Kerala State Higher Education Council
Minutes of the 5th Executive Body meeting held on 23.05.2024

The 5th Executive Body Meeting of the fourth KSHEC was held on 23.05.2024 at 11.00 am. in the Board Room of the Kerala State Higher Education Council. Prof. Rajan Gurukkal P.M.,Vice Chairman presided.
The following members attended the meeting.

1. Prof.Rajan Gurukkal P.M.	**:**	**Vice Chairman, KSHEC.**
2. Dr.Rajan Varughese	**:**	**Member Secretary, KSHEC**
3. Dr. Saji Gopinath	**:**	**Vice Chancellor, Kerala University of Digital Sciences, Innovation & Technology**
4. Dr. M.S. Rajasree	:	**Director, Technical Education**
5. Dr. K.K. Damodaran	**:**	**Member, Executive Body, KSHEC**
6. Sri. Paul V. Karanthanam	**:**	**Member, Executive Body, KSHEC**
7. Dr. P.P. Ajayakumar	**:**	**Member, Executive Body, KSHEC**

The following agenda was transacted and decisions taken.

1. **Item No. 1.K-Reap – Technical Committee Report.**

REPORT OF THE TECHNICAL COMMITTEE FOR EVALUATION OF SOLUTIONS FOR K-REAP

The committee constituted for evaluation of potential solutions for K-REAP project of Higher Education Department met on 07 May 2024 at Kerala State Higher Education Council (KSHEC) Board Room and evaluated four solutions presented to them.

The following organisations made detailed presentations of the solutions proposed by them for K-REAP project

1) M/s Tata Consultancy Services Ltd. (Tata IoN)
2) M/s Additional Skill Acquisition Program Ltd., Government of Kerala
3) M/s ITI Ltd. , Government of India
4) M/s Embase Technologies, Wayanad Kerala

Committee members examined each of the solutions in detail and had extensive discussion with each of the parties concerned. The details of deliberations are given below

1. **M/s Tata Consultancy Services Ltd.**
   Tata iON is part of the Indian MNC Tata Consultancy Services Ltd, the largest It service company from India. M/s TCS iON has an integrated solution offered on SAAS (Software as a Service) mode which could be customized to meet the requirement of KREAP. Tata ION has presence in 25 State and Private Universities, several colleges and National Colleges providing digital services for some elements of Institutional value chain. The company claims to have provided total solution for a few Universities including Chandigarh Swami Vivekanand Technical University, an affiliating University with over 2.5 lakh students. In Kerala TCS iON solution is used by MG University for some of their operations

The solution is proposed as a perpetual Beta solution with option to customize to the requirements of various stakeholders of the KREAP program. The solution is divided int three namely Student Life Cycle management, HR Management and Asset management and hence can be considered as an integrated ERP system as envisaged in KREAP. The company proposes to deploy the Student Life Cycle Management as a first phase within next 6 to 9 months. Even though Tata iON proposed an integrated solution their presence in most of the Academic Institutions is limited to managing examinations

2. **M/s ASAP Ltd.**

ASAP Ltd. Is a Section 8 company incorporated by Higher Education Department, Government of Kerala with a primary aim of providing skilling programs. ASAP along with Maharashtra Knowledge Corporation Ltd., a PSU promoted by Department of Higher and technical Education Govt. of Maharashtra has proposed MKCL's Campus Live, a customized ERP solution for academic Institutions. Campus Live has already been successfully deployed in several Academic Institutions in 3 states and a few countries abroad. Over 17 million students from 4000+ institutions under 19 Universities, including large Universities like University of Mumbai, Savitri Phule University Pune etc., are using this product over the last 22 years.

Campus Live is offered in SAAS mode with option for customizing for requirements of independent Universities. The product is a time-tested solution for automating the student life cycle management in various Universities with affiliated colleges. Even though the solution has a few other modules, the Student Life Cycle Management is implemented properly and is working effectively in universities. The team is willing to develop and customize the modules to suit needs of K-REAP without any extra cost

3. **M/s ITI Ltd.**

ITI Ltd Palakkad presented a solution which has been deployed in University of Kerala for conduct of examinations. This solution is offered as product to be hosted by the user in its own servers. The solution is also being implemented in Kannur University Even though M/s ITI claims that solution provides features of an integrated ERP, only a few modules of the product is implemented in Kerala University. The product is not implemented in any other Universities. The team is ready to host the solution in cloud, at a cost, on behalf of KREAP, if KREAP so desires.

4. **M/s Embase Technologies**

M/s Embase technologies, a start-up company based out of Wayanad and having office in TBI, MG University has an integrated academic ERP which is deployed in several affiliating colleges for their management. The solution is offered on SAAS model.

The solution proposed by Embase is not deployed in any large universities and is designed with academic management of colleges in focus. The key activities of university like examination management is not fully developed in the solution. Further the solution is deployed in AWS but is not optimized for the same which may substantially increase the cost when it is deployed for a large University.

Observations/ Recommendation of the Committee

Committee observed that solution offered by Embase technologies is currently suited only for colleges and has to be substantially modified to meet the requirements of the Universities coming under KREAP. As company has no experience in dealing with universities, committee is not recommending this solution

The solution offered by M/s ITI Ltd has only very few functionalities tested in a live environment. Even though the deployment of the solution started several years back at the University of Kerala, only a few modules like examination module is seen working there. Further, as the it is a standalone product, the upfront cost will be high for KREAP. As the company has very installations (only 1 in Kerala University) in universities, the committee is not recommending the same for any further consideration

M/s Tata iON has a solution that meets the requirements of KREAP. Even though the vendor claims to provide customization at individual University level, there is a need to have strict SLA to ensure the same, if the company is selected for implementing solution for KREAP. It is also seen that they have made only very few fully integrated installations, even though several Universities are using their solutions quite effectively for examination management. In view of their experience with universities and their willing ness to consider customization of solution, committee recommends to further explore the solution

M/s ASAP Ltd along with MKCL has a good solution to meet the student life cycle management of universities. The experience of MKCL in deploying the solution effectively in Universities in Maharashtra and a few other States is a good testimony of the product. The team is quite sensitive to the needs of university community of stakeholders and could customize solution to meet the requirements. As both ASAP and MKCL are government owned companies, the direct procurement also may be possible. Even though the solution does not address all modules of the full-fledged Academic ERP required by KREAP, the first phase of project which focuses on student lifecycle management can be effectively be addressed by this solution. In view of the same, Committee strongly recommends the adoption of this solution for KREAP

Recommendations

Committee is not recommending solutions proposed by M/s Embase and M/s ITI ltd, The solution by M/s ASAP is ideally suited for first phase of KREAP implementation as the student life cycle management is well addressed in the product. Solution by M/s ION has more modules, but most of the deployment is in the examination module. Their solution also will be useful only for first phase of KREAP as per the current status of the project

It is recommended that KSHEC may assess following the solutions based on financial requirement before taking final decision. Committee ranks following solutions based on their technical suitability to meet the requirements of phase-1 of the KREAP

1) M/s ASAP Ltd (offering Campus Live by MKCL)
2) M/s Tata Consultancy Services (offering solutions of Tata iON)

Technical Committee members

1.	Dr. Rajan Varughese	:	Member Secretary, KSHEC (Chairman)
2.	Smt. Aparna S	:	Mission coordinator, Kerala State IT Mission, Vellayambalam, Tvpm
3.	Mr. Bijumon T	:	Additional Director (IT), APJAKTU Member
4.	Dr. Ajith Kumar R	:	Assistant Professor and Director, Centre for Digital Innovation and Product Development (CDIPD), Digital University of Kerala
5.	Dr.Lajish.V.L	:	Dept. of Computer Science, University of Calicut
6.	Mr. R. Srinivasan	:	Programme Head, ICFOSS
7.	Dr. Sudheendran K	:	Research Officer on spl. Duty (Implementation Cell), KSHEC
8.	Dr.Shefeeque V	:	Research Officer on spl. Duty (Implementation Cell), KSHEC
9.	Sri. Sandeep S Nair	:	Systems Analyst, KSHEC

Dr. Saji Gopinath, Hon'ble Vice Chancellor, Kerala University of Digital Sciences, Innovation and Technology (Special Invitee)

Approved the recommendations of the Technical Committee and resolved to recommend to the government to adopt the solution provided by M/s ASAP Ltd (Additional Skill Acquisition Programme)a Section-8 Company of the Department of Higher Education, Government of Kerala for the implementation of KREAP project.

Item No. 2. Report on Starting of New UG/ PG Programme in Universities/ Colleges.

New Generation Programmes in Higher Education Institutions in Kerala

The Kerala State Higher Education Council is taking a proactive approach to addressing the decline in enrolment in traditional courses among Kerala's Higher Education Institutions. To tackle this issue, a dedicated committee led by the Chairman and comprising esteemed members has conducted a comprehensive study. The efforts have culminated in a robust proposal featuring diverse courses and programs across disciplines such as Arts, Science, Commerce, Technology, and Humanities. The goal is to invigorate the educational landscape and spark renewed student interest.

Moreover, the committee's recommendations go beyond course offerings. The committees envision a transformative framework designed to deeply connect with students by infusing innovation, relevance, and contemporary perspectives. This approach adapts to changing educational needs and creates a dynamic, energetic higher education environment throughout Kerala. Ultimately, this initiative represents a collaborative effort to address the decline in

enrolment in traditional courses and adapt to evolving educational needs, resulting in a more vibrant and dynamic higher education environment in Kerala.

Most of the students currently enrolled in programmes in higher education institutions of Kerala

1. Bachelor of Commerce
2. BBA
3. BCA
4. IMCA (Integrated Master of Computer Application)

Factors Influencing Course Recommendations

Several key factors are considered when formulating recommendations for new courses within Higher Education Institutions in Kerala. These factors serve as guiding principles to ensure that the proposed courses align with contemporary educational needs and future challenges.

The recent introduction **of Four-Year Undergraduate Programs** (FYUGP) in Kerala offers a significant opportunity for innovation. These programs allow for the flexibility to incorporate new Minors and specializations in the final year, fostering a transdisciplinary approach. This flexibility enables students to explore diverse fields of study, enhancing their overall educational experience.

The **global shift towards a knowledge-based economy, driven by digital technologies** like Artificial Intelligence, underscores the importance of multidisciplinary education. Students must be equipped to navigate and contribute effectively to this evolving landscape. As such, new courses should integrate interdisciplinary perspectives, preparing students to thrive in an increasingly digital world.

Reforms in higher education emphasize the promotion of interdisciplinary studies and flexibility in undergraduate education. It encourages students to pursue multiple disciplines during their undergraduate studies, reflecting the changing demands of the workforce. Course design must align with these principles, offering students interdisciplinary exploration and skill development opportunities.

Based on these considerations, the proposed new courses incorporate the following aspects:

a) Multidisciplinary Courses:

These courses blend a core discipline with specializations from different fields, fostering cross-disciplinary collaboration and holistic learning experiences. By integrating diverse

perspectives, multidisciplinary courses prepare students to tackle complex real-world challenges effectively.

b) Transformative Courses:

Courses designed with the adoption of digital technologies address the evolving needs of the future. By leveraging digital tools and methodologies, these courses equip students with the skills and knowledge required to thrive in a rapidly changing technological landscape. This transformative approach ensures that education remains relevant and responsive to emerging trends and demands.

