ahmednagar, Maharashtra. (State University).	1968
466.	Marathwada Agricultural University, Parbhani-431 402, Maharashtra. (State University).	1983
467.	MGM Institute of Health Sciences, MGM Campus, Sector – 18, Kamothe, Navi Mumbai (M.S.) – 410 209 (Deemed University).	30.08.2006
468.	MIT Art Design & Technology University, Rajbaug, Next to Hadapsar, Loni Kalbhor, Pune – 412201, Maharashtra. (Private University)	13.10.2015
469.	Narsee Monjee Institute of Management Studies, V.L. Mehta Road, Vile Parle (West), Mumbai-400056. (Deemed University)	13.01.2003
470.	Kavayitri Bahinbai Chaudhari North Maharashtra University, PB No. 80, Umavinagar, Jalgaon-425001, Maharashtra . (State University) Name change w.e.f 11.08.2018	1991
471.	Padmashree Dr. D.Y. Patil Vidyapeeth, Sector 7, Nerul, Navi Mumbai-400706, Maharashtra. (Deemed University)	20.06.2002
472.	Pravara Institute of Medical Sciences, Loni, Tal – Rahata, District Ahmednagar-413 736, Maharashtra. (Deemed University)	29.09.2003
473.	Sandip University, Trimbak Road, Mahiravani, Nashik, Maharashtra. (Private University)	09.10.2015
474.	Sanjay Ghodawat University, A/P – Atigre – 416118, Hatkanangale, Dt. Kolhapur, Maharashtra. (Private University)	13.07.2017
475.	Savitribai Phule Pune University, Ganeshkhind, Pune-411 007, Maharashtra. (State University).	1949
476.	Sant Gadge Baba Amravati University, Tapovan Road, Amravati-444 602, Maharashtra. (State University).	1983
477.	Shivaji University, Vidyanagar, Kolhapur-416 004, Maharashtra. (State University).	1962
478.	Smt. Nathibai Damodar Thackersey Women‟ s University, 1, Nathibai Thackersey Road, New Marine Lines, Mumbai-400 020, Maharashtra. (State University).	1951
479.	Solapur University, Solapur, Solapur Pune National Highway, Kegaon, Solapur-413 255, Maharashtra. (State University).	2004
480.	Spicer Adventist University, Aundh Road, Gandshkhind Post, Pune-411004, Maharashtra. (Private University)	25.07.2014
481.	Swami Ramanand Teerth Marathwada University, Dnayanteerth Vishnupuri, Nanded-431 606, Maharashtra. (State University).	1995
482.	SYMBIOSIS International, Gram Lavale, Tal Mulshi, Dt. Pune-412115, Maharashtra. (Deemed University)	06.05.2002

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
483.	Symbiosis Skills and Open University, Village – Kiwale, Adjoining Pune Mumbai Expressway, Tal – Havely, Pune – 412101, Maharashtra. (Private University)	05.05.2017
484.	Tata Institute of Fundamental Research, Mumbai-400 005. (Deemed University)	07.05.2002
485.	Tata Institute of Social Sciences, V.N. Purav Marg, Sion Trombay Road, Deonar, Mumbai-400088. (Deemed University)	29.04.1964
486.	The Rashtrasant Tukadoji Maharaj Nagpur University, Ravindranath Tagore Marg, Nagpur-440001, Maharashtra. (State University)	1923
487.	Tilak Maharashtra Vidyapeeth, Vidyapeeth Bhavan, Mukundnagar, Pune-411037, Maharashtra. (Deemed University)	28.04.1987
488.	University of Mumbai, M.G. Road, Fort, Mumbai-400032. (State University).	1857
489.	Vishwarkarma University, Survey No. 2, 3, 4, Laxminagar, Kondhwa Budruk, Pune – 411048, Maharashtra. (Private University)	05.05.2017
490.	Yashwant Rao Chavan Maharashtra Open University, Dnyangangotri, Near Gangapur Dam, Nashik-422 222, Maharashtra. (State University).	1990
MANIPUR		
491.	Central Agricultural University, PB No. 23, Iroisemba, PO Lamphelpat, Imphal-795 004, Manipur. (Central University)	1993
492.	Dhanamanjuri University, Imphal, Manipur (State University)	06.04.2018
493.	Manipur International University, MIU Palace, Ghari, Airport Road,Imphal -795140, Manipur (Private University)	14.02.2019
494.	Manipur University, Canchipur, Imphal-795 003, Manipur. (Central University)	1980 (Central University w.e.f. 2005)
495.	Manipur Technical University, Takyelpat, Imphal, Manipur. (State University)	29.10.2016
496.	Manipur University of Culture, Palace Compound, Imphal East – 795001, Manipur. (State University)	25.08.2015
497.	National sports University Manipur,(Central Univrsity)	17.08.2018
498.	Sangai International University, Churachandpur, Manipur. (Private University)	05.05.2015

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
MEGHALAYA		
499.	CMJ University, Shillong (Meghalaya) (Private University)	20.07.2009
500.	Martin Luther Christian University, Dongktieh, Nongrah, Block-1, Shillong –793006, Meghalaya. (Private University)	13.07.2005
501.	Mahatma Gandhi University, P.O. Araimile, Matchakolgre, Tura, West Garo Hills, Meghalaya (Private University)	04.01.2011
502.	North Eastern Hill University, NEHU Campus, Shilong-793 022, Meghalaya. (Central University)	1973
503.	Techno Global University, Shillong Polytechnic Campus, Mawlai, Shillong –793 022.(Private University)	02.12.2008
504.	The Institute of Chartered Financial Analysts of India University, Dankagre (Near BSF Camp), PO araimile, Tura, West Garo Hills – 794101, Meghalaya. (Private University)	04.11.2009
505.	University of Science & Technology, Meghalaya, Techno City, Kling Road, Baridua, G.S. Road, 9th Mile, Dist – Ri-Bhoi, Meghalaya – 793101. (Private University)	02.12.2008
506.	University of Technology & Management, Shillong, Meghalaya (Private University)	27.05.2011
507.	William Carey University, Zoram Villa, Bomfylde Road, Shillong – 793 001, Meghalaya. (Private University)	13.07.2005
MIZORAM		
508.	Mizoram University, Post Box No. 190, Tanhril, Aizawal-796 012, Mizoram. (Central University)	2000
509.	The Institute of Chartered Financial Analysts of India University, Durtlong North, Aizawal – 796025, Mizoram. (Private University)	21.03.2006
NAGALAND		
510.	Nagaland University, Lumami, Zunheboto, Nagaland-798627. (Central University)	1994
511.	St. Joseph University, Virgin Town, Khekiho-zhimomi road, Ikishe Model Village, PS-Diphyupar, Dimapur – 797115, Nagaland. (Private University)	19.12.2016
512.	The Global Open University, Wokha – 797 111, Nagaland (Private University)	18.09.2006
513.	The Institute of Chartered Financial Analysts of India University, 6th Mile, Sovima Village, Kohima Road, Dimapur-797112, Nagaland. (Private University)	04.11.2009
ODISHA		
514.	AIPH University, Pahala , Oh Bhubabaneshwar – Cuttack NH -5, Bhubaneswar -752101, Odisha (Private University)	26.02.2018