Examples of Interdisciplinary Courses Proposed

Multidisciplinary Courses

Courses with specialization in an alternative stream

a) BSc/BA/ BCom/BBA in a core discipline with a specialization in an emerging discipline

Examples

1. **BSc Mathematics with specialization in Data Analytics**
2. **BSc in Physics with Specialization in VLSI design**
3. **BSc Biology with specialization in Bioinformatics**
4. **BSc Chemistry with specialization in Computational Drug Design**
5. **BSc Geography with Specialization in Geospatial Analytics**
6. **BSc Ecology with specialization in Environmental Analytics**
7. **BBA with specialization in Business Analytics**
8. **BA Literature with specialization in Prompt Engineering**
9. **BA History with Specialization in Digital Humanities**
10. **B. Com with specialization in Blockchain Technologies**
11. **B. Com with Insurance**
12. **B. Com with Computer application**
13. **B. Com with specialization in Human resource management**
14. **B. Com with specialization in Taxation**
15. **M. Com with specialization in marketing**
16. **M. Com with specialization in International Business**

17. **M. Com with specialization in Finance**
18. **M. Com with specialization in Taxation**
19. **BA Economics with specialization in Financial Technologies**
20. **B Sc Sustainable Agriculture and Food Systems**
21. **BSc Digital Forensics and Cybersecurity**
22. **BADigital Film Making with Script Writing**
23. **BCA in Gaming and Animation**
24. **B Sc Artificial Intelligence and Machine Learning (AIML) and Cybersecurity**
25. **B Sc Marine Sciences with Maritime Law and Policy**
26. **B Sc Marine Chemistry and Pollution**
27. **B Sc Psychology with Cognitive Science**
28. **B Sc Forensic Science with Forensic Psychology**
29. **B.Arch. in Sustainable Design and Green Building**
30. **B Sc Interior Design with AI**
31. **Bachelor of Sports Science with Mental Skills Training**
32. **Bachelor of Sports Medicine with Exercise Physiology and Nutrition**
33. **Bachelor of Sports Management and Administration**
34. **Bachelor of Journalism with International Journalism**
35. **Bachelor of Design (Digital & Interactive Design)**
36. **B.A. Rural Development and Development Studies**
37. **BA Modern Languages with Digital Technology**
38. **Bachelor of Financial Markets (BFM)**
39. **B. Sc Anthropology / Visual, Material and Museum Anthropology**
40. **Bachelor of Audiology & Speech Language Pathology (BASLP)**
41. **B Sc Food Science and Quality Control with Food Engineering and Processing**
42. **B Sc Ayurvedic Pharmacology and Herbal Medicine**

b) Courses with Multiple Specialization (integrated courses of 5-year duration)

Combination of BA/BSC/BBA/BTech with a degree in Law, Medicine, technology, etc.

Examples

BSc < any discipline> LLB

BTech <any discipline> LLB

Integrated BTech MBA Program

Integrated BBA-MBA program

Integrated BA-LLM Program

Integrated BSc < discipline> and MA/MSc in Economics

Integrated MTech Program

(These programs have to be offered subject to approval of such titles by UGC or other regulatory bodies)

Transformative Courses

These are new courses that focus on the need to create talent for the Digital Economy. These courses can be in Bachelor of Science, Technology, or Arts but focus on the sector's digital transformation. This can also be offered as a master's program. Some of the courses are listed below

a) Language Technologies
b) Judicial Technologies
c) Media Technologies
d) Informatics
e) Health and Wellness Technologies
f) Financial Technologies

Graduate and Post Graduate Programmes in the following subjects may also be preferred:

1. **Epidemiology**
2. **AI in Finance and Fintech**
3. **Virology**
4. **Fish Farm Management**
5. **Soil Science and Soil Management**
6. **Crop Science and Plant Physiology**
7. **Agroecology**
8. **Immunology**
9. **Biological Data Management**
10. **Medical Documentation**

11. **Climate Monitoring and Flood Management**
12. **Plantation Management**
13. **Food Quality Assurance**
14. **Natural Resource Management**
15. **Tropical Ecosystem Management**
16. **Organic Farming**
17. **Nanoscience with Nanoelectronics and Quantum Computing**
18. **Computational Nanoscience and Modeling**
19. **Organic Pest and Disease Management**
20. **Health, Safety, Environmental (HSE) Management**
21. **Fire & Safety Management**
22. **Science Policy Studies**
23. **Renewable Energy Engineering and Robotics**
24. **Bioinformatics**
25. **Artificial Intelligence**
26. **Disaster Management**
27. **Criminology**
28. **Information Sciences**
29. **Planning and Budget Studies**
30. **Social Statistics**
31. **Development Studies**
32. **Rural Management**
33. **Migration Studies**
34. **Government Studies**
35. **Public Policy Studies**
36. **Local Governance**
37. **Museology**
38. **Material Culture Studies**
39. **Critical Heritage Studies.**

Post Graduate Programmes

M Sc Clinical Nutrition and Food Science

M Sc Geology/Petroleum Geology/Geography

M Sc Statistics/Data Analytics

M Sc Artificial Intelligence and Robotics

M Sc Planetary Science and Geology

M Sc Spacecraft Design and Technology

M Sc Space Medicine and Human Spaceflight

M Sc Geriatric Medicine and Physical Therapy

MA Economics/Econometrics with International Economics and Trade

MA International Relations and Politics

MA Archeology and Material Culture Studies

MA Global History

MSW Disaster Management

Master of Fashion Technology with AI

Master of Urban Design (MUD)

Master of Science in Data Analytics

M Sc Artificial Intelligence and Robotics

M Sc Data Analytics

M Sc Oceanography and Climate Change

M Sc Phytopharmacology and Toxicology

M Sc Wildlife Ecology and Management

M Sc Gender Studies and Sexuality

M Sc Energy Materials and Sustainable Development

M Sc Disaster Management and Resilience

MA Archeology and Material Culture Studies

Engineering Degree Programmes

1. Educational Technology
2. Wireless Communication and Networking
3. Data Analytics in Education
4. Financial Technology (FinTech)
5. Health Sciences Technology with Telemedicine
6. Agricultural Engineering with AI
7. Drone Design and Engineering
8. Human- Machine Interaction
9. Smart Sustainable Development
10. Next Generation Infrastructure
11. Product & System Design
12. Energy & Environmental Engineering
13. Engineering Innovation & Entrepreneurship
14. Media Engineering & Technology

15. Offshore Engineering and Offshore Structures
16. Marine Operations and Navigation
17. Computer Science and Engineering – AI

Also suggesting some **PG Diploma** courses

1. PG Diploma in Digital Cinematography
2. Diploma in game design
3. Organic Certification and Standards
4. Memory Disorders and Dementia Care
5. AI and Climate Change
6. Astrobiology and Exoplanet Science
7. Drones for Irrigation and Water Management
8. Ayurvedic Pharmacy

It would be beneficial to establish programs in partnership with foreign universities, allowing students to earn a Bachelor's degree from a Higher Education Institution in Kerala and a Master's degree from a foreign university in the field of engineering or science or B. Tech / B Sc from higher education institution in Kerala and MS degree from foreign University. It's like 3+1; 3+2; 4+1 Integrated Master's Program with foreign universities.

1. **Artificial Intelligence (AI) and Data Science (Medical Engineering)**
2. **Aerospace Engineering**

Fostering demand for interdisciplinary courses and collaborating with foreign universities is crucial for enhancing students' global perspectives and academic experiences. Institutions should also consider innovative educational formats to achieve this goal. Collaborative programs with foreign institutions, such as 3+1, 3+2, or 4+1 formats, can be effective in this regard. In a 3+1 format, students typically complete three years of their undergraduate studies at their home institution and then spend one year abroad at a partner university. This immersive experience allows students to gain international exposure, develop cultural competence, and access resources and expertise not available at their home institution. The 3+2 model involves three years of undergraduate study and two years at a foreign university. This format allows for deeper engagement with international academic environments, potentially leading to dual degrees or specialized qualifications. The 4+1 option extends the academic journey by incorporating four years of undergraduate study at the home institution, followed by one year abroad. This format provides students with a comprehensive educational foundation before they embark on an enriching international experience. Through these collaborative formats, institutions can offer students the opportunity to broaden their horizons, engage with diverse

perspectives, and cultivate valuable skills for success in an increasingly interconnected world. Such partnerships can also facilitate knowledge exchange, research collaboration, and cultural enrichment across borders for students and faculty.

Resolved to approve the report with modifications and forward the same to the government.

Item No. 3. AICTE Approval of BBA/ BCA/ BMS Courses.

Resolved to prepare a report on the implications of AICTE approval / takeover of BBA/ BCA/ BMS Courses on qualification/ workload of teachers in existing departments / colleges functioning under UGC norms.

Item No. 4 Advisory Body meeting – Proposals for further action.

The meeting discussed the details of actions to be taken on the Minutes of the 1st Advisory Body Meeting of the KSHEC (4th Council) held on March 5, 2024.

After detailed discussion the following decisions were taken.

1. **Decided to request the government to utilize the plan funds earmarked for universities for e-journals to sustain the e-journal consortium under KSHEC.**
2. **Resolved to constitute a committee to formulate details of the Higher Education Fund under the chairmanship of Dr. Saji Gopinath with the following members.**
    a. **Dr. Jiju P Alex (Member Planning Board)**
    b. **Dr. Ramkumar (Member Planning Board) and**
    c. **Member Secretary, KSHEC as Convenor**
3. **Resolved to organise FDP programme in Generative AI for Teachers in Higher Education in collaboration with Digital University of Kerala.**
4. **Resolved to constitute an expert committee for performance evaluation of state universities under the chairmanship of Prof. P. Balram (IISc, Bangalore) with the following members.**
    a. **Dr. K. P. Mohanan (Former Professor, MIT and NUS)**
    b. **Dr. Gangan Prathap (Former Vice Chancellor, CUSAT)**
    c. **Dr. Ranganathan H Annagowda ,(Visiting Professor,** Centre for Human Genetics, Biotech Park, Electronic City Phase 1, Bangalore 560 100)
    d. **Prof. E. D. Gemmis (Professor, Chemistry, Indian Institute of Science, Bangalore)**
    a. **Dr. Sabu Thomas (Former Vice Chancellor, Mahatma Gandhi University)**
    b. **Prof N. J. Rao, Professor, CEDT , (Centre for Electronics Design, and Technology, IISc, Bangalore).**
    c. **Prof, Rajan Gurukkal, (Vice Chairman, KSHEC) (Co Chair)**
    d. **Dr. Rajan Varughese (Member Secretary, KSHEC (Convenor)**
5. **It was resolved to organise workshop for all universities / colleges in connection with the formulation of Institutional Development Plans (IDP).**
6. **It was resolved to launch the Study in Kerala programme in the month of June/ July 2024.**
7. **It was resolved to request the government to permit students from other states / countries to participate in Kerala Engineering Architecture Medical (KEAM) entrance examination for admission to universities / colleges in the state.**

It was decided to take up other matters in the Advisory Body minutes in the next Executive Body meeting.

Item No. 5. Starting of Centres of Excellence under KSHEC.
After discussion it was resolved to approve the proposal for all the following seven centres of Excellence under KSHEC and forward the same to the government for further action in the matter.
KSHEC - Centres of Excellence in Higher Education and budget requirements.

SI No	Name of the Centre	Requested Budget in lakhs
1	Centre of excellence for Teaching, Learning and Training	200
2	Kerala Institute for Science, Technology, and Innovation (KISTI)	300
3	Kerala Institute of Advanced Studies (KIAS)	150
4	Kerala Network for Research-Support in Higher Education – (KNRSHE)	150
5	Centre for Indigenous People's Education (CIPE)	120
6	The Kerala Institute for Gender Equality (KIGE)	120
7	Kerala Language Network	100
Total		1140

Proposal for Establishment of KSHEC - Centres of Excellence in Higher Education
Head of Account – [XVII] 2202-03-103-48-Plan
Budget Provision: 1140 Lakh

Summary of the project:

The Centre of Excellence (CoE) refers to an autonomous institution established in KSHEC under the department of higher education with the intention of improving the quality of research ecosystem and knowledge management in the identified sector. The COE should focus on a particular field of study, research or practice. It is to be designed to be as a hub of expertise, innovation and collaboration within that specific area. A CoE should bring together faculty members, researchers, students and industry partners to advanced knowledge, develop cutting edge research, provides specialized education and training and contribute the overall academic and professional activity of the state.

The COE should have sufficient financial autonomy to take decisions which are in the best interest of the institution. The COE should act as a model for governance for the university system. The COE should have assured and timely flow of funds, and should be provided with block grants, to enable them to set up and sustain major new facilities. Budget for CoE would, obviously, vary according to the nature of work carried out and the domain involved. For most life science-related CoE, a budget of between Rs. 5 and Rs. 20 crores should be adequate over

a period of 5 years. The final amount of funding will be approved based on the institutional development plan submitted by the CoE after its establishment. These funds should be acquired by these team members through external project funds.

Each CoE must onboard a maximum core team of 5 members like faculty/ faculty fellows/ Research faculties etc initially excluding the director to work on the purpose of the CoE. The core team should formed with the members who are recognized nationally and internationally for their contributions to their areas of research. The COE may also on board post-doctoral fellows and research scholars at any given time. Apart from this they can also hire part time /full time technical /administrative support for the operation and maintenance of the center. The most crucial element of CoE constitute the human resource component. it is difficult to create permanent f positions under our current system. One of the ways of circumventing this is to create a limited number of core faculty positions under **project mode or deputation**, and the rest as contract positions.

The Proposed Centers of excellence are to be governed by the KSHEC and may include representatives of state government, Universities and research institutes.

Each CoE have to host excellent human resources in their fields, who will carry out high class research, as well as work in collaboration with the university faculty and students, providing opportunities for collaboration and sustained guidance.

Based on the recommendations of The higher education reforms commission has recommended many areas in which centre of excellence (CoE) have to be developed in the state to have quality research and developments. Based on this KSHEC identify the 7 specific field/discipline in which the CoE need to be established in the first phase. These 7 centres of excellences are listed below

DETAILED PROJECT REPORT OF SEVEN –KSHEC CENTERS OF EXCELLANCE

KSHEC-CoE I Centre of excellence for Teaching and Learning and Training

Vision Statement: The Centre of excellence for teaching and Learning and Training is a place where the university faculty, staff, students, and community members work in a collaborative environment to create rich, engaged learning and teaching experiences; the Centre increases student success, builds vital community partnerships, and invites individuals to become members of an intellectually diverse, active learning community. This centre will organise regular training to teachers in curriculum design, syllabus preparation as well as evaluation strategies with special attention to continuous internal assessment techniques

I Introduction.

There is need for establishing a well-equipped training centre for curriculum development and training. Regular training sessions shall be conducted by the centre for the benefit of Teachers and Administrative personnel on all aspects of Academic and Examination responsibilities of the University. Periodic training for selected personnel designated as master trainers (from the Academic, Administrative and Student community from affiliated colleges) shall also be conducted by the centre on specific topics. At present, the mandatory orientation and refresher courses for teachers do not serve any purpose

This will also be act as a Centre for Excellence in Curricular development and engagement. It will be a place where the University faculty, staff, students, and community members work in

a collaborative environment to create rich, service/engaged learning and teaching experiences; Thus, this centre will contribute to significant increases in student retention and graduation rates and thus it will contribute to the significant quality improvement in the higher education institutions of the state.

II Centre Administration:

A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Responsible administrator of the Centre: Kerala state Higher Education Council

Centre Director: Nominated by the government.

The Centre will be led by the director and staffed by an administrative assistant and two office assistant and supported by the required number research assistants and research officers.

III Proposed major activities of the Centre.

(i) Faculty development

The Centre will provide more systematic support for new and veteran faculty, both full-time and adjunct, thus allowing for more productive academic experiences for our students. While individual colleges and initiatives have assisted in various ways in the area of faculty development, the Centre will systematically coordinate a comprehensive support mechanism.

In addition to effectively and systematically implementing a model for faculty professional development, the Centre will:

- Provide opportunities for faculty development in terms of pedagogical best practices and instructional design (workshops, training, etc.)
- Develop comprehensive mentoring programs for all faculty
- Provide grant support and workshops for faculty and staff, especially in regards to grants enriching collaborative opportunities with the community
- Provide support for engaged and service-learning initiatives and opportunities
- Provide training and support for e-learning, best practices and technological developments.

(ii) Student Leadership

The Centre will reflect and provide opportunities for enacting the fundamental commitment an HEI to faculty/staff/student "co-creation" across all disciplines and services. This not only provides student leaders on campus, but invaluable experience for students of all disciplines upon graduation in their work place. In addition, this fully integrates knowledge-making opportunities capable of providing greater perspective and potential transformative initiatives, as students are empowered to learn and employ increasing levels of responsibilities within each of the Centre's service areas.

In addition to establishing a focal point (leading to a systematic network across campus) for the provision of a continuous stream of knowledgeable and experienced student leaders, the Centre will work to formalize a developmental model and support the participation of more students within its service areas (i.e. advising, tutoring). With greater capacity to work with more students in this developmental fashion, the Centre will be able to provide more

comprehensive and more consistent support to faculty and to related units across institutions; it will also coordinate and collaborate with academic units as it aids those units areas of specific curricular need and concern. The Centre will also be able to provide leadership in regional and state efforts to investigate and create best practices and infrastructure for student leadership in curricular engagement

(iii) Learning Outcomes/Assessment Development

The Centre will assist in the continued (and necessary) integration of service experiences with academic material (both in terms of Centre-provided activities and coordination of disciplinary engagement with the broader community). The Centre will also assist faculty in the development of academically sound, empirically-validated models promoting student learning through the integration of critical reflection and assessment. Its dedication to engaged, experiential, and service-learning initiatives will assist faculty in the implementation of such models and support the use of these models in related experiential, community-based teaching and learning venues (including within activities provided by the Centre).

As part of this the Centre will:

- Expand faculty development offerings related to reflection and assessment (including through collaborative research on student learning outcomes with groups such as the General Education Curriculum Task Force, etc.)
- Provide faculty with access to reflection and assessment tools for use with their own students and in their own scholarship
- Provide support and training in best pedagogical practices, both in traditional and online venues, supported by (and informing) assessment initiatives
- Support faculty and programs in ongoing reflection and assessment for curricular development generally

IV Broad Estimations Cost of New Campus with justifications

An amount of Rs. 400 lakhs may be required during 2024-25 for the implementation of the above mentioned activities which includes the cost of establishing a transit campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre.Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 200 lakh for the time being for starting the activities of this Centre

Split-up details are shown in the table given below:

SI NO	**Centre of excellence for Teaching Learning and Training**	In lakhs
1	Salary expenses	14
2	Expenses for project support and implementation	170
3	Monthly activity	10
4	Contingencies& mislilanious expenses	10

	Total amount required for the centre of excellence for teaching learning and training	**200**

Salary expenses
The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGC. The required faculty/staff may be recruited on tenure/project mode basis in project mode.

Project support and training
This estimation is based on the total requirement proposed activity of curriculum development including recurring and non-recurring expenditures as per the prevailing rates which includes proposed variety of fellowships, scholarships, grants and awards in the area of curriculum development and faculty empowerment etc. The rate are fixed as per the existing norms of the UGC/CSIR/DST etc.

Monthly activity including Travel
These expenses are related to printing & stationery, water charges, internet charges, postage, advertising and publicity, travelling and conveyance, Training, committee Meetings, other administrative expenses and contingencies.

Contingencies and other miscellaneous activities
This amount will be paid at actuals as an when the expenditures occur.

KSHEC- CoE II Kerala Institute for Science, Technology, and Innovation (KISTI)

Vision: To establish a leading institution in scientific research, learning, and engagement that facilitates innovation, embraces inclusion and sustainability.

Introduction
This Project aims to develop a major international centre of excellence for advanced scientific research as a cooperative venture by the government of Kerala and the scientists, technologist and philantrophers of Kerala origin to be established with public-private partnership. This institute will be developed as an autonomous institution under KSHEC and will be located at the centre part of Kerala. Kerala needs to create a critical mass of people in emerging areas such as alternate fuels and waste management, nanotechnology, advanced materials, systems biology, big data analytics, robotics, energy engineering, electric mobility, net zero, artificial intelligence, sustainability, climate modelling, computational physics, structural biology, etc., with which universities and colleges can establish linkages for growth. The goal in establishing such an institution is to ensure that our universities and colleges are staffed with quality human resource in these cutting-edge areas. Such a state-of-the-art and future-focused institute needs to be established for the principal objectives of creating new knowledge and highly skilled manpower and appropriate translation of some of the finding in specific areas of relevance leading to a future Kerala. The vision for the structure of such a centre is drawn from the models and experiences of similar institutions in different parts of the world, such as the Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, and Institute for Advanced Study, Princeton, and National Institute for Materials Science, Tsukuba and others

II Centre Administration:

A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Centre Director: Nominated by the government.

The Centre will be led by the director and administered and administrative assistant and office assistant supported by the required number research faculties, Research assistants and research officers, post-doctoral associate etc. Recruitment at KISTI will be directed at attracting the best early career talents globally and retaining them, utilising both the existing schemes as well as innovative ones. Initial appointment of all research faculty should be under tenure for 5 years.

III PROPOSED ACADEMIC DIVISIONS OF KISTI AND THEIR FUNCTIONS

It is recommended that academic activities at KISTI be carried out under the aegis of various academic divisions classified under the following heads:

- Departments;
- Centres of Research;
- Academic Service Facilities/Units.

It is suggested that the primary functions of Departments may be:

Disciplinary and inter-disciplinary teaching at the integrated PG and Pre-Ph. D. levels;

- Academic research including guiding PG Projects and Ph. D. theses;
- Curriculum and laboratory development;
- Offering of continuing education programs for working professionals and the development of learning resource material; and
- Sponsored R & D and consultancy practice.

It is suggested that the primary functions of Centres of Research may be:

- The development and transfer of technology, products and processes in well-defined areas through group effort in collaboration with allied departments;
- Participation in teaching and research programs in domain-specific academic programs offered by complementary departments;
- Conduct mission-oriented time-bound projects sponsored by industry, user agencies and S&T funding agencies;
- Collaborate with faculty of complimentary departments in the guidance of PG Projects and Ph. D. theses in topics of technology development;
- Collaborate with faculty of complimentary departments in offering continuing education programs for working professionals to disseminate cutting-edge technical know-how;
- Undertaking industrial consultancy projects.