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
515.	Berhampur University, Bhanja Bihar, Berhampur-760 007, Dt. Ganjam, Odisha. (State University).	1967
516.	Biju Patnaik University of Technology, UGIE Campus, Jail Road, Rourkela –769004, Odisha. (State University)	2003
517.	Birla Global University, IDCO Plot No. 2, Institutional Area, Village – Gothapatna, PS – Chandaka, Bhubaneswar – 751029, Odisha. (Private University)	17.02.2016
518.	Central University of Orissa, Central Silk Board Building, Landiguda, Koraput-764020, Odisha. (Central University).	2009
519.	Centurion University of Technology and Management, Village Alluri Nagar, PO R. Sitapur, Via-Uppalada, Paralakhemundi – 761 211, Dt. Gajapati, Odisha. (Private University)	27.08.2010
520.	Fakir Mohan University, Vyasa Vihar, North Campus, Nuapadhi, Balasore-756020, Odisha. (State University).	1999
521.	Gandhi Institute of Engineering & Technology University, Gunupur -765022, Dist, Rayagada, Odisha (Private University)	27.12.2018
522.	Gangadhar Meher University, Fatak, Budharaja, Sambalpur, Odisha – 768004. (State University)	30.05.2015
523.	International Institute of Information Technology, Gothaparna, PO – Malipada, Bhubaneswar – 751003, Odisha. (State University)	20.01.2014
524.	Kalinga Institute of Industrial Technology, Patia, Bhubaneshwar-751 024, Odisha. (Deemed University)	26.06.2002
525.	Kalinga Institute of Social Sciences, Bhubaneshwar, Odisha. (Deemed University)	25.08.2017
526.	Khallikote University, Berhampur, Ganjam, Odisha. (State University)	30.05.2015
527.	National law University, P.O. Box-28, Cuttack – 753 001, Orissa. (State University)	2008
528.	North Orissa University, Sri Ram Chandra Vihar, Takatpur, Baripada, District Mayurbhanj-757003, Bhuabaneswar, Odisha. (State University).	1999
529.	Odisha State Open University, G.M. University Campus, Budharaja, Sambalpur– 768004, Odisha. (State University)	21.02.2015
530.	Orissa University of Agriculture & Technology, Bhubaneswar-751 003, Odisha. (State University).	1962
531.	Rama Devi Women‟ s University, Bhubaneswar, Odisha. (State University).	2015
532.	Ravenshaw University, College Square, Cuttak – 753 003, Odisha. (State University).	2005
533.	Sambalpur University, Jyoti Vihar, Sambalpur-768 019, Odisha. (State University).	1967

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
534.	Shiksha „O" Anusandhan, J-15, Khandagiri Square, Bhubaneswar-751030, Odisha. (Deemed University)	17.07.2007
535.	Shri Jagannath Sanskrit Vishwavidyalaya, Srivihar, Puri-752 003, Odisha. (State University).	1981
536.	Sri Sri University, Bhubaneswar, Orissa. (Private University)	26.12.2009
537.	Utkal University, Vani Vihar, Bhubaneswar-751 004, Odisha. (State University).	1943
538.	Utkal University of Culture, Sardar Patel Hall Complex, Unit II, Bhubaneswar-751 009, Odisha. (State University)	1999
539.	Veer Surendra Sai Institute of Medical Sciences and Research, Ayurvihar, Burla, Sambalpur – 768 017, Odisha. (State University)	2014
540.	Veer Surendra Sai University of Technology, Burla-768018, Distt. Sambalpur, Odisha. (State University)	2009
541.	Xavier University, Xavier Square, Bhubaneswar, Odisha. (Private University)	13.05.2013
PUNJAB		
542.	Adesh University, NH-7, Barnala Road, Bathinda, Punjab. (Private University)	10.07.2012
543.	Akal University, Talwandi Sabo – 151302, District Bathinda, Punjab. (Private University)	04.06.2015
544.	Baba Farid University of Health Sciences, Sadiq Road, Faridkot-151 203, Punjab. (State University).	2002
545.	Central University of Punjab, City Campus, Mansa Road, Bathinda-151001, Punjab. (Central University)	2009
546.	Chandigarh University, Gharuan, The.-Kharar, Dt. Mohali – 140301, Punjab. (Private University)	10.07.2012
547.	Chitkara University, Chandigarh-Patiala National Highway (NH-64), Village Jhansla, Tehsil Rajpura,Distt – Patiala, Panjab – 140 401. (Private University)	07.12.2010
548.	C.T. University, Ferozepur Road, Ludhiana-142024, Punjab. (Private University)	23.12.2016
549.	D.A.V. University, Jalandhar-Pathankot National Highway-44, Village- Sarmastpur, Jalandhar, Punjab. (Private University)	18.02.2013
550.	Desh Bhagat University, Amloh Road, Mandi Gobindgarh, Punjab. (Private University)	18.02.2013
551.	GNA University, Village-Sri Hargobindgrh, Phagwara, Distt Kapurthala- 144401, Punjab. (Private University)	21.08.2014
552.	Guru Angad Dev Veterinary & Animal Sciences University, Ferozepur Road, Ludhiana – 141 004, Punjab. (State University)	2005
553.	Guru Kashi University, Talwandi Sabo, Dt. Bhatinda, Punjab. (Private University)	26.12.2011

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
554.	Guru Nanak Dev University, G.T. Road, Amritsar-143 601, Punjab. (State University).	1969
555.	Guru Ravidas Ayurved University, Jodhamal Road, Hoshiarpur-146001, Punjab. (State University)	2010
556.	Lovely Professional University, Jalandhar-Delhi GT Road (NH-1), Near Chehru Railway Bridge, Phagwara-144411, Punjab. (Private University)	26.12.2005
557.	Maharaja Ranjit Singh Punjab Technical University, Dabwali Road, Bathinda-151001, Punjab. (State University)	2015
558.	Punjab Agricultural University, Ferozepur, Road, Ludhiana-141 004, Punjab. (State University).	1962
559.	Punjabi University, Rajpura Road, Patiala-147 002, Punjab. (State University).	1962
560.	Rayat Bahra University, VPO – Sahauran, Tehsil – Kharar, Distt. – Mohali, Punjab – 140105. (Private University)	13.08.2014
561.	RIMT University, Opposite Floating Restaurant, Sirhind Side, Mandi Gobindgarh-147301, Punjab. (Private University)	08.12.2015
562.	Sant Baba Bhag Singh University, Village-Khiala, PO-Padhiana, Dist- Jalandhar-144030, Punjab. (Private University)	12.02.2015
563.	Sant Longowal Institute of Engineering and Technology (SLIET), Village Longowal, District Sangrur-148106, Punjab. (Deemed University)	10.04.2007
564.	Sri Guru Granth Sahib World University, Sri Lalgidhar Niwas, Plot No. 6,Madhya Marg, Sector – 27-B, Fatehgarh Sahib, Chandigarh (Private University)	15.05.2008
565.	Sri Guru Ram Das University of Health Sciences, Mehta Road, Vallah, Sri Amritsar – 143001, Punjab. (Private University)	17.11.2016
566.	Thapar Institute of Engineering & Technology, Thapar Technology Campus, Bhadson Road, Patiala-147 004, Punjab. (Deemed University)	30.12.1985
567.	The I.K. Gujaral Punjab Technical University, Jalandhar Kapurthala Highway, Kapurthala-144603. (State University)	1998
568.	The Rajiv Gandhi National University of Law, Sidhuwal, Bhadson Road, Patiala – 147 001, Punjab. (State University).	2006
RAJASTHAN		
569.	Amity University, Rajasthan NH-11C, Kant Kalwar, Jaipur – 303 002, Rajasthan.(Private University)	29.03.2008
570.	Apex University, Jaipur -303002, Rajasthan (Private University)	05.10.2018
571.	Banasthali Vidyapith, PO Banasthali Vidyapith-304 022, Dt. Tonk, Rajasthan. (Deemed University)	25.10.1983

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
572.	Bhagwant University, Post Box No. 87, Sikar Road, Ajmer – 305 004, Rajasthan (Private University)	16.04.2008
573.	Bhartiya Skill Development University, Plot No. SI/INST/001, Social Infrastructure Zone, Mahindra World City, Off Ajmer Road, Jaipur – 302037, Rajasthan. (Private University)	30.03.2017
574.	Bhupal Nobles University, Maharana Pratap Station Road, Sevashram Circle, Udaipur – 313001, Rajasthan. (Private University)	05.10.2015
575.	Bikaner Technical University, University College of Engineering & Technology, Bikaner Campus, Karni Industrial Area, Pugal Road, Bikaner – 334004 (State University)	18.05.2017
576.	Birla Institute of Technology & Science, Vidya Vihar, Pilani-333 031, Rajasthan. (Deemed University)	27.06.1964
577.	Career Point University, Kota, Rajasthan. (Private University)	02.05.2012
578.	Central University of Rajasthan, NH-8, Bandar Sindri, Dist – Ajmer-305801, Rajasthan. (Central University).	2009
579.	Dr. Bhimrao Ambedkar Law University, 89, Royal House, Khwasji Ka Bagh, Durgapura, Tonk Road, Jaipur – 302018, Rajasthan. (State University)	2012
580.	Dr. K.N. Modi University, INS-1, RIICO Industrial Area Ph-II, PO Newai, Distt. Tonk , Rajasthan – 304 021.(Private University)	22.04.2010
581.	Geetanjali University, Udaipur, Rajasthan. (Private University)	25.01.2011
582.	Govind Guru Tribal University, Shri Govind Guru Government College Campus, Banswara – 327 001, Rajasthan. (State University)	17.10.2012
583.	Haridev Joshi University of Journalism & Mass Communication, Information Centre Complex, Sawai Ram Singh Road, Jaipur – 302 004, Rajasthan. (State University)	2012
584.	Homoeopathy University, Saipura, Sanganer, Jaipur – 302 029, Rajasthan. (Private University)	03.04.2010
585.	ICFAI University, Khasra No. 505/1, Village-Jamdoli, Agra Road, Jaipur – 302 031, Rajasthan. (Private University)	23.08.2011
586.	IIHMR University, 1, Prabhu Dayal Marg, Near Sanganer Airport, Jaipur -302 029, Rajasthan.	26.02.2014
587.	IIS, Gurukul Marg, SFS, Mansarovar, Jaipur-302020, Rajasthan. (Deemed University)	02.02.2009
588.	Institute of Advanced Studies in Education of Gandhi Vidya Mandir, Sardarshahr-331 403, Dt. Churu, Rajasthan. (Deemed University)	25.06.2002
589.	Jagadguru Ramanandacharya Rajasthan Sanskrit University, Village – Madau, Post – Bhankrota, Jaipur - 302026, Rajasthan. (State University)	1998