It is suggested that the primary function of Academic Service Facilities / Units shall be

To provide and manage a specific academic service needed by more than one department /centre. Such a facility / unit may be a constituent unit of a department or a Centre of Research or it may be an independent unit.

Sl No	**Kerala Institute for Science, Technology, and Innovation (KISTI)**	Amount in lakhs
1	Salary	20
2	Research facilities/labs and other implementation costs	140
	Project and other activities	80
3	Scholarships	60
Total amount required for the **Kerala Institute for Science, Technology, and Innovation (KISTI)**		300

It is recommended that at its inception the Institute has the following independent Academic Service Facilities/Units:

- Central Library;
- Computer Centre;
- Workshop;
- Virtual Learning Centre;
- Classroom Complex; and
- Conference Centre-cum-Auditorium.

One of the major thrust area of this centre could be sustainable and alternate fuels and solid waste management. This Centre will collaborate with the academic researchers & faculties at various universities and research institutes in the country, industries and reputed laboratories for creating new knowledge and translating theminto cutting-edge technologies for the development of the state. The institution should aim to establish national and international linkages with the best institutions, and may be, in the initial period, be mentored by an institution of repute, such as Indian Institute of Technology, Madras or JNCASR.

IV Estimations of Recurring Cost of New Campus

IV Estimated Cost of the centre

An amount of Rs. 500 lakhs may be is required during 2024-25 for the implementation of the above-mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 300 lakh for the time being for starting the activities of this Centre**

Split-up details are shown in the table given below:

Employees Remuneration

The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGG. The required faculty/staff may be recruited on tenure/project mode basis in project mode.

Scholarships:
The institute proposes to offer a variety of fellowships, scholarships, Research associate ships, grants and awards in the area of science and technology. The rate are fixed as per the existing norms of the UGC/CSIR/DST etc.

Research facilities:
This institutes need to create various central research facilities/Units with sophisticated equipment's etc. This estimate is based on the minimum requirements for setting up an R& D lab.

Project development cost
The Centre has to organise workshops, conferences and other academic activities on their campuses as well as other university and college campuses in the state . This has led to the development of human resources in the universities, and has helped to attract new talent to the universities, and has also made an impact on teaching, curriculum development, and creation of new facilities in the universities and colleges

KSHEC-CoE III: Kerala Institute of Advanced Studies (KIAS)– A Centre of excellence for advanced research in social science and humanities

Vision: With the aim of forging new directions to scholarship in social sciences, humanities, languages and arts it is being proposed to set up an independent **Kerala Institute of Advanced Studies (KIAS).**

Introduction:
Kerala Institute of Advanced Studies (KIAS), which would be dedicated to advanced studies and research in Kerala's history, society, economy, and cultural practices. To be set up in Idukki or in any other similar scenic location, the KIAS is conceived as a fully residential institute, a place of intellectual retreat and a meeting ground for established and budding scholars to work on areas of their choice and aimed at the publication of works that would make important contributions to the scholarship on Kerala and allied/related subjects.
Modelled on the Indian Institute of Advanced Study (IIAS) in Shimla, and the Institute of Advanced Study in Nantes, the KIAS shall bring in scholars in social sciences, humanities, languages, arts, and culture, by application and invitation, to work on priority/innovative areas of their choice. While most of these subject areas may preferably be Kerala-related, it is best that there is no exclusion of larger social, philosophical, and cultural concerns. The scholars, again, shall not be limited to ones of Kerala origin but should be drawn nationally and internationally. The community of KIAS must be a microcosm of the international social sciences and humanities academia.

II Centre Administration:
A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Responsible administrator of the Centre: Kerala state Higher Education Council
Centre Director: Nominated by the government.

The Centre will be led by the director and administrative staff / administrative assistant and office assistant supported by the required number research faculties, Research assistants and research officers, post-doctoral associate etc. Recruitment at KISTI will be directed at attracting the best early career talents globally and retaining them, utilising both the existing schemes as well as innovative ones. Initial appointment of all research faculty should be under tenure for 5 years

III Proposed major activities of the Centre

KIAS can offer 20-30 residential fellowships each year of the duration of 10-12 months. Among these, at least three fellowships must be designated as **Fellowships of Eminence** to be offered by invitation to eminent scholars or practitioners with substantial contribution in their fields; their presence at the Institute must be akin to that of mentors, even as they engage in their own work. Four to five fellowships – **Young Scholars Fellowships** – must be reserved for promising younger scholars below the age of 35 years. The rest must be **Senior Fellowships** for university/college faculty and independent researchers with a proven track record of work and publications.

Serving academics can come to the institute on deputation/extra-ordinary leave/sabbatical leave with their salaries and benefits protected and independent/younger scholars can be paid fellowships commensurate with their age and experience. Scholars in residence may also be afforded use of the KIAS's facilities for organising workshops and seminars with additional financial support. In addition, the institute may also conceive of a small number of short-term collaboration fellowships, open to small teams of not more than five people, to undertake collaborative work on an academic or artistic project.

IV Estimated Cost of the Centre

An amount of Rs. 500 lakhs may be is required during 2024-25 for the implementation of the above mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 150 lakh for the time being for starting the activities of this Centre**

Split-up details are shown in the table given below:

.SI NO	**Kerala Institute of Advanced Studies (KIAS)**	amount in lakhs
1	Employees Remuneration	10
2	Project development costs	100
3	Scholarships/fellowshisps	40
	Total amount required for Kerala Institute of Advanced studies (KIAS)	150

Employees Remuneration
The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGC. The required faculty/staff may be recruited on tenure/project mode basis in project mode.

Project development cost
The centre has to organise workshops, conferences and other academic activities on their campuses as well as other university and college campuses in the state. This has led to the development of human resources in the universities, and has helped to attract new talent to the universities, and has also made an impact on teaching, curriculum development, and creation of new facilities in the universities and colleges.

Scholarships:
The institute proposes to offer a variety of fellowships, scholarships, grants and awards in the area of curriculum development and faculty empowerment etc. The rate are fixed as per the existing norms of the UGC/CSIR/DST etc.

KSHEC-CoE IV : Kerala Network for Research-Support in Higher Education – (KNRSHE)

Vision: This network centre is to handhold and assist teachers and researchers, particularly in colleges, to keep the momentum of fund-writing encourage them to mobilise research funds from various agencies including private sources for creating research infrastructure and to support them to conduct research. Assist the researchers with grant for research equipment maintenance. To promote networking among different grantee agencies at local levels and to avoid duplication of research infrastructure (RI), a consortium mode of approach with academia, research institutes, nongovernment organizations, S&T councils and industries belonging to the same domain that lie in various location (with in one or two districts) on mutually agreeable terms of conditions. It also envision to establish central instrumentation and academic computational facilities for the benefit of the researchers if the state

I. **Introduction:**

The KNRSHE center will provide optimal state level infrastructure facilities through networking / cluster mode. Prominently it will provide a shared, professionally managed services and strong Science and Technology RI / facilities, with efficiency, accessibility and transparency of highest order under one roof to service the demands of faculty, researchers, scientist and students of Host and User institutes / organizations (including other academic institutes, universities, national laboratories, start-ups, manufacturing and engineering industries, SMEs, R&D Labs/organization) to enable them to carry out R&D activities.

KNRSHE is envisioned as an umbrella institute with a lot of associated sub centres attached to this. All research centres/individual departments having potential research facilities/units situated in various universities, colleges and other research labs etc are eligible to be recognised as an associate sub centre of KNRSHE.

All the faculties and research facilities available under these associated sub centres will be listed under the common pool of KNRSHE. These facilities will be made available to the associated members through KNRSHE. KNRSHE will be provides an annual research

maintenance grant to keep these facilities live and also provide special assistance and funds to the up gradation/maintenance/repairs of the existing facilities.

II. Major aims and Programs of KNRSHE

(A). Aims

1. To expand and establish the pool of research-aware and research-oriented college/university teachers and researchers in the state of Kerala on different disciplines.
2. Removing barriers and providing incentives for capacity building in research and evaluation to the college/university teachers at all levels of research experience
3. Providing a forum to promote collaborative research
4. Developing research infrastructure to support the professional interests of the individual and to enhance corporate knowledge
5. Facilitating the integration of research and industry
6. Assistance for research funding
7. Organise Capacity building programs for research support
8. Establishing Central instrumentation laboratories (CIL)
9. Establishing Central academic computing facilities (CACF)
10. Establishing a Central network for research facilities (CNRF)
11. Establishing a Patent Facilitation Centre (PFC)

(B). Proposed major activities of the Center

(a) Assistance for research and funding

Kerala network for Research support in Higher education (KNRSHE) should assist institutions. Research centres and researchers to reach out to private and government sources for research funding by

a) Attracting corporate and philanthropic entities for core-funding of new or existing research institution
b) Creating a mechanism for attracting and channelizing large scale corporate funding in to research projects
c) Bringing greater partnership between research institution (including universities) and industries
d) Offering research facility for qualified researchers for guiding students towards PhD.
e) Supporting research centres with instrument maintenance grants and special assistance for equipment repair

(b) Capacity Building Programs

1. Workshops on specialized topics (1-2 weeks)
2. Short-Term projects for undergraduate/postgraduate students (1-3 months)
3. Training Visits for doctoral Students, Post-doctoral fellows and faculty (1-3 months)
4. Summer/Winter Schools on specialized topics (1-2 months)

5. One-day visits of undergraduate/postgraduate students to the research laboratory/ infrastructure facilities within the network.

(c) Central instrumentation laboratories (CIL)

KNRSHE is proposed to establish a central facility with state-of-art sophisticated analytical instruments to cater to the needs of the faculty and research scholars with in the state. These central instrumentation laboratories (CIL) will also establish common shared network facilities of sophisticated instruments from the networked institution which can be accessible to the members of the network. KNRSHE will provide annual maintenance support for these instruments based on the proposal submitted by the institutions after an expert evaluation.

It is being proposed to establish the following common facilities in due course of time with the following instruments the list of instruments and it priority will be decided based on the request from the researchers in the network Scanning Electron Microscope, Circular Dichroism (CD) Spectro polarimeter, X-ray Diffractometer (XRD) ,Confocal Laser Scanning Microscope ,Electron Spin Resonance (ESR) Spectrometer ,Vibrating Sample Magnetometer (Lakeshore 665)Fluorescence Spectrophotometer, Amino Acid Analyzer, Protein Sequencer, Differential Scanning Calorimeter, chemical synthesis facilities etc mechanical electrical and electronic workshop facilities etc

(d) Central academic computing facilities (CACF)

KNRSHE proposed to establish a central academic computing facility in order to make high end computational resources including various computational software's available to the higher education institutions in Kerala. A state wide licence for the use of computational resources should be provided This centre may be established at a place where required Physical infrastructure with excellent network and reliable power with proper backup is available.

(e) Central network of research facilities (CNRF)

KNRSHE proposed to establish a Central network of research facilities (CNRF) which will be central electronic network of research facilities including the instrumentation facilities and laboratory facilities available in each Higher education institution which will be accessible for common use by the members of the network on a reasonable rate. The income generated through this can be utilised by the institution for the maintenances of these facilities. In addition KNRSHE will provide annual maintenance support for these facilities based on the proposal submitted by the institutions after an expert evaluation.

(f) Patent Facilitation Centre (PFI)

KNRSHE proposed to establish a Patent Facilitation Centre (PFI) for creating awareness and extend assistance on protecting Intellectual Property Rights (IPR) including patent, copyright, geographical indication etc. at state level., This centre will liable to provide assistance to the inventors from Govt. organizations, State Universities, and other R&D centres for patent searches to find out the potential and assessment of the invention.

III. **Center Administration:**

Kerala Network for Research-Support in Higher Education - KNRSHE to be established under the KSHEC to handhold and assist teachers, particularly in colleges, to keep the momentum of fund-writing. KNRSHE could have many recognised sub centres as well.

A proper institutional structure under KSHEC is to be established for the effective administration of this center of Excellence. Following administrative structure is being proposed for the effective administration of the Center.

Responsible administrator of the Center: Kerala state Higher Education Council
Center Director: Appointed by the government.
The Center will be led by the director and staffed by an administrative assistant and office assistant supported by the required number faculties, Research assistants.

IV Estimated Cost of the Centre

An amount of Rs. 500 lakhs may be is required during 2024-25 for the implementation of the above-mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 150 lakhs for the time being for starting the activities of this Centre**

Split-up details are shown in the table given below:

SI NO	Budget category	Budgeted amount in lakhs
1	Salary expenses	10
2	Expenses for project support and grants	120
3	Monthly activity	10
4	Travel and other mislilanious expenses	10
	Total	150 lakhs

KSHEC-CoE V: Centre for Indigenous People's Education:

Vision: This a special Centre to pay special focus on participation of indigenous students in higher education and to ensure their right to equal access to various opportunities to develop a culture-based educational programs which are appropriate, relevant and meaningful to their life and culture.

Introduction:

The higher education commission has pointed out several issues regarding the participation of indigenous people to the field of higher education. Most often, seats for Scheduled Tribe students in higher education programmes are left unfilled, there is a substantial drop-out rate, and indigenous students confront severe difficulties in pedagogic transactions, access to

facilities and cultural adjustment. To address this situation, the Commission proposes that the Government set up a Centre for Indigenous People's Education, with the active presence in both governance and activities of indigenous people. This proposed Centre is proposed to be established as a joint venture of higher education department and tribal welfare department. This Centre may be integrated with the Calicut University Centre for tribal studies at Wayanad

II Centre Administration:

A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Responsible administrator of the Centre: Kerala state Higher Education Council.

Centre Director: Nominated by the government.

The Centre will be led by the director and administrative assistant and office assistant supported by the required number research faculties, Research assistants and research officers, post-doctoral associate etc. Recruitment at KISTI will be directed at attracting the best early career talents globally and retaining them, utilising both the existing schemes as well as innovative ones. Initial appointment of all research faculty should be under tenure for 5 years.

III Proposed major activities of the Centre

- **Studies and research on indigenous people's education**, which shall be directed at identifying core problems in the participation of indigenous students in higher education and suggesting solutions;
- **Creation of a team of counsellors,** especially graduates and postgraduates, from among the indigenous people to aid and support to prospective and existing indigenous students by way of information and guidance;
- **Creation of an information network** for guidance on prospective courses and employment, which can be accessed by indigenous students both online and offline;
- **Workshops on higher education** for indigenous students to provide them with information and skill sets for participation in higher education;

IV Estimated Cost of the centre

An amount of Rs. 300 lakhs may be is required during 2024-25 for the implementation of the above-mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 120 lakh for the time being for starting the activities of this Centre**

Split-up details are shown in the table given below:

SI NO	**Centre for Indigenous People's Education**	amount in lakhs
1	Employees Remuneration	8
2	Project development costs	90
3	Scholarships	22
	Total amount required for **Centre for Indigenous People's Education**	120

Employees Remuneration
The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGC. The required faculty/staff may be recruited on tenure/project mode basis in project mode

Project development cost
The Centre has to organise workshops, conferences and other academic activities on their campuses as well as other university and college campuses in the state. This has led to the development of human resources in the universities, and has helped to attract new talent to the universities, and has also made an impact on teaching, curriculum development, and creation of new facilities in the universities and colleges

Scholarships:
The institute propose to offers a variety of fellowships, scholarships, grants and awards in the area of curriculum development and faculty empowerment etc. The rate are fixed as per the existing norms of the UGC/CSIR/DST etc.

KSHEC- CoE VI: The Kerala Institute for Gender Equality (KIGE)

Vision: The Kerala Institute for Gender Equality (KIGE) is envisioned as an institute working to make gender equality a reality in the country and beyond. For this, it provides research, data and good practices

Introduction
Its ultimate goal of this in statute is to redress inequalities in policies, services and public interventions. To put this into practice, KIGE will create a platform on gender mainstreaming with step-by-step guidance. Gender mainstreaming involves applying a gender equality perspective in each phase of the policy-making cycle as well as all areas within policies and processes such as procurement or budgeting. It will Share its knowledge and online resources and supports created through active research to the state institutions, to other states in our country and stakeholders from many different fields in their efforts to address gender inequalities in India and beyond.

The main objective of the institute is to foster interdisciplinary and trans disciplinary research and publications into all aspects of gender studies and networking with the existing departments and other centres of gender studies. The Gender Park at Kozhikode, under the Department of Women and Child Development, Government of Kerala, has an International Institute for Gender and Development (IIGD) that engages in solution-based knowledge management. This can be integrated with the proposed Institute of Gender Equity so as not to duplicate efforts and resources and to ensure proper networking and co-ordination of academic/research efforts and policy initiatives.

II Centre Administration:
A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Responsible administrator of the Centre: Kerala state Higher Education Council
Centre Director: Nominated by the government.
The Centre will be led by the director and administrative assistant and office assistant supported by the required number research faculties, Research assistants and research officers, post-doctoral associate etc. Recruitment at this Centre will be directed at attracting the best early career talents globally and retaining them, utilising both the existing schemes as well as innovative ones. Initial appointment of all research faculty should be under tenure for 5 years

IV Estimated Cost of the centre
An amount of Rs. 300 lakhs may be is required during 2024-25 for the implementation of the above-mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 120 lakh for the time being for starting the activities of this Centre**

Split-up details are shown in the table given below:

SI NO	**The Kerala Institute for Gender Equality (KIGE)**	amount in lakhs
1	Employees Remuneration	08
2	Project development costs	90
3	Scholarships	22
	Total amount required for **The Kerala Institute for Gender Equality (KIGE)**	120

Employees Remuneration
The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGC. The required faculty/staff may be recruited on tenure/project mode basis in project mode

Project development cost
The Centre has to organise workshops, conferences and other academic activities on their campuses as well as other university and college campuses in the state. This has led to the development of human resources in the universities.
Scholarships:
The institute propose to offers a variety of fellowships, scholarships, grants and awards in the area of curriculum development and faculty empowerment etc. The rate is fixed as per the existing norms of the UGC/CSIR/DST etc.

KSHEC –CoE VII : Kerala Language Network (KLN)

Vision: This network will contribute to the creation and translation of knowledge texts into and from Malayalam and other spoken languages, linguistic research on Malayalam and other modern Indian languages and its regional varieties and languages of minority groups (many of which remain genealogically unclassified, unassessed for their linguistic vitality, linguistically undocumented, and highly underdeveloped even today

Introduction: **Kerala Language Network (KLN)** that shall undertake various initiatives for the development of various languages including Malayalam as a language of knowledge. It is a dynamic institution promoting languages and celebrating cultures. This will offer various level of training in foreign languages as well.

II Centre Administration:

A proper institutional structure under KSHEC is to be established for the effective administration of this Centre of Excellence. Following administrative structure is being proposed for the effective administration of the Centre.

Responsible administrator of the Centre: Kerala state Higher Education Council

Centre Director: Nominated by the government.

The Centre will be led by the director and administrative assistant and office assistant supported by the required number research faculties, Research assistants and research officers, post-doctoral associate etc. Recruitment at this centre will be directed at attracting the best early career talents globally and retaining them, utilising both the existing schemes as well as innovative ones. Initial appointment of all research faculty/language trainer should be under tenure for 5 years

Proposed Initial activity of the Language Network Centre

1: **A Translation Mission** for the creation and translation of knowledge texts in Malayalam, comprising of scholars in translation, social science, humanities, and science. It will be the responsibility of KLN to:

2: A Language Technology Mission for the establishment of a structured and planned research and innovation initiative in developing natural language processing/artificial intelligence/speech synthesis and machine translation tools for Malayalam at several levels. To this end, we recommend the following

3: Study of the Indigenous Languages of Kerala (SILK), through the institution of a special funding scheme which will run coterminous with the UNESCO's *International Decade of Indigenous Languages* (2022-2032). The scheme should fund research initiatives aimed at the linguistic and ethno linguistic documentation, language vitality assessment/ revitalisation, script and educational materials development of the minority languages spoken in Kerala, with special emphasis on the languages spoken by the Scheduled Tribe communities in the state

4: A professional language training Centre: This will offer various levels of language training and certifications.

IV Estimated Cost of the centre

An amount of Rs. 300 lakhs may be is required during 2024-25 for the implementation of the above-mentioned activities which includes the cost of establishing a transits campus near the proposed location of this Centre, Salary of the staff, cost of the activities and travel expenses and programmes under this Centre. **Nevertheless, owing to low budgetary allocation, AS may be given for Rs. 120 lakh for the time being for starting the activities of this Centre**
Split-up details are shown in the table given below:

SI NO	**Kerala Language Network (KLN))**	Amount in lakhs
1	Employees Remuneration	8
2	Project development costs	70
3	Scholarships	22
	Total cost for Kerala **Language Network (KLN)**	100

Employees Remuneration

The employees' costs, pay structures for various categories of staff have been considered as per the existing norms of the State government/ UGC. The required faculty/staff may be recruited on tenure/project mode basis in project mode

Project development cost

The Centre has to organise workshops, conferences and other academic activities on their campuses as well as other university and college campuses in the state. This has led to the development of human resources in the universities, and has helped to attract new talent to the universities, and has also made an impact on teaching, curriculum development, and creation of new facilities in the universities and colleges.

Scholarships:

The institute proposes to offer a variety of fellowships, scholarships, grants and awards in the area of curriculum development and faculty empowerment etc. The rates are fixed as per the existing norms of the UGC/CSIR/DST etc.

Approved the Centre of Excellence proposals and decided to forwarded the some to the government for further action in the regard.

Item No. 6. Report on Kerala Knowledge System.

Reporting – The Government of Kerala has entrusted KSHEC to prepare the details of FYUGP Foundation Course related to *Kerala Knowledge Systems*. The Vice Chairman, KSHEC has reported details of consultation with experts and publisher, *Orient Blackswan Private Limited* to prepare and publish the volume on *Kerala Knowledge Systems* at the earliest.

Item No. 7. State Level Digital Repository for online learning.
(Digital and Open Teaching and Learning Resources in Higher Education)

Purpose

Technology plays a much larger role in the digital age than in previous generations, and it has become important today that education adapts to this digitalization. Sharing educational resources was traditionally limited in the competitive world of higher education. Educational institutions keep their educational materials and resources private. Today, an increasing number of institutions and individuals have made such digital resources available for distribution on the Internet by removing legal, financial, and technical hurdles.