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
590.	Jagan Nath University, NH-12, Chaksu Bypass, Tonk Road, Jaipur-303901, Rajasthan (Private University)	16.04.2008
591.	Jai Narain Vyas University, Jodhpur-342 011, Rajasthan. (State University).	1962
592.	Jain Vishva Bharati Institute, Tulsi Gram, PO Box No. 6, Ladnun-341 306, Nagaur, Rajasthan. (Deemed University)	20.03.1991
593.	Jaipur National University, Near RTO Office, Jagatpura, Jaipur-302017, Rajasthan (Private University)	21.10.2007
594.	Janardan Rai Nagar Rajasthan Vidyapeeth, Airport Road, Pratapnagar, Udaipur-313 001, Rajasthan. (Deemed University)	12.01.1987
595.	Jodhpur National University, Jhanwar Road, Narnadi (Boranada), Jodhpur –342 001, Rajasthan. (Private University)	11.08.2008
596.	Jayoti Vidyapeeth Women‟ s University, Vedant Gyan Valley, Village- Jharna, Mahala- Jabner, Link Road, Jaipur-Ajmer Expressway (NH-8), Jaipur-303007, Rajasthan (Private University)	21.04.2008
597.	J.K. Lakshmipat University, Laliya Ka Vas, PO Mahapura, Ajmer Road, Jaipur– 302 026, Rajasthan. (Private University)	15.09.2011
598.	J.E.C.R.C. University, Jaipur, Rajasthan. (Private University)	02.05.2012
599.	LNM Institute of Information Technology, LNM Institute of Information Technology, Gram - Rupa ki Nagal, Post – Sumel, Via Kanata, Dist. – Jaipur –303 012 (Rajasthan). (Deemed University)	03.02.2006
600.	Lords University,Alwar – Tijara –Delhi Highway, Chikani ,Alwar, Rajasthan (Private University)	5.10.2018
601.	Madhav University, Madhav University, “Madhav Hills”, Opp. Banas Bridge Toll, NH-14, Village-Wada/Bhujela, Panchayat Samiti – Bharja, Tehsil – Pindwara, Abu Road, District-Sirohi, Rajasthan – 307026. (Private University)	04.03.2014
602.	Maharaja Ganga Singh University, National Highway No. – 15, Jaisalmer Road, Bikaner- 334003, Rajasthan. (Formerly - University of Bikaner, 23, Civil Lines, Bikaner) (State University)	2003
603.	Maharana Pratap University of Agriculture & Technology, University Campus, Udaipur - 313 001, Rajasthan. (State University)	2000
604.	Maharishi Dayanand Saraswati University, Kayad Road, Pushkar Bye Pass, Ajmer-305 009, Rajasthan. (State University).	1987
605.	Mahatma Jyoti Rao Phule University, SP-2 &3, Kant Kalwar, RIICO Industrial Area, Tala Mod, NH-I, Achrol, Jaipur (Private nviersity)	03.02.2009
606.	Mahatma Gandhi University of Medical Sciences & Technology, RIICO Institutional Area, Sitapur, Tonk Road, Jaipur – 302 022, (Private University)	15.09.2011
607.	Maharaj Vinayak Global University, Jaipur, Rajasthan. (Private University)	21.03.2012

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
608.	Maharaja Surajmal Brij University, M.S.J. College Premises, Bharatpur-321001 (Rajasthan) (State University)	2012
609.	Maharishi Arvind University, Mundiaramsar, Near Bindayaka Industrial Area, Jaipur-302012, Rajasthan. (Private University)	05.10.2015
610.	Manipal University, Vatika Infotech City, Near GVK Toll Plaza, Jaipur ajmer Experss Way, Post – Thikaria, Jaipur – 302 026, Rajasthan. (Private University)	15.09.2011
611.	Maulana Azad University, Village-Buzawad, Tehsil – Luni, Jodhpur – 342802, Rajasthan. (Private University)	16.09.2013
612.	Mewar University, NH 79, Gangrar, Chittorgarh-312901, Rajasthan (Private University)	22.09.2008
613.	Mody University of Science and Technology, Lakshmangarh, District Sikar Rajasthan.(Private University)	16.09.2013
614.	Mohan Lal Sukhadia University, Pratapnagar, Udaipur-313 001, Rajasthan. (State University).	1962
615.	National Law University, NH65, Nagaur Road, Mandore, Jodhpur-342 304, Rajasthan. (State University)	2004
616.	NIMS University Rajasthan, Shobha Nagar, Jaipur-Delhi Highway, Jaipur – 303121, Rajasthan (Private University)	29.03.2008
617.	NIIT University, Neemrana, Rajasthan. (Private University)	03.04.2010
618.	OPJS University, Rawatsar, Kunjila, Tehsil-Rajgarh, Distt. – Churu, Rajasthan.(Private University)	16.09.2013
619.	Pacific Academy of Higher Education & Research University, (PAHER), Pacific Hills, Airport Road, Pratap Nagar Extension, Debari, Udaipur – 313 024, Rajasthan. (Private University)	29.04.2010
620.	Pacific Medical University, Bhilo Ka Bedla, Bye Pass, National Highway 27, Udaipur, Rajasthan. (Private University)	04.03.2014
621.	Poornima University, Ramchandrapura, Sitapura Extension, Jaipur, Rajasthan. (Private University)	16.05.2012
622.	Pratap University, Sunderpura (Chandwaji), Amer, Delhi-Mumbai Highway, Jaipur, Rajasthan (Private University)	15.09.2011
623.	Raffles University, Japanese Zone, National Highway 8, Neemrana-201 705, Rajasthan. (Private University)	27.03.2011
624.	Rajasthan Agricultural University, Beechwal, Srinagangar Road, Bikaner-334006, Rajasthan. (State University).	1987
625.	Rajasthan Ayurveda University, Jodhpur (State University)	2004
626.	Rajasthan Technical University, Akelgarh, Rawat bhata Road, Kota – 324 010, Rajasthan. (State University)	2006
627.	Rajasthan University of Health Sciences, B – 1, Swai Man Singh Road (Opp SMS Hospital), Jaipur (State University)	2005