Rapid digital changes in the world have moved the learning environment to a different place in terms of space. The traditional teacher-student hierarchy began to disappear. Students' ability to access information quickly eliminates the teacher's role of knowledge transfer. The wealth of information and publicly available information make teachers comparable to other teachers and educational resources.

The Massachusetts Institute of Technology (MIT) Open Course Ware (OCW) program, which uploaded most of the course materials on the Web and made them available globally and free of charge, marked the beginning of open access in education in 2001. Many world-renowned universities followed their lead, increasing their impact in the academic area as well as among people seeking knowledge

The term Open Educational Resources (OER) was first used at a UNESCO conference to refer to offering free global access to high-quality educational resources. OER is defined as "digitised materials supplied freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research" Open Educational Resources (OER) creates the right way to provide free and accessible education to all and access information for the public good.

Open Educational Resources (OER) includes research resources like as all and parts of e-courses, curriculum maps, textbooks, course materials, learning materials, lesson plans, simulations, multimedia content, audio and video recordings, experiments, applications and games. It consists of other materials that are designed to be used in teaching and learning as well as research and are available for use without any payment (Butcher, 2011; Groom, 2013).

The purpose of this hand book is to introduce the importance of open educational resources to the programme/course coordinators and individual academic staff members in the context of four year undergraduate programme where online virtual and blended learning are getting more predominance.

Teaching and learning approach with digital technologies

1.0 Introduction to blended learning

The new curriculum frame work put forward by the Kerala state higher education curriculum committee emphasized on a complete transformation of the higher education system with in the state. The new frame work clearly states that it is time to move from the present day teacher centric approaches to a truly student centric approach. The time has indeed come to recognize the fact that the student is the main stakeholder and that efforts must be taken to make the system respond to their dreams and aspirations. In this line of thinking the new curriculum frame works gives the acceptability of many modes of learning including that of face-to-face learning, online learning and distance or virtual mode. It also promotes use of

vocational courses, multi-disciplinary courses and multi-modal approaches there by focusing on Blended teaching-learning.

Blended learning is an instructional methodology or a teaching and learning approach that combines face to-face classroom methods with computer mediated activities to deliver instruction. This pedagogical approach means a mixture of face-to-face and online activities and the integration of synchronous and asynchronous learning tools, thus providing an optimal possibility for the arrangement of effective learning processes. Blended learning is the term given to the educational practice of combining digital learning tools with more traditional classroom face to face teaching. In a true blended learning environment, both the student and the teacher should be physically located in the same space. Despite this, the digital tools used should be able to be utilized by the students in order to enforce some control over the speed or topics of their learning

Resources such as video lectures, podcasts, recordings and articles would be provided in order to transfer the main bulk of the necessary knowledge from teacher to student before each class. This then frees up time in class for teachers to support students in activities, lead discussions and facilitate engagement

Given the emergence of digital technologies and the emerging importance of leveraging technology for teaching-learning at all levels from school to higher education, curriculum committee recommends for use of blended models of learning. It also states that while promoting digital learning and education, the importance of face-to-face in-person learning is fully recognized. Accordingly, different effective models of blended learning will be identified for appropriate replication for different subjects.

1.2 The important features of Blended Learning (hereafter referred to as BL) environment are:

- Increased student engagement in learning.
- Enhanced teacher and student interaction.
- Responsibility for learning.
- Time management and flexibility
- Improved student learning outcomes
- Enhanced institutional reputation.
- More flexible teaching and learning environment
- More amenable for self and continuous learning

Better opportunities for experiential learning The advantages of BL for students include increased learning skills, greater access to information, improved satisfaction and learning outcomes, and opportunities both to learn with others and to teach others.

- Opportunity for collaboration at a distance: Individual students work together virtually in an intellectual endeavour as a learning practice.
- Increased flexibility: Technology-enabled learning allows for learning anytime and anywhere, letting students learn without the barriers of time and location but with the possible support of in-person engagement. (Any speed, any mode, any language)
- Increased interaction: BL offers a platform to facilitate greater interactivity between students, as well as between students and teachers.
- Enhanced learning: Additional types of learning activities improve engagement and can help students achieve higher and more meaningful levels of learning.
- Learning to be virtual citizens: Learners practice the ability to project themselves socially and academically in an online community of inquiry. Digital learning skills are

becoming essential to be a lifelong learner, and blended courses help learners master the skills for using a variety of technologies.

- Making BL Work Technology integration in itself is not necessarily BL.
- BL provides making learning resources and experiences repeatable, reliable and reproducible.

1.3 Role **of Teachers in BL Environment**

BL shifts the teacher's role from knowledge provider to coach and mentor. This shift does not mean that teachers play a passive or less important role in students' education. Quite the contrary—with BL, teachers can have an even more profound influence and effect on students' learning. Traditionally, classroom instruction has largely been teacher-directed, top-down, and one-size-fits-all, with a bit of differentiation thrown in, but with BL, it now becomes more student-driven, bottom-up, and customized, with differentiation as a main feature. Much of this new learning dynamic is due to the enhanced role technology plays in instruction. BL provides an appropriate balance between online instructions, which offers the interactive, tech-based learning, individualized pacing, and privacy that keep students continuously engaged and motivated, and teacher-led instruction, which personalizes the learning experience and adds the human elements of encouragement, compassion, and caring guidance that only teachers can give. This new learning dynamic benefits students and teachers alike. Giving students permission and space to become active learners who gain knowledge directly lets them assume some control over their learning and helps them develop self-reliance. As more students are working independently, time opens up for teachers to provide face-to-face support and individualized instruction more frequently for more students, effectively improving differentiation. BL provides teachers with a fuller, more accurate picture of how each student is doing. BL yields more frequent and more personal teacher interaction with individual students; teachers have the opportunity to deepen and strengthen student/teacher relationships. The trust that comes with close relationships can give teachers insights into students' personal struggles and needs -insights which empower teachers to comfort and coach students through challenges that often serve as obstacles to learning. In summary, BL combines the best aspects of online learning with the best aspects of direct instruction, helping teachers easily manage to do much more to meet student needs without adding to an already weighty workload.

2.0 ICT initiatives promotes blended learning

Significant ICT initiatives useful for the higher education teachers of our state while implementing BL are discussed in the following sections.

2.1 Open Educational Resources (OERs)

Open Educational Resources (OERs) refer to any content, printed or online, that is freely available to students and instructors without needing payment or license. These can include teaching, learning, and research materials in any medium and format. OERs are released under an open license and can be reused, re-purposed, adapted, and redistributed by others at no cost. The main purpose behind OERs is to reduce accessibility barriers, promote better teaching practices, and provide an enhanced educational paradigm. In the era of digital learning, OERs in higher education are becoming more and more prevalent. OER has emerged as a concept with great potential to support educational transformation. While its educational value lies in the idea of using resources as an integral method of communication of curriculum

in educational courses (i.e. resource-based learning), its transformative power lies in the ease with which such resources, when digitized, can be shared via the Internet.

2.2 Advantageous of Using OER in class rooms

Using OER in the classroom allows greater flexibility in customizing your courses and gets your students more involved in their own learning.

- Since OER can be remixed and revised, it's possible to create customized resources that fit your specific course.
- Students will have their course materials from day one, so they won't have a delay in learning or need to play catch up later.
- Students can help review and revise existing resources to improve them while simultaneously mastering course content.
- Students can create resources to add to their portfolio.
- Resources that students create can be licensed for reuse in order to benefit others.

2.3 Importance of Open Educational Resources (OERs) in Higher Education

OERs broaden participation in educational programs by removing geographical barriers and making educational materials more accessible to people. OERs can include an extensive range of online materials, including classroom activities, quizzes, open textbooks, multimedia applications, course modules, etc.

Open education offers multiple ways of teaching, customizing, learning, and sharing knowledge. It makes it possible to reduce the cost of education and make higher education more affordable to the masses. These resources also allow learners to access open textbooks and other learning materials from anywhere.

The potential of OER is that they permit the 5R activities –the right to retain, reuse, revise, remix and redistribute teaching and learning materials. Based on these 5Rs, teachers are empowered to develop open, collaborative, and sustainable teaching and learning scenarios. These prospects of OER have manifested in the two follow-up concepts of Open Educational Practices (OEP) and Open Pedagogy that have emerged in the course of the debate about the practical impact of OER.

There is a belief in the higher education sector that information should be available freely for students to use and knowledge-sharing should be a collaborative process. Educators and learners should be encouraged to actively embrace the open education movement and focus on creating OERs to integrate digital resources into education.

These educational resources must be published in revisable, easy-to-use formats to support seamless knowledge sharing. One of the major goals of open education is to inspire governments, universities, colleges, and school boards to prioritize OERs.

Eliminating barriers to education, such as geographical limits, the high cost of tuition fees and study materials, and legal mechanisms that challenge collaboration among instructors, is important. To promote better education for all, building a foundation that supports the free sharing of new information is necessary

2.4 Examples of OERS

Open Educational Resources (OER) are teaching and learning materials that one may freely use and reuse at no cost, and without needing to ask permission. Unlike traditional copyrighted resources, OER have been authored or created by an individual or organization that chooses to allow for re-use and adaptation of their work. In other cases, you may be able

to download a resource, edit it in some way, and then re-post it as a remixed work. How do you know your options? OER often have a Creative Commons license or other permission to let you know how the material may be used, reused, adapted, and shared.
OER to supplement (or even replace) traditional educational resources.

Some examples of OER are:

- Textbooks
- Lecture Slides
- Podcasts
- Online courses
- Videos
- Quizzes

This guide provides some information on how to use OER, why use OER, and where to find OER (5Rs)

1. Retain - make, own, and control a copy of the resource (e.g., download and keep your own copy)
2. Revise - edit, adapt, and modify your copy of the resource (e.g., translate into another language)
3. Remix - combine your original or revised copy of the resource with other existing material to create something new (e.g., make a mashup)
4. Reuse - use your original, revised, or remixed copy of the resource publicly (e.g., on a website, in a presentation, in a class)
5. Redistribute - share copies of your original, revised, or remixed copy of the resource with others (e.g., post a copy online or give one to a friend)

3.0 Open Educational Resources: Initiatives in India

3.1 NPTEL: When talking about the OER initiatives in India, the name of NPTEL comes first. The National Programme on Technology Enhanced Learning (NPTEL) was initiated by seven Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur, Madras, Guwahati and Roorkee) along with the Indian Institute of Science, Bangalore in 2003. (Nptel, online courses and certification, Learn for free, n.d.) The project has been funded by the Ministry of Human Resource Development, Government of India. It is the largest online repository in the world of courses in engineering, basic sciences and selected humanities and social sciences subjects. IITs (Indian Institute of Technology) are the premier institutes in India offering mainly the Technical degrees to the enrolled students, as the seats are limited and many are not able to get enrolled in the IIT hence the NPTEL provides a platform to the learners who are interested to learn the art of technology by the expert of IIT, i.e. the professors of IIT. It is now possible for anyone outside the IIT System to be able to do an online certification course from NPTEL and get a certificate from the IITs. IITs are reaching out and taking education to the homes of people through this initiative. (Nptel, online courses and certification, Learn for free, n.d.) These courses are open for anyone to access – at no cost. So anyone interested in learning gets access to quality content, which also includes a discussion with the content creator and access to assignments for self-testing.

3.2 SWAYAM: SWAYAM is a programme initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching-learning resources to all, including the most

disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. This is done through a platform that facilitates hosting of all the courses, taught in classrooms from Class nine till post-graduation to be accessed by anyone, anywhere at any time. (Swayam Central, n.d.)

3.3 IGNOU'S E-GYANKOSH:

Indira Gandhi National Open University is the largest open university in India, providing education to its learners through the open mode of learning. EGYANKOSH is an archive of various text study material of all the courses run by it, which are freely available to all. And it's YouTube video also provides a range of Open Educational Videos recorded at the IGNOU studio for Gyan Darshan educational channels.

3.4 SAKSHAT: Is envisaged as one-stop education portal to facilitate lifelong learning of the students, teachers and those in employment or in pursuit of knowledge free of cost to them. The portal is expected to be the main delivery platform for the contents developed under the National Mission on Education through ICT (NMEICT). Sakshat integrates all the contents developed under the Mission and also provides Mission related information and to facilitate public scrutiny, feedback and transparency for the projects undertaken by the Mission. (Sakshat, n.d.)

3.5 SWAYAM PRABHA: The SWAYAM PRABHA is a group of 32 DTH channels devoted to telecasting of high-quality educational programmes on 24X7 basis using the GSAT-15 satellite. Every day, there will be new content for at least (4) hours which would be repeated five more times in a day, allowing the students to choose the time of their convenience. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal. (Swayam Prabha | Free 32 DTH channels, n.d.)

3.6 CONSORTIUM FOR EDUCATIONAL COMMUNICATION: The Consortium for Educational Communication popularly known as CEC is one of the Inter University Centres set up by the University Grants Commission of India. It has been established with the goal of addressing the needs of Higher Education through the use of powerful medium of Television along with the appropriate use of emerging Information Communication Technology (ICT). CEC Gurukul live lectures are delivered by eminent educationists, the learners are provided with the toll free numbers where the viewer can put the questions during live lectures, the lectures are live on SWAYAM prabha educational channel the recorded videos are also put on you tube and face book for wider reach and popularity. The National Mission on Education through ICT is a project of MHRD which provides a momentous opportunity for all the teachers and experts in the country to pool their collective wisdom for the benefit of every Indian learner and, thereby, reducing the digital divide. Under this Mission, a proper balance between content generation, research in critical areas relating to imparting of education and connectivity for integrating our knowledge with the advancements in other countries is to be attempted. CEC, as an active partner, is engaged in generation of e-content courseware for undergraduate subjects under the plan project of NMEICT of MHRD. (Pages—NME-ICT Project, n.d.)

3.7 E PG PATHSALA: Is the gateway to all the postgraduate courses, it is an initiative of the MHRD under its National Mission on Education through ICT (NME-ICT) being executed by the UGC. The content and its quality being the key component of education system, high quality, curriculum-based, interactive e-content in 70 subjects across all disciplines of social sciences, arts, fine arts and humanities, natural & mathematical sciences. (E-PGPathshala, n.d.)

3.8 NATIONAL DIGITAL LIBRARY OF INDIA: Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology (NMEICT) has initiated the National Digital Library of India (NDL India) pilot project to develop a framework of virtual repository of learning resources with a single-window search facility. Filtered and federated searching is employed to facilitate focused searching so that learners can find out the right resource with least effort and in minimum time. NDL India is designed to hold content of any language and provides interface support for leading Indian languages. It is being arranged to provide support for all academic levels including researchers and life-long learners, all disciplines, all popular form of access devices and differently-abled learners. It is being developed to help students to prepare for entrance and competitive examination, to enable people to learn and prepare from best practices from all over the world and to facilitate researchers to perform inter-linked exploration from multiple sources. The pilot project is devising a framework that is being scaled up with respect to content volume and diversity to serve all levels and disciplines of learners. It is being developed at Indian Institute of Technology Kharagpur. (National Digital Library of India, n.d.

3.9 National Repository of Open Educational Resources (NROER): Initiated by the Department of School Education and Literacy, Ministry of Human Resource Development, Government of India and managed by the Central Institute of Educational Technology, National Council of Educational Research and Training, the Repository runs on the Meta Studio platform, an initiative of the Knowledge Labs, Homi Bhabha Centre for Science Education. (NROER - Page— About, n.d.) NROER is working on initiatives to bring together all digital resources across all stages of school education and teacher education. It hosts several educational contents, audio, video, text, animations of each level of school education primary, secondary and senior secondary in several Indian languages.

3.10 SimLab+

www.simlab-soft.com: Licensed Tool

SimLab is a process-oriented multidisciplinary simulation environment to accurately analyze the performance of complex assemblies. SimLab is designed as a powerful 3D visualization and communication platform with a rich set of built-in workbenches. As general multi-purpose 3D software Solution it helps users to simplify complex work-flow through simple GUI and easy-to-figure tools. Sim lab provides AR/VR headset and its supports android/win/ios. SimLab's VR Viewer is a stand-alone application that can view, edit and share interactive VR experiences.

3.11 Virtual Lab

www.vlab.co.in : Open Source / Support

Virtual labs provide remote-access to Labs in all major disciplines of Science and Engineering. These Virtual Labs can cater to students at the UG & PG levels as well as to research scholars.

Use of these labs can cut down the effective cost by 24x7uses and providing better reliability, repeatability and access. Allows us to share costly equipment and resources, which are otherwise would be available to limited number of users due to constraints of cost (including the initial cost, maintainability and the ROI) It helps student to conduct experiments by arousing their curiosity and learning basic and advanced concepts through remote experimentation but with more safety, security. Can be considered as a part of Learning Management System where the students can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self-evaluation.

3.12 Robotics

https://www.e-yantra.org/ :

NMEICT Project https://www.sc.iitb.ac.in/robotics/index.html

Robotics is a branch of engineering and science that includes electronics engineering, mechanical engineering and computer science and so on. This branch deals with the design, construction, and use to control robots, sensory feedback and information processing. The use of robots is rapidly growing and becoming more common across workplaces, homes, and educational institutions. Institutions have also started using teaching robots, to impart knowledge to their students. These robots can help in delivering lessons in Science, Technology, Engineering, and Mathematics concepts that are essential in the educational curriculum. The use of robotics in learning is ideal for interaction in classrooms as it can improve and encourages collaboration among students. Playing (and learning) with robots also offer additional benefits for students with disabilities. Students can undertake challenging tasks by designing, creating and programming their own robots.

3.13 FOSSEE

www.fossee.in : Open Source FOSSEE (Free/Libre and Open Source Software for Education) project promotes the use of educational tools in academia and research. The FOSSEE project is part of the National Mission on Education through Information and Communication Technology (NMEICT), Ministry of Education, Government of India. Below is the list of some of the projects which are promoted by FOSSEE. E-sim: eSim is an open source EDA tool for circuit design, simulation, analysis and PCB design. Osadag: Osdag is a cross-platform open-source software for the design of steel structures, using the Indian Standard.

3.14 DWSIM: DWSIM allows chemical engineering students and practicing engineers to model process plants by using rigorous thermodynamic and unit operations models. PLC: Provides training and skilling for PLCs. SBHS: The single board heater system (SBHS) is a lab-in-a-box setup useful for teaching and learning control systems. R: R is a language and environment for statistical computing and graphics. QGIS: QGIS (Quantum GIS) is a desktop Geographic Information System (GIS) application. PYTHON: Easy to read and learn, useful for scientific computing.

4.0 Common Open Educational Resources available globally

4.1 Open Textbooks

- OpenStax College
  OpenStax College offers free, peer-reviewed textbooks in a select number of disciplines. These texts have been designed to meet course standards in scope and sequence.
- Open Textbook Library
  A searchable catalog of free open textbooks developed by the University of Minnesota's College of Education and Human Development. Textbooks are reviewed by contributing faculty to ensure quality.
- BC Campus Open Ed Resources
  Funded by British Columbia's Ministry of Advanced Education, BC Campus Open Ed has published over 40 open textbooks designed for use in first and second year undergraduate courses. Digital versions of the texts are freely downloadable.
- OAPEN Library
  OAPEN (Open Access Publishing in European Networks) is a non-profit organization dedicated to the open access of academic books in a wide range of languages. The library is fully searchable and is mainly focused on collecting in the Humanities and Social Sciences.
- Open SUNY Textbooks
  An initiative of the State University of New York libraries, Open SUNY Textbooks publishes high-quality, peer-reviewed textbooks for use in higher education.
- eCampus Ontario open textbooks
  From eCampus Ontario, a one-stop site that includes tips for finding, adopting, and adapting Open Textbooks.
- Find FREE and OPEN eTextbooks
  A search service of the California State University System and MERLOT
- Open Textbooks for Engineering
  The Scholarly Communications Committee from the Engineering Libraries Division of the American Society for Engineering Education has created this resource, which aggregates information from around 20 different OER websites and organizes it by engineering discipline and, in some cases, by subdiscipline. Currently limited to open textbooks.
- InTech
  A large open access publisher of books and journals in the fields of Science, Technology, and Medicine. The publisher currently has over 2000 books and 6 journals available for download.
- smarthistory
  A free and open, online, not-for-profit art history textbook with complete multimedia content.

4.2 OER Repositories

- Merlot II
  An initiative of the California State University system, Merlot is free peer reviewed collection of educational materials meant for use in higher education.

The collection consists of tens of thousands of discipline-specific resources, course assignments, and contributor comments to guide instruction.

- OER Commons
  OER Commons is a freely accessible online collection of open educational resources. This fully searchable catalog includes hundreds of open textbooks for use in higher education.
- Open Course Library
  The Open Course Library is a collection of sharable educational materials that have been designed by college faculty, librarians, or other experts. Sponsored by the Washington State Board of Education, these resources have undergone assessment to ensure quality.
- OpenStax CNX
  OpenStax CNX, an initiative of Rice University, is a repository of free educational materials. The content is modular, allowing users to easily remix and customize the site's educational resources.
- SkillsCommons
  A free and open digital library of Workforce Training Materials developed by TAACCT grantees.
- nanoHUB
  Provides over 1600 open teaching and learning resources: online presentations; course material; learning modules; podcasts; simulation tools. Created by the NSF-funded Network for Computational Nanotechnology.
- OCW Educator
  OCW Educator helps teachers search the vast library of MIT's Open Course Ware resources to find instructional approaches and teaching materials. You can search by subject, then facet by types of course content and specialty.
- Open Case Studies
  The Open Case Studies project at University of British Columbia brings together faculty and students from different disciplines to write, edit, and learn with case studies that are free and open.
- Community of Online Research Assignments (CORA)
  An open access database containing reliable and reproducible research assignments that do not live as isolated entities, but are enhanced by user feedback in order to build a rich corpus of best practices.
- LibreTexts Library
  A collection of textbooks, exercises, worksheets, and other OERs created by the LibreTexts Project.
- Digital Public Library of America (DPLA) Primary Source Sets
  Drawing from online materials from libraries, archives, and museums across the United States, the sets use letters, photographs, posters, oral histories, video clips, sheet music, and more. Each set includes a topic overview, ten to fifteen primary sources, links to related resources, and a teaching guide.

4.3 Open Courses

- EdX
  Except for professional education courses, edX courses are free for everyone. Some courses have a fee for verified certificates but are free to audit.