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
628.	Rajasthan University of Veterinary & Animal Sciences, Bikaner, Rajasthan.(State University)	2010
629.	Rajasthan ILD Skills University (RISU), 6/2, Jamdoli, ILD Campus, Jaipur-302031, Rajasthan. (State University)	30.03.2017
630.	Raj Rishi Bhartrihari Matsya University, Girls Hostel Building, Babu Shobharam Government Arts College Campus, Alwar, Rajasthan. (State University)	2012
631.	R.N.B. Global University, RNB Global City, Ganganagar Road, Bikaner-334601, Rajasthan. (Private University)	27.04.2015
632.	Sai Tirupati University, Ambua Road, Village – Umarda, Girwa, Udaipur –313015, Rajasthan. (Private University)	21.04.2016
633.	Sangam University, Bhilwara, Rajasthan. (Private University)	02.05.2012
634.	Sardar Patel University of Police, Security & Criminal Justice, Jodhpur, Rajasthan. (State University)	2012
635.	Shekhawati University, Girls Hostel Building, Behind Shri Kalyan Government College, Sikar – 332001, Rajasthan. (State University)	2012
636.	Shri Jagdish Prasad Jhabarmal Tibrewala University, Vidya Nagari, Jhunjhunu-Churu Road, Chudela, District Jhunjhunu-333001, Rajasthan. (Private University)	03.02.2009
637.	Shridhar University, Pilani Chirawa Road, Pilani Rajasthan - 333 031. (Private University)	03.04.2010
638.	Shri. Kallaji Vedic Visvavidyalaya, Kamdhaj Nagar, Nimbahera (Chittorgarh), Rajastan (Private University)	28.03.2018
639.	Shri Khushan Das University, Suratgarh Road, Near Tol l Plazam, Dablirathan, Hanumangarh-335801, Rajastan	05.10.2018
640.	Shyam University. Lalsot, Dist-Dausa, Rajasthan – 303511 (Private University)	05.10.2018
641.	Singhania University, Pacheribari, Dt. Jhunjunu - 333515, Rajasthan. (Private University)	29.03.2008
642.	Sir Padmapat Singhania University, Bhatewar Udaipur– 313 601, Rajasthan (Private University)	29.03.2008
643.	Suresh Gyan Vihar University, Mahal, Jagatpura, Jaipur-302017, Rajasthan. (Private University)	21.04.2008
644.	Sunrise University, Bagad Rajput, Tech. Ramgarh, Alwar, Rajasthan (Private University)	22.09.2011
645.	Tantia University, Hanumangarh Road, Sri Ganganagar – 335 002, Rajasthan (Private University)	16.09.2013
646.	University of Kota, Near Kabir Circle, MBS Marg, Kota-324005, Rajasthan. (Rajasthan) (State University)	2003
647.	University of Engineering & Management, Jaipur, Rajasthan. (Private University)	21.03.2012

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
648.	University of Rajasthan, JLN Marg, Jaipur-302 004, Rajasthan. (State University).	1947
649.	University of Technology, Vatika, Tehsil – Sanganer, Jaipur, Rajasthan. (Private University)	18.05.2017
650.	Vardhman Mahaveer Open University, Rawat Bhata Road, Kota-324 010, Rajasthan. (State University)	1987
651.	Vivekananda Global University, Sector-36, NRI Road, Sisyawas, Jagatpura, Jaipur – 303012, Rajasthan. (Private University)	02.05.2012
SIKKIM		
652.	Sikkim- Manipal University, 5th mile, PO Tadong, Gangtok-737 102, Sikkim. (Private University)	11.10.1995
653.	Sikkim State University, Gangtok East Sikkim, Tadong-737102, Sikkim (State University)	19.04.2017
654.	Sikkim University, 6th Mile, Samdur, PO Tadong, Gangtok, Sikkim – 737102 (Central University)	2007
655.	Shri Ramasamy Memorial University, 5th Mile, Tadong, Ranipool PO, Gangtok, Sikkim – 737 102. (Private University)	16.01.2014
656.	The Institute of Chartered Financial Analysts of India University, (ICFAI) Ranka Road, Lower Sichey, Gangtok-737101, Sikkim. (Private University)	04.10.2004
657.	Vinayaka Missions Sikkim University, Plot No. 438, N-312 Sang Phatak Road,Middle Tadong, PO Daragaorn, Tadong, East Sikkim – 237 102. (Private University)	30.07.2008
TAMILNADU		
658.	Academy of Maritime Education and Training, 135, East Coast Road, Kanathur, Chennai-603112, Tamil Nadu. (Deemed University)	21.08.2007
659.	Alagappa University, Alagappapuram, Karaikudi-630003, Sivaganga District, Taml Nadu. (State University).	1985
660.	Amrita Vishwa Vidyapeetham, Amritanagar, Ettimadai, Coimbatore-641 112, Tamil Nadu. (Deemed University)	13.01.2003
661.	Anna University, Sardar Patel Road, Guindy, Chennai-600 025, Tamil Nadu. (State University)	1978
662.	Annamalai University, Annamalainagar-608 002, Chidambaram Tk, Tamil Nadu. (State University)	1929
663.	Avinashilingam Institute for Home Science & Higher Education for Women, Coimbatore-641 043, Tamil Nadu. (Deemed University)	08.06.1988
664.	B.S. Abdur Rahman Institute of Science and Technology, Seethakathi Estate, GST Road, Vandalur, Chennai – 600 048, Tamil Nadu. (Deemed University)	16.12.2008

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
665.	Bharath Institute of Higher Education & Research, 173, Agharam Road, Selaiyur, Chennai-600073, Tamil Nadu. (Deemed University)	04.07.2002
666.	Bharathiar University, Maruthamalai Main Road, Coimbatore-641 046, Tamil Nadu. (State University).	1982
667.	Bharathidasan University, Palkalaiperur, Tiruchirappalli-620 024, Tamil Nadu. (State University).	1982
668.	Central University of Tamil Nadu, C/o Collectorate Annexe, Tiruvarur – 610 001, Tamil Nadu (Central University)	2009
669.	Chennai Mathematical Institute, Plot Nos. D-19 & D-20, SIPCOT IT Park, Padur Post, Siruseri – 603 103, Tamil Nadu.(Deemed University)	15.12.2006
670.	Chettinad Academy of Research and Education (CARE), Rajiv Ganghi Salai, Padur, Kelambakkam, Kancheepuram Dist, Tamil Nadu (Deemed University)	04.08.2008
671.	Dr. M.G.R. Educational and Research Institute, Periyar, EVR High Road, (NH-4 Chennai Bangalore Highway), Maduravoyal, Chennai-600 095, Tamil Nadu. (Deemed University)	21.01.2003
672.	Gandhigram Rural Institute, Gandhigram-624 302, Dindigul District, Tamil Nadu. (Deemed University)	03.08.1976
673.	Hindustan Institute of Technology and Science (HITS), No. 1, Gandhi Salai (Old Mahabalipuram Road), Padur, Kelamballam, Chennai-603103, Tamil Nadu. (Deemed University)	05.05.2008
674.	Indian Maritime University, East Coast Road, Uthandi, Chennai – 600 119, Tamil Nadu. (Central University)	2008
675.	Kalasalingam Academy of Research and Higher Education, Anand Nagar, Krishnankoil, Virudhunagar – 626 190, via Srivilliputhrur, Tamilnadu. (Deemed University)	20.10.2006
676.	Karpagam Academy of Higher Education, Pollachi Main Road, Coimbatore, (Deemed University)	25.08.2008
677.	Karunya Institute of Technology and Sciences, Karunya Nagar, Coimbatore-641 114, Tamil Nadu. (Deemed University)	23.06.2004
678.	Madurai Kamraj University, Palkalai Nagar, -625 021, Tamil Nadu.(State University).	1965
679.	Manonmaniam Sundarnar University, Abishekapatti, Thirunelveli-627 012, Tamil Nadu. (State University)	1992
680.	Meenakshi Academy of Higher Education and Research, No. 12, Vebuliammal Koil Street, West KK Nagar, Chennai-600078, Tamil Nadu. (Deemed University)	31.03.2004
681.	Mother Teresa Women‟ s University, Anandhagiri IV Street, Kodaikanal, Dindigul Dt.-624 102, Tamil Nadu. (State University).	1984
682.	Noorul Islam Centre for Higher Education, Kumaracoil, Thuckalay, Kanyakumari District, Tamil Nadu – 629 175. (Deemed University).	08.12.2008

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
683.	Periyar Maniammai Institute of Science & Technology (PMIST), Periyar Nagar, Vallam, Thanjavur -613 403, Tamil Nadu (Deemed University)	17.08.2007
684.	Periyar University, Periyar Palkalai Nagar, Salem-636 011, Tamil Nadu. (State University).	1998
685.	Ponnaiyah Ramajayam Institute of Science & Technology (PRIST), Yagappa Chavadi, Thanjavur – 614 904, Tamilnadu. (Deemed University)	04.01.2008
686.	S.R.M. Institute of Sciences and Technology, SRM Nagar, Kattankulathur- 603203, Kancheepuram District, Tamil Nadu. (Deemed University)	02.08.2002
687.	Sathyabama Institute of Science and Technology, Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai-600 119, Tamil Nadu. (Deemed University)	16.07.2001
688.	Saveetha Institute of Medical and Technical Sciences, No. 162, Poonamalle High Road, Velappanchavadi, Chennai-600 077, Tamil Nadu. (Deemed University)	18.03.2005
689.	Shanmugha Arts, Science, Technology, Research & Academy (SASTRA), Thirumalaisamudram, Thanjavur-613 401, Tamil Nadu. (Deemed University)	26.04.2001
690.	Sri Chandrasekharandra Saraswati Vishwa Mahavidyalaya, Enathur, Kancheepuram-631 561, Tamil Nadu. (Deemed University)	26.05.1993
691.	Sri Ramachandra Medical College and Research Institute, 1, Ramachandra Nagar, Porur, Chennai-600 116, Tamil Nadu. (Deemed University)	29.09.1994
692.	St. Peter‟ s Institute of Higher Education and Research, Chennai. (Deemed University)	26.05.2008
693.	Tamil Nadu Teacher Education University, Lady Willingdon College Campus, Kamarajar Salai, Chennai – 600 005, Tamil Nadu. (State University).	2008
694.	Tamil University, Thanjavur-613 010, Tamil Nadu. (State University).	1981
695.	Tamilnadu Agricultural University, Coimbatore-641 003 (State University).	1971
696.	Tamilnadu Dr. Ambedkar Law University, “Poompozhil, #5, Dr. D.G.S.Dhinakaran Salai, Chennai-600 028, Tamil Nadu. (State University).	1998
697.	Tamilnadu Dr. M.G.R. Medical University, No. 69, Anna Salai, Guindy, Chennai-600 032, Tamil Nadu. (State University).	1989
698.	Tamilnadu Fisheries University, First Linebeach Road, Nagapattinam – 611001, Tamilnadu. (State University)	2012

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
699.	Tamilnadu Music and Fine Arts University, Dr. D.G.S. Dinakaran Salai, Chennai – 600028. (State University)	2013
700.	Tamilnadu National Law School, Navalur Kuttapattu, Srirangam Taluk, Tiruchirapalli – 620 009, Tamilnadu. (State University)	2012
701.	Tamilnadu Open University, No. 577, Anna Salai, Saidapet, Chennai-600 015, Tamil Nadu. (State University).	2004
702.	Tamilnadu Physical Education and Sports University, 8th Floor, EVA Sampat Maaligai, College Road, Chennai, Tamil Nadu. (State University)	2005
703.	Tamilnadu Veterinary & Animal Sciences University, Madhavaram Milk Colony, Chennai-600051, Tamil Nadu. (State University).	1990
704.	Thiruvalluvar University, Serkkadu, Vellore-632 115, Tamil Nadu. (State University)	2003
705.	University of Madras, Chepauk, Chennai-600 005, Tamil Nadu. (State University).	1857
706.	Vel Tech Rangarajan Dr. Sagunthala R & D Institute of Science and Technology, 42, Avade-Vel Tech Road, Avadi, Chennai-600062, Tamilnadu. (Deemed University)	15.10.2008
707.	Vel‟ s Institute of Science, Technology & Advanced Studies (VISTAS), Velan Nagar, P.V. Vaithiyalingam Road, Pallavaram, Chennai-600117, Tamilnadu. (Deemed University)	04.06.2008
708.	Vellore Institute of Technology, Katpadi Thiruvalam Road, Vellore-632 014, Tamil Nadu. (Deemed University)	19.06.2001
709.	Vinayaka Mission‟ s Research Foundation, Sankari Main Road, NH 47, Ariyanoor, Salem-636308, Tamil Nadu. (Deemed University)	01.03.2001
TELANGANA		
710.	Acharya N.G. Ranga Agricultural University, Lam, Guntur – 522 034 (Andhra Pradesh). (State University)	1964
711.	Dr. B.R. Ambedkar Open University, Prof. G. Ram Reddy Marg, Road No. 46, Jubilee Hills, Hyderabad-500 033, Telangana. (State University)	1982
712.	ICFAI Foundation for Higher Education, Dontanapalli, Shankarapally Road, Hyderabad-501203, Telangana. (Deemed University)	16.12.2008
713.	International Institute of Information Technology, Prof. C.R. Road, Gachibowli, Hyderabad-500032, Telangana. (Deemed University)	21.08.2001
714.	Jawaharlal Nehru Architecture and Fine Arts University, Mahaveer Marg, Masab Tank, Hyderabad – 500 028, Telangana. (State University)	2008
715.	Jawaharlal Nehru Technological University, Kukatpally, Hyderabad-500 085, Telangana. (State University)	1972

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
716.	Kakatiya University, Vidyaranyapuri, Hanamkonda, Warangal-506 009, Andhra Pradesh. (State University)	1976
717.	Kaloji Narayan Rao University of Health Sciences, Kakatia Medical College Campus, rangampet, Waranga, Telangana. (State University)	26.09.2017
718.	Mahatma Gandhi University, Yellareddyugudem, Nalgonda – 508254, Andhra Pradesh. (State University)	2008
719.	Maulana Azad National Urdu University, Gachibowli, Hyderabad-500032. (Central University)	1998
720.	NALSAR University of Law, Justice‟ , Shameerpet, R.R. Dist., Hyderabad-500101, Telangana. (State University)	1999
721.	Nizam‟ s Institute of Medical Sciences, Punjagutta, Hyderabad – 500082, Telangana. (State University)	1989
722.	Osmania University, Administratiave Building, Hyderabad-500 007, Telangana. (State University)	1918
723.	Palamuru University, Ayyappa Complex, Opp. Police Head Quarters, Mahabubnagar – 509 001, Telangana. (State University)	2008
724.	Potti Sreeramulu Telugu University, Lalitha Kala Kshetram, Public Gardens, Nampally, Hyderabad-500 004, Telangana. (State University)	1985
725.	Professor Jayashankar Telangana State Agricultural University, Rajendranagar, Hyderabad – 500030, Telangana. (State University)	2014
726.	Rajiv Gandhi University of Knowledge Technologies, Hyderabad. (State University)	2011
727.	Satavahana University, Malkapur X Road, Chinthakunta, Karimnagar – 505 001, Telangana. (State University)	2008
728.	Sri Konda Laxman Telangana State Horticultural University, Rajendranagar, Hyderabad-500030, Telangana. (State University)	2014
729.	Sri P.V. Narsimha Rao Telangana Veterinary University, Rajendranagar, Hyderabad – 500030. (State University)	21.11.2014
730.	Telangana University, Dichpally, Nizamabad – 503 322, Telangana. (State University)	2006
731.	The English and Foreign Languages University, Osmania University Campus, Hyderabad- 500007. (Central University)	1973 (Central University w.e.f. 2007)
732.	University of Hyderabad, Hyderabad-500 046. (Central University)	1974
TRIPURA		
733.	Institute of Chartered Financial Analysts of India, (ICFAI), PO Kamalghat, Agartala-Simna Road, Mohanpur-799210, Tripura. (Private University)	31.03.2004

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
734.	Maharaja Bir Bikram University, Agartala, Tripura. (State University)	2015
735.	Tripura University, Suryamaninagar, Agartala-799 130, Tripura. (Central University)	1987
UTTAR PRADESH		
736.	Aligarh Muslim University, Aligarh-202 002. (Central University)	1920
737.	Allahabad State University, CPI Parisar, Civil Lines, Allahabad, Uttar Pradesh. (State University)	17.06.2016
738.	Amity University, Noida, Uttar Pradesh (Private University)	24.03.2005
739.	Babasaheb Bhimrao Ambedkar University, Vidya Vihar, Raebareilly Road, Lucknow-226 025, Uttar Pradesh. (Central University)	1996
740.	Banaras Hindu University, Varanasi-221 005, Uttar Pradesh. (Central University)	1916
741.	Banda University of Agriculture & Technology, Banda – 210001, Uttar Pradesh. (State University)	02.03.2010
742.	Bareilly International University, Rohilkhand Medical College Campus, Pilibhit Bypass Road, Bareilly – 243006, Uttar Pradesh. (Private University)	16.09.2016
743.	Bennett University, Plot No. 8-11, Tech Zone II, Greater Noida – 201301, Uttar Pradesh. (Private University)	16.09.2016
744.	Bhatkhande Music Institute, Kaiserbag, Lucknow-226 001 (Deemed University)	24.10.2000
745.	Bundelkhand University, Kanpur Road, Jhansi-284 128, Uttar Pradesh.(State University)	1975
746.	Babu Banarasi Das University, 55, Babu Banarasi Das Nagar, Lucknow, Uttar Pradesh.(Private University)	12.10.2010
747.	Central Institute of Higher Tibetan Studies, Sarnath, Varanasi-221 007. (Deemed University)	05.04.1988
748.	Chandra Shekhar Azad University of Agriculture & Technology, Nawab Ganj, Kanpur-208 002, Uttar Pradesh. (State University).	1974
749.	Chatrapati Shahuji Maharaj Kanpur University, Kalynpur, Kanpur-208 024, Uttar Pradesh. (State University).	1965
750.	Choudhary Charan Singh University, Meerut-250 004, Uttar Pradesh. (State University).	1965
751.	Dayalbagh Educational Institute, Dayalbagh, Agra-282 005, Uttar Pradesh. (Deemed University)	16.05.1981
752.	Deen Dayal Upadhyay Gorakhpur University, Gorakhpur-273 009, Uttar Pradesh. (State University).	1957