- Coursera
  Offers more than 1,000 free online courses.
- MIT OpenCourseWare
  MIT OpenCourseWare (OCW) is a web-based publication of virtually all MIT course content. OCW is open and available to the world; materials have an Attribution-NonCommercial-ShareAlike Creative Commons license. OCW does not offer certificates of completion.
- Open Yale Courses
  Provides free and open access to a selection of introductory courses taught by Yale instructors. No course credit, degree, or certificate is available through the Open Yale Courses website.
- Class Central
  This site aggregates Massive Open Online Courses (MOOCs) from more than 470 different universities, including Stanford, Harvard, and the Massachusetts Institute of Technology (MIT). It also offers a notification/reminder service called MOOC Tracker.
- Lumen Learning Course Catalog.
  A selection of open courses on a variety of subjects.
- Saylor Academy
  Offers more than 300 free, self-paced courses. All required course resources—including textbooks, videos, webpages, and activities—are accessible at no charge. Saylor courses also contain a free final exam with the opportunity to earn a free course completion certificate.
- Udacity
  All Udacity courses offer free access to course materials, but some courses charge for the full course experience (including access to projects, code-review and feedback, a personal Coach, and verified certificates). The price varies depending on the course.
- Khan Academy
  Open educational courses (Primarily K-12) covering math, science, computer programming, history, art history, economics, and more
- nanoHUB-U
  Short courses accessible to students in any branch of science or engineering.
- Open Learning Initiative
  The Open Learning Initiative (OLI) is a grant-funded group at Carnegie Mellon University, offering innovative online courses to anyone who wants to learn or teach.
- UCI Open
  UCI Open is an open education project launched by the University of California, Irvine, that supports the needs of learners and educators everywhere.
- Open Chemistry (OpenChem)
  Provides a full curriculum of recorded lectures covering undergraduate chemistry plus selected graduate topics. From UCI Open

4.4 Open Educational Resource Community Websites

- WikiEducator
  WikiEducator is an evolving community intended for the collaborative: planning of education projects linked with the development of free content; development of free content on Wikieducator for e-learning; work on building open education resources

(OERs) on how to create OERs; networking on funding proposals developed as free content.

- Open Educational Resources Toolkit
  A toolkit from JISC Explaining open educational resources (OERs) and surrounding issues for senior managers, learning technologists, technical staff and educators interested in releasing OERs to the education community. (archived in 2016)
- Open Professionals Education Network (OPEN)
  A community designed to help TAACCCT grantees meet OER, accessibility, and quality requirements for grant deliverables in the U.S. Department of Labor's Trade Adjustment Assistance Community College & Career Training (TAACCCT) program. Funded by the Bill & Melinda Gates Foundation. Support areas include: - Open Educational Resources (OER) practices & policies; - Creative Commons (CC) licensing; - Universal Design for Learning (UDL) and Accessibility; - evidence-based online technology use; - Effective course and learning design; - Help finding existing OER
- Virginia Tech's Librarian OER Toolbox
  The Librarian OER Toolbox is a collection of links to (mostly) open resources. It is designed for librarians, expert searchers, and people who "enjoy the hunt" through overwhelming volumes of information. This site represents the most comprehensive lists we have found of the places to look for open educational resources written in English.

4.5 Finding Open Content

- Unpaywall
  A browser extension that searches across thousands of open access repositories and journals to find open access versions of articles.
- Open Access Button
  A search interface and browser extension that searches thousands of sources with millions of articles to link you to free, legal, full text scholarly articles instantly. It also provides an option to request a version from the author if an article is not available.
- Openverse
  Search portal to help locate CC-licensed content from a variety of sources - useful for images, video, and music.
- Open Access Resources Library Guide
  A collection of open access resources, sorted by discipline
- Science.gov
  Science.gov searches over 60 databases and over 2,200 scientific websites to provide users with access to more than 200 million pages of authoritative federal science information including research and development results.
- Find Public Domain and Openly Licensed Materials
  From OSU Libraries' Copyright Services - provides several suggestions for locating different types of content.
- Free to Use and Reuse Sets
  Items from the Library of Congress's digital collections that are free to use and reuse. The Library believes that this content is either in the public domain, has no known copyright, or has been cleared by the copyright owner for public use.
- Wikimedia Commons
  Database of freely usable media files.

- Directory of Open Access Books
  Over 3000 academic peer-reviewed books from 107 publishers
- Standard Ebooks
  Standard Ebooks takes ebooks from sources like Project Gutenberg, formats and typesets them using a carefully designed and professional-grade style manual, fully proofreads and corrects them, and then builds them to create a new edition that takes advantage of state-of-the-art ereader and browser technology.
- Internet Archive: eBooks and Texts
  Over 8,000,000 fully accessible public domain eBooks.
- New York Public Library Public Domain Collections
  Materials from the New York Public Library that are in the public domain, available for use and reuse.
- Digital Public Library of America (DPLA) Primary Source Sets
  Drawing from online materials from libraries, archives, and museums across the United States, the sets use letters, photographs, posters, oral histories, video clips, sheet music, and more. Each set includes a topic overview, ten to fifteen primary sources, links to related resources, and a teaching guide.
- Hathi Trust Digital Library
  Hathi Trust is a collaborative partnership of major research institutions and libraries worldwide. It is a shared digital repository of library books and journals converted from print owned by research institutions.
- Project Gutenberg
  Over 54,000 free ebooks, most in the public domain (in general, published before 1923). Available in epub, kindle, PDF or to be read online. Over 50 languages. Great source for classics and historical works.
- International Music Score Library Project
  A collection of public domain music works - includes scores and some recordings.
- Mutopia Project
  Sheet music editions of public domain classical music, with some contemporary works contributed by the copyright holders.

Item No. 8 Report on the AG audit of accounts and registers of KSHEC (2020-21, 2021-22, 2022-23, 2023-24).

കെ.എസ്.എച്ച്.ഇ.സി – എ.ജി. ഓഡിറ്റ് നിരീക്ഷണ പരാമർശം #9 (OBS-1288441) – അറ്റന്റൻസ് രജിസ്റ്ററുകളിൽ ഹാജർ രേഖപ്പെടുത്താത്ത വിഷയത്തിൽ താഴെ വിവരിക്കുന്ന രീതിയിൽ ലീവ് ക്രമീകരിക്കാൻ തീരുമാനിച്ചു.

1. 2021 വർഷത്തിലെ ഹാജർ രേഖപ്പെടുത്താത്ത തീയതികൾ കോവിഡ് വ്യാപന പശ്ചാത്തലത്തിലെ ഇളവുകൾ മാനിച്ച് ക്രമീകരിക്കാവുന്നതാണ്.
2. ശ്രീ. ജോസ് രാജ് എസ്, ഓഫീസ് അറ്റന്റന്റ്, ശ്രീ. ആന്റിൻ വിനോദ് എച്ച്, ഡ്രൈവർ ഗ്രേഡ് II എന്നിവർ 2022, 2023 വർഷങ്ങളിൽ ഓഫീസ് വാഹനങ്ങളുടെ ലോഗ്ബുക്ക് പ്രകാരം ഹാജരായ തീയതികൾ ഡ്യൂട്ടിയായി പരിഗണിച്ച് ക്രമീകരിക്കാവുന്നതാണ്.

3. ശേഷിക്കുന്ന ദിവസങ്ങളിൽ ശ്രീ. ജോസ് രാജ് എസ്, ഓഫീസ് അറ്റന്റന്റിന് 9 ദിവസവും, ശ്രീ. ബിൻസി തോമസ്, ഓഫീസ് അറ്റന്റന്റിന് 4 ദിവസവും, ശ്രീ. ആന്റിൻ വിനോദ്.എച്ച്, ഡ്രൈവറിന് 4 ദിവസവും ആർജ്ജിത അവധിയായി പരിഗണിച്ച് ക്രമീകരിക്കാവുന്നതാണ്.

Item No. A1 - Starting of Diploma/ PG Diploma in Fine Arts in affiliated colleges under Kannur University.

Resolved to constitute a committee to study the Starting of Diploma/ PG Diploma in Fine Arts in affiliated colleges with Dr. K. K. Damodaran and Shri Paul V. Karamthanam as members.

Item No. A2 - Interim Report – Four Year Integrated Teacher Education Programme (ITEP)

Interim Recommendations:

The 4 Year Integrated Teacher Education Programme (ITEP) has been visualised into stage/level -wise teacher preparation as per the new structure of school education namely foundational stage, preparatory stage, middle stage and secondary stage. Multi-disciplinary Higher Education Institutions which are interested in applying for ITEP may choose to offer any one or more level programmes depending on the expertise and resources. They may create a TE

Department in Education (where the ownership of ITEP lies) or partner with a STEI offering an NCTE recognised B.Ed programme within the same University.

The Government of Kerala may provide 'No Objection Certificate (NOC)' to eligible Multi-disciplinary Higher Education Institutions with a preferred condition that they should partner with a STEI with in the same University. This is according to the amendedregulationsofNCTE.SuchadirectionfromtheGovernmentwillfacilitate ITEP adoption in the state along with protecting the interests of STEIs.

Suggestions:

Standalone Government/Government aided/self-financed Teacher Education Institutions may be permitted to collaborate with the nearby Government/Government aided Multi-disciplinary Higher Education Institutions (affiliated to same University) so as to become eligible to apply for the ITEP to offer any one or more level programmes depending on the expertise and resources.

As on today the teacher requirement projections for short and long-term periods are not available for Kerala state. Indiscriminate expansion of TE in the state with uncertain perceptions of demand will have to be monitored by the Government. There is a need also to also identify short-term and medium-term courses in the area of education. This will enable the institutions to diversify their course offerings accordingtomarketrequirementsrelatedtobothpre-serviceandinserviceteacher

trainingandotherprofessionaldevelopmentrequirementsofeducationalpractice. KSHEC should sponsor conduct of suitable research studies in this regard. This will help in regulating and systematizing the expansion and diversification of Education related programmes in the state.

Government support is solicited for transforming STEI into MHEIs and develop the required capacity and eligibility to adopt ITEP in the subsequent phases of NCTE approval. The Government may officially seek clarification from NCTE in this regard in the matter.

Though NCTE demands through its regulation to transform existing STE Ito MHEI by 2030 in order to become eligible for starting ITEP, this committee has strong concern over this proposal especially in the present higher educational scenario of the Kerala state.

All STEIs should be prepared and encouraged to seek accreditation on a priority basis. Both the Government and the Universities may facilitate this process.

The concept and operation of Government Aided Colleges of Kerala may be officially explained to NCTE to differentiate this model from private colleges as presently envisaged by NCTE. It is required to convince NCTE with required evidences and documents that there is no significant qualitative difference between Government and Government-Aided institutions in Kerala.

After discussion it was resolved to approve the interim note with modifications and decided to forward the recommendations/ suggestions to the government.

OA

Item No.OA 1 – Workshop for media persons on the implementation of FYUGP - Government letter No 223/2024/M (Hedn&SJ) dated 16.05.2024

It was decided to organise a workshop on the implementation of FYUGP for media persons in collaboration with the KUWJ on 24.05.2024 in Thiruvananthapuram.

The Minutes were read and confirmed
The Meeting which started at 11.00 am concluded by 1.40 pm.

Member Secretary

Vice Chairman