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
753.	Dr. A.P.J. Abdul Kalam Technical University, Sector-11, Jankipuram Extension Yojna, Lucknow-226031, Uttar Pradesh.	2001
754.	Dr Ram Manohar Lohia Awadh University, Allahabad Road, Faizabad-224 001, Uttar Pradesh. (State University).	1975
755.	Dr. B.R. Ambedkar University, Paliwal Park, Agra-282 002, Uttar Pradesh. (State University).	1927
756.	Dr. Ram Manohar Lohiya National Law University, Sector –D-1, L.D.‟ A‟ , Kanpur Road Scheme, Lucknow-226012, Uttar Pradesh. (State University)	2005
757.	Era University, Sarfarazganj, Hardoi road, Lucknow-226003, Uttar Pradesh.(Private University)	16.09.2016
758.	G.L.A. University, 17 Km Stone, NH-2, Delhi-Mathura Road, PO Chaumuhan, Mathura-281406, Uttar Pradesh. (Private University).	01.09.2010
759.	Galgotias University, Plot No. 2, Sector 17 A, Yamuna Expressway, Greater Noida-201203, Dt. Gautam Budh Nagar, Uttar Pradesh. (Private University)	07.04.2011
760.	Gautam Buddha University, Greater Noida, District-Gautam Budh Nagar, Uttar Pradesh – 201 308. (State University)	2002
761.	Harcourt Butler Technical University, Kanpur – 208002, Uttar Pradesh. (State University)	07.04.2016
762.	IIMT University, O Pocket, Ganga Nagar, Mawana Road, Meerut – 250001, Uttar Pradesh. (Private University)	16.09.2016
763.	Indian Veterinary Research Institute, Izatnagar-243 122, Uttar Pradesh. (Deemed University)	16.11.1983
764.	IFTM University, Lodhipur Rajput, Delhi Road, Moradabad – 244 102, Uttar Pradesh. (Private University)	12.10.2010
765.	Integral University, Dasauli, PO Bas-ha, Kursi Road, Lucknow-226 026, Uttar Pradesh. (Private University).	26.02.2004
766.	Invertis University, Invertis Village, Bareilly-Lucknow National Highway-24, Bareilly-243123, Uttar Pradesh. (Private University)	01.09.2010
767.	Jagadguru Rambhadracharya Handicapped University, Chitrakoot-210 204, Uttar Pradesh. (Private University)	06.10.2001
768.	Jannayak Chandrashekhar University, Ballia, Uttar Pradesh. (State University)	16.09.2016
769.	Jaypee Institute of Information Technology, A-10, Sector 62, Nodia-201 307,Uttar Pradesh. (Deemed University).	01.11.2004
770.	Jaypee University, Aligarh Road, Anoopshahar, Dist. Bulandshahar – 203 390, Uttar Pradesh. (Private University)	04.03.2014
771.	J.S. University, Shikohabad, Firozabad, Uttar Pradesh. (Private University)	24.06.2015

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
772.	Khwaja Moinuddin Chishti Urdu, Arabi~Farsi University, Sitapur-Hardoi Bypass Road, Near IIM, Lucknow, Uttar Pradesh-226013. (State University)	2010
773.	King George Medical University, Lucknow-226 003 (State University)	2004
774.	Madan Mohan Malviya University of Technology, Gorakhpur – 273010, Uttar Pradesh. (State University)	2013
775.	M.J.P.Rohilkhand University, Dori Lal Agarwal Marg, Pilibhit Byepass Road, Bareilly-243 006, Uttar Pradesh. (State University).	1975
776.	Mahatma Gandhi Kashi Vidyapeeth, Varanasi-221 002, Uttar Pradesh. (State University).	1974
777.	Maharishi University of Information Technology, Maharishi Bal Vidya Mandir & University Campus, Sitapur Road, Post-Diburia, Lucknow – 226 020, Uttar Pradesh. (Private University)	24.09.2013
778.	Mangalayatan University, 33rd Milestone, Aligarh-Mathura Highway, PO Beaswan, Aligarh-202145, Uttar Pradesh. (Private University)	30.10.2006
779.	Mohammad Ali Jauhar University, Rampur, UP. (Private University)	19.06.2006
780.	Monad University, Kastla, PO Pilkhua, Kasmabad, Dt. Hapur-245101, Uttar Pradesh. (Private University)	12.10.2010
781.	Narendra Deo University of Agriculture & Technology, Narendra Nagar, Faizabad-224 229, Uttar Pradesh. (State University).	1974
782.	Nehru Gram Bharati, Kotwa – Jamunipur, Dubwali Distt., Allahabad – 221505,, Uttar Pradesh (Deemed University)	27.06.2008
783.	Noida International University, Plot No.1, Sector 17-A, Yamuna Expressway,Gautam Budh Nagar-201301, Uttar Pradesh. (Private University)	12.10.2010
784.	Rajiv Gandhi National Aviation University, Fursatganj, Dt. Raebareli, Uttar Pradesh. (Central University)	2013
785.	Rama University, Rama City, G.T. Road, Mandhana, Kanpur – 209217, Uttar Pradesh. (Private University)	10.01.2014
786.	Rani Lakshmi Bai Central Agricultural University, NH-75, Near Pahuj Dam, Gwalier Road, Jhansi (Utter Pradesh) – 284 003. (Central University)	2014
787.	Sam Higginbottom Institute of Agriculture, Technology & Sciences (Formerly Allahabad Agricultural Institute), P.O. Agricultural Institute, Rewa Road, Allahabad – 211 007, Uttar Pradesh. (Deemed University)	15.03.2000
788.	Sampurnanand Sanskrit Vishwavidyalaya, Varanasi-221 002, Uttar Pradesh. (State University).	1958

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
789.	Sanskriti University, 28 KM Stone, Mathura-Delhi Highway, Chhata, Mathura, Uttar Pradesh. (Private University)	16.09.2016
790.	Santosh University, Santosh Nagar, Ghaziabad, U.P. (Deemed University)	13.06.2007
791.	Sardar Vallabh Bhai Patel University of Agriculture & Technology, Meerut-250110 (State University)	2004
792.	Sharda University, Plot No. 32-34, Knowledge Park 3, Greater Noida-201306, Gautam Budh Nagar, Uttar Pradesh (Private University)	24.03.2009
793.	Shiv Nadar University, Dadri, Gautham Budh Nagar, Uttar Pradesh (Private University)	06.04.2011
794.	Shobit Institute of Engineering & Technology, NH-58, Modipuram, Roorkee Road, Meerut – 250110, Uttar Pradesh. (Deemed University).	08.11.2006
795.	Shobhit University, Adarsh Institutional Area, Babu Vijendra Marg, Gangoh, Distt. – Saharanpur – 247 341, (Uttar Pradesh) (Private University)	05.07.2012
796.	Shri Ramswaroop Memorial University, Hadauri, Deva-Lucknow Road, Dt. Barabanki, Uttar Pradesh. (Private University)	04.07.2012
797.	Siddharth University, Kapilvastu, Siddharth Nagar – 272202, Uttar Pradesh. (State University)	16.06.2015
798.	Swami Vivekanand Subharti University, Subhartipuram, NH-58, Delhi-Haridwar Meerut By Pass Road, Meerut-250005, Uttar Pradesh. (Private University)	05.09.2008
799.	Shri Venkateshwara University, NH-24, Rajabpur, Gajraula, J.P. Nagar, Uttar Pradesh (Private University)	12.10.2010
800.	Teerthanker Mahaveer University, NH-24, Delhi Road, Moradabad-244001, Uttar Pradesh. (Private University).	05.09.2008
801.	The Glocal University, Delhi-Yamunautri Marg, Akbarpur, Mizapur Pole, Tehsil – Behat, Saharanpur – 247001, Uttar Pradesh. (Private University)	05.07.2012
802.	University of Lucknow, Lucknow-226 007, Uttar Pradesh. (State University).	1921
803.	U.P. King George‟ s University of Dental Science, Lucknow-226 003, Uttar Pradesh (State University).	2004
804.	Uttar Pradesh Pandit Deen Dayal Upadhyaya Pashu Chikitsa Vigyan Vishwavidyalaya Evam Go-Anusandhan Sansthan, Mathura, Uttar Pradesh. (State University)	2001
805.	U.P. Rajarshi Tandon Open University, University Campus, Shantipuram (Sector F), Phaphamau, Allahabad-211 013, Uttar Pradesh. (State University).	2004

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
806.	Uttar Pradesh Viklang Uddhar Dr. Shakuntala Misra University, Mohan Road, Lucknow-226017, Uttar Pradesh. (State University)	2008
807.	Uttar Pradesh University of Medical Sciences, Saifai, Etawah – 206130, Uttar Pradesh. (State University)	17.05.2016
808.	University of Allahabad, Allahabad-211 002, Uttar Pradesh. (Central University).	1887
809.	Veer Bahadur Singh Purvanchal University, Jaunpur-222 002, Uttar Pradesh. (State University).	1987
UTTARAKHAND		
810.	Bhagwant Global University, Village & Post – Uttari Jhandi Chaur, Tehsil –Kotdwar, Dist. – Pauri Garhwal, Uttarakhand – 246149. (Private University)	19.12.2016
811.	Dev Sanskriti Vishwavidyalaya, Gayatrikunj, Shantikunj, Hardwar-249 411, Uttarakhand. (Private University)	22.01.2002
812.	DIT University, Mussoorie Diversion Road, Dehradun – 248 009, Uttarakhand. (Private University)	15.02.2013
813.	Doon University, Mothrowala Road, Kedarpur, PO Ajabpur, Dehradun - 248001.(State University)	2005
814.	Forest Research Institute, PO IPE, Kaulagarh Road, Dehradun-248 195, Uttarakhand. (Deemed University)	28.11.1991
815.	G.B. Pant University of Agriculture and Technology, Pantnagar-263 145,District Udham Singh Nagar, Uttarakhand. (State University).	1960
816.	Graphic Era, 566/6 Bell Road, Clement Town, Dehradun-248 002,Uttarakhand. (Deemed University)	14.08.2008
817.	Graphic Era Parvatiya Vishwavidyalaya, 600, Bell Road, Clement Town, Dehradun – 248 002, Uttarakhand. (Private University)	28.04.2011
818.	Gurukul Kangri Vidyapeeth, PO Gurukul Kangri, Hardwar-249 404, Uttarakhand. (Deemed University)	19.06.1962
819.	Hemwati Nandan Bahuguna Garhwal University, Srinagar-246 174, Dt. Garhwal, Uttarakhand.(Converted from State University to Central University)(Central University)	1973 (Central University w.e.f. 2009)
820.	Hemwati Nandan Bahuguna Medical Education University, 124, Ganga Vihar, Opposite Roadways Workshop, Haridwar Road, Dehradun – 248 001, Uttarakhand. (State University)	2014
821.	Himalayan Garhwal University, Dhaid Gaon, Pokhra, Pauri Garhwal, Uttarakhand. (Private University)	07.12.2016
822.	Himgiri Zee University, Sheeshambada, PO-Sherpur, Chakrata Road, Via- Sahaspur, Dehradun-248197, Uttarakhand. (Private University)	11.07.2003

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
823.	IMS Unison University, Makkawala Greens, Mussoorie Diversion Road, Dehradun – 248 009, Uttarakhand. (Private University)	15.02.2013
824.	Institute of Chartered Financial Analysts of India (ICFAI), Rajawala Road, Central Hope Town, Selaqui, Dehradun-248197, Uttarakhand. (Private University)	10.07.2003
825.	Kumaun University, Mallital, Nainital-263 001, Uttarakhand. (State University).	1973
826.	Motherhood University, Village – Karondi, Post – Bhagwanpur, Roorkee, Distt. Hardwar, Uttarakhand. (Private University)	19.01.2015
827.	Quantum University, Mandawar (22km Milestone), Roorkee-Dehrdun Highway (NH-73), Roorkee – 247167, Uttarakhand. (Private Univerity)	07.04.2017
828.	Ras Bihari Bose Subharti University, Subhartipuram Kotda Santaur, Aamwala Road, PO – Chandanwadi, Nanda Ki Chowki, Prem Nagar, Dehradun-248007, Uttarakhand. (Private University)	08.12.2016
829.	Sardar Bhagwan Singh University, Balawala, Dehradun – 248161, Uttarakhand (Private University)	03.08.2018
830.	Shri Guru Ram Rai University, Patel Nagar, Dehradun, Uttarakhand. (Private University)	07.04.2017
831.	Sri Dev Suman Uttarakhand Vishwavidyalay, Badshahithaul, Tehri Garhwal, Uttarakhand-249199. (State University)	2011
832.	Swami Rama Himalayan University, Swami Ram Nagar, Jolly Grant, PO –Doiwala, Dehradun, Uttarakhand. (Private University)	12.03.2013
833.	University of Patanjali, Patanjali Yogpeeth, Haridwar (Private University)	05.04.2006
834.	University of Petroleum and Energy Studies, Bidholi Campus, Energy Acres,P.O Bidholi (Via Prem Nagar) Dehradun – 248 006, Uttarakhand. (Private University).	10.07.2003
835.	Uttarakhand Ayurved University, Railway Station Road, Harrawala, Dehradun – 248 009, Uttarakhand. (State University)	2009
836.	Uttarakhand Open University, Teenpani Bypass Road, Behind Transport Nagar, PO Industrial Estate, Haldwani, District Nainital-263139, Uttarakhand.(State University)	2005
837.	Uttarakhand Sanskrit University, Delhi-Haridwar National Highway, PO Bahadrabad, Haridwar-249 402, Uttrakhand (State University).	2005
838.	Uttrakhand Technical University, Post Office Chandavari, Suddhowala, Dehradun-248007, Uttrakhand (State University)	2008
839.	Uttarakhand Aawasiya Vishwavidyalaya, Jagat Singh Bist Rajkiya Hotel Management and Catering Sansthan Parisar,Chilkapita, Khatyadi,Almora -263601, Uttarakhand (State University)	06.09.2016

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
840.	Uttaranchal University, Arcadia Grant, PO Chandanwari, Premnagar, Dehradun – 248 007, Uttarakhand. (Private University)	15.02.2013
841.	Veer Chandra Singh Garhwali Uttarakhand University of Horticulture & Forestry, Bharsar, Dt. Pauri Garhwal-246123, Uttarakhand. (State University)	2011
WEST BENGAL		
842.	Adamas University, Barasat, Barrackpore Road, Barberia, PO Jagannathpur, PS Barasat, Kolkata – 700126, West Bengal. (Private University)	11.04.2014
843.	Aliah University, Salt Lake Campus, DN-41, Sector-V, Salt Lake City, Kolkata- 700091, West Bengal. (State University)	2007
844.	Amity University, Rajarhat, New Town, Dist. North 24 Parganas, West Bengal. (Private University)	21.01.2015
845.	Bankura University, Puabagan Camp Office, PO Bhagabandh, Dist. Bankura- 722146, West Bengal. (State University)	2014
846.	Bidhan Chandra Krishi Vishwavidyalaya, PO Krishi Vishwavidyalaya, Mohanpur, District Nadia-741 252, West Bengal. (State University).	1974
847.	Brainware University, 398, Ramkrishnapur Road, Barasat, Kolkata – 700 124, North 24 Pgs., West Bengal. (Private University)	24.02.2016
848.	Cooch Behar Panchanan Barma University, Vibekananda Road, Cooch Behar – 736101, West Bengal. (State University)	2012
849.	Diamond Harbour Women‟ s University, c/o Fakir Chand College, Diamond Harbour, South 24 Parganas, West Bengal – 743331. (State University)	2013
850.	Indian Association for the Cultivation of Science (IACS), 2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata, West Bengal – 700032. (Deemed to be University)	08.05.2018
851.	Jadavpur University, 188, Raja S.C. Mallik Road, PO Jadavpur, Kolkata-700 032. (State University).	1955
852.	JIS University, Agarpara, District North 24 Parganas, West Bengal. (Private University)	03.02.2015
853.	Kazi Nazrul University, Old ADDA Office Building (behind Asansol Girls College), PO – Asansol-713304, Dist – Burdwan, West Bengal. (State University)	2012
854.	Maulana Abul Kalam Azad University of Technology, BF-142, Salt Lake, Sector 1, Bidhannagar, Kolkata-700064, West Bengal. (State University).	2001
855.	Netaji Subhash Open University, DD-26, Sector-I, Salt Lake City, Kolkata-700064. (State University)	1997
856.	Presidency University, 86/1 College Street, Kolkata – 700 073, West Bengal (State University)	2010

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
857.	Rabindra Bharati University, Emerald Bower Campus, 56-A, BT Road, Kolkata-700 050. (State University).	1962
858.	Raiganj University, PO-Raiganj, Dist. Uttar Dinajpur-733134, West Bengal. (State University)	2015
859.	Ramakrishna Mission Vivekananda Educational and Research Institute, Belur Math, Howrah, West Bengal (Deemed University)	05.01.2005
860.	Seacom Skills University, Village – Kendradanga, PO – Sattore, PS – Panrui, Dist. – Birbhum-731236, West Bengal. (Private University)	11.04.2014
861.	Sidho-Kanho-Birsha University, Administrative Building, Purulia Zilla Parishad, Jubilee Compound, Purulia – 723101, West Bengal. (State University)	2010
862.	Sister Nivedita University, DG-1/2, New Town, Rajarhat, Kolkata – 700 156, West Bengal. (Private University)	22.02.2018
863.	St. Xavier" s University, Premises No. IIIB-1, Plot No. IIIB/1, Action Area IIIB, PS New Town, Kolkata – 700156. (Private University)	16.01.2017
864.	Techno India University, EM – 4, Sector-V, Salt Lake, Kolkata – 700 091, West Bengal. (Private University)	16.08.2012
865.	The Neotia University, Jhinga, Sarisa, D.H. Road, 24 Parganas (S), West Bengal-743368. (Private University)	03.02.2015
866.	The Sanskrit College and University, Bankim Chaterjee Street, Kolkata – 700073. (State University)	19.02.2016
867.	The West Bengal National University of Juridical Science, NUJS Bhava, 12 LB Block, Sector-III, Salt Lake City, Kolkata (State University).	2004
868.	The West Bengal University of Health Sciences, DD-36, Secotor-1, Salt Lake, Kolkata-700 064 (State University).	2002
869.	The West Bengal University of Teachers" Training, Education Planning and Administration, 25/2 & 25/3, Ballygunge Circular Road, Kolkata – 700019, West Bengal. (State University)	2015
870.	University of Burdwan, Rajbati, Burdwan-713 104, West Bengal. (State University).	1960
871.	University of Calcutta, 87/1, College Street, Kolkata-700 073. (State University).	1857
872.	University of Engineering and Management, University Area, Plot No. III-B/5, Main Arterial Road (East-West), New Town, Action Area-III, Kolkata-700156, West Bengal. (Private University)	03.02.2015
873.	University of Gour Banga, Rabindra Avenue, Malda College Campus, P.O. & Dist- Malda – 732 101, (State University)	2007
874.	University of Kalyani, Kalyani-741 235, Nadia, West Bengal. (State University).	1960

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
875.	University of North Bengal, Raja Ram Mohanpur, PO North Bengal University- 734013, District Darjeeling, West Bengal. (State University).	1962
876.	Uttar Banga Krishi Vishwavidyalaya, District-Cooch Behar-736 165 (State University)	2001
877.	Vidyasagar University, West Midnapore-721 102, West Bengal. (State University).	1981
878.	Vishwa Bharati University, Shantiniketan-731 235, West Bengal. (Central University)	1951
879.	West Bengal State University, Berunanpukuria, Malikapur Barasat, 24 Parganas (North), Kolkata – 700126, West Bengal.(State University)	2007
880.	West Bengal University of Animal and Fishery Sciences, 68, Khudiram Bose Sarani, Kolkata-700037, West Bengal. (State University).	1995
NCT OF DELHI		
881.	Bharat Ratna Dr. B.R. Ambedkar University, Lothian Road, Kashmere Gate, Delhi – 110 006. (State University)	2007
882.	Delhi Pharmaceutical Sciences & Research University, DIPSAR Campus, Sector-III, Pushp Vihar, New Delhi. (State University)	2010
883.	Delhi Technological University, Shahbad Daultapur, Bawana Road, Delhi - 110042. (State University)	2009
884.	Guru Gobind Singh Indraprastha Vishwavidyalaya, Sector 16 C, Dwarka, Delhi- 110 078. (State University).	1998
885.	Indian Agricultural Research Institute, Pusa, New Delhi-110 012. (Deemed University)	22.08.1958
886.	Indian Institute of Foreign Trade, IIFT Bhawan, Qutab Industrial Area, New Delhi-110 016. (Deemed University)	20.05.2002
887.	Indian Law Institute, Bhagwandas Road, New Delhi-110 001 (Deemed University).	29.10.2004
888.	Indira Gandhi National Open University, Maidan Garhi, New Delhi-110 068. (Central University)	1985
889.	Indira Gandhi Delhi Technical University for Women, Kashmere Gate, Delhi – 110 006. (State University)	2013
890.	Indraprastha Institute of Information Technology, Near Govindpuri Metro Station, Okhla Industrial Estate, Phase –III, New Delhi-110020. (State University)	2008
891.	Institute of Liver and Biliary Sciences (ILBS), D-1 Vasant Kunj, New Delhi-110 070. (Deemed University)	10.07.2009
892.	Jamia Hamdard, Hamdard Nagar, New Delhi-110 062. (Deemed University)	10.05.1989

Sl No.	State/ Name of University	Date/Year of Notification/ Establishment
893.	Jamia Mallia Islamia University, Maulana Mohammad Ali Jauhar Marg, Jamia Nagar, Okhla, New Delhi-110 025. (Central University)	1988
894.	Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110 067. (Central University)	1969
895.	National Institute of Educational Planning and Administration, 17-B, Sri Aurobindo Marg, New Delhi – 110 016.(Deemed University).	11.08.2006
896.	National Law University, Sector, 14, Dwarka, New Delhi-110078. (State University)	2008
897.	National Museum Institute of History of Art, Conservation and Museology, Janpath, New Delhi-110 011. (Deemed University)	28.04.1989
898.	Netaji Subhas University of Technology, Azad Hind Fauj Marg, Sector -3, Dwarka, New Delhi -110078 (State University)	26.09.2018
899.	Rashtriya Sanskrit Sansthana, 56-57, Institutional Area, Janak Puri, New Delhi-110 058. (Deemed University)	07.05.2002
900.	Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapith, B-4, Qutub Institutiona Area, Katwaria Sarai, New Mehrauli Road, New Delhi-110 016. (Deemed University)	16.11.1987
901.	South Asian University, Akbar Bhawan Campus, Chanakyapuri, New Delhi – 110 021. (Established under Central Act)	2010
902.	TERI School of Advanced Studies, Plot No. 10, Institutional Area, Vasant Kunj, New Delhi-110070. (Deemed University)	05.10.1999
903.	University of Delhi, Delhi-110007. (Central University)	1922
CHANDIGARH		
904.	Panjab University, Sector 14, Chandigarh-160 014. (State University)	1947
905.	Punjab Engineering College, Chandigarh-160 009. (Deemed University)	16.10.2003
PUDUCHERRY		
906.	Pondicherry University, R. Venkataraman Nagar, Kalapet, Puducherry - 605014. (Central University)	1985
907.	Sri Balaji Vidyapeeth, Mahatma Gandhi Medical College Campus, Pondy- Cuddalore Main Road, Pillaiyarkuppam, Puducherry – 607 402(Deemed University)	04.08.2008

Index

******

The Kerala State Higher Education Council
Science and Technology Museum Campus
Vikas Bhavan P.O., Thiruvananthapuram-695033
Tel: 0471-2301290,91,92,93. FAX:0471-2301290
Website: www.kshec.kerala.gov.in, Email:heckerala@gmail.com