Kerala State Higher Education Council
Minutes of the 20th Executive Body meeting held on 25.09.2020

The Nineteenth Executive Body Meeting of the third KSHEC was held on 25.09.2020 at 11.00 am. through video conferencing. Prof.RajanGurukkal P.M. Vice Chairman presided.
The following members attended the meeting.

1.	Prof.RajanGurukkal P.M.	:	Vice Chairman, KSHEC.
2.	Prof.Gopinath Ravindran	:	Hon'ble Vice Chancellor, Kannur University
3.	Dr. J. Rajan	:	Member, Executive Body, KSHEC
4.	Dr. R. K. Suresh Kumar	:	Member, Executive Body, KSHEC
5.	Dr. K. K. Damodaran	:	Member, Executive Body, KSHEC
6.	Dr.FathimathuZuhara	:	Member, Executive Body, KSHEC
7.	Dr.RajanVarughese	:	Member Secretary, KSHEC

The following agenda was transacted and decisions taken.

Item No.1 - Post-COVID 19 Higher Education Policy –Final Draft.

After discussion, it was resolved to approve the - Post-COVID 19 Higher Education Policy and publish the same.

Post-COVID 19 Higher Education Policy

Part IV

Challenges and Recommendations

This is a contingent document of higher education policy advice in the COVID19 context, drafted by the following Committee constituted by the Kerala State Higher Education Council for submitting to the Government:

Sl.No	Name and Designation
1	Prof. Rajan Gurukkal P.M. Vice Chairman, Kerala State Higher Education Council
2	Prof. Gangan Prathap Honorary Professor, APJ Abdul Kalam Technological University, Thiruvananthapuram.
3	Dr. JayaKrishnan. A Former Vice Chancellor, University of Kerala

4	Prof. Thomas Joseph Former Member Secretary, KSHEC
5	Prof. Gopinath Raveendran Vice Chancellor, Kannur University, Kannur
6	Dr. Sabu Thomas Vice Chancellor, Mahatma Gandhi University, Kottayam
7	Dr. Rajasree M.S. Vice Chancellor, APJ Abdul Kalam Technological University, Thiruvananthapuram
8	Prof. J. Prabash Special Officer, Open University of Kerala
9	Dr. J. Rajan Member, Executive Body, KSHEC, Thiruvananthapuram
10	Dr. K. K. Damodaran Member, Executive Body, KSHEC, Thiruvananthapuram
11	Dr. C. Padmanabhan President, All Kerala Private College Teachers' Association
12	Dr. Rajan Varughese (Convenor) Member Secretary, KSHEC, Thiruvananthapuram

This is the last part of the document. It has two sections: one dealing with challenges and the other, recommendations. As regards the first section, it is not an exhaustive survey of challenges in the sector of higher education. It is contingent upon the COVID19 crisis and contextual. There are many pre-COVID19 challenges not adequately encountered like strengthening the teaching/learning infrastructure. Recommendations are mainly in relations to the challenges and focus on means to overcome.

I. Challenges

We have to urgently remedy our characteristic problems by ensuring sufficient funding, good infrastructure, teaching faculty of adequate knowledge-base, updated academic programmes comprising courses of intellectually challenging content, clearly defined course outcomes and competencies, pre-planned instructional strategies, academic autonomy and flexibility capable of engendering criticality and creativity. Even if we succeed in ensuring all this, we will be nowhere near the global standards. Rush to equip our youth with competencies of global standards is unaffordable and unnecessary too. We have not been able to make teaching/learning realistic and least alienating. What we badly need is intimate and self-consciously realist learning, which means systematic unlearning and recognition of new ignorance. Consciousness about the exponential growth of ignorance is what we have to achieve as integral to the teaching/learning system.

COVID19-induced new environment brings about directly and inadvertently a big shift in perspective regarding higher education. Mainly but ostensibly, it is the precedence of the ICT environment, which becomes predominant in the shift. First challenge is technological ascendancy and its massive addition of techno-infrastructural distributive injustice to the still unresolved economic and social inequalities or discriminations. It is going to be extremely difficult to sustain the perspective of equity and access. Further, it implies a series of

imbalance, collectively referred to as digital divide. Above all it implies centralization, bureaucratization, and impairment of autonomy.

1. Online mode

Online mode is going to stay as a new normal and as the most important complementary to the present mode, if not *a de facto* substitute immediately. It is not COVID19 crisis that has introduced this technology. It has already been there, but more as optional and fashionable than essential. COVID19 crisis made it the only alternative. Webinars and Teleconferencing will become the regular practice. All this has been happening as a crisis-driven stopgap arrangement that precludes quality.

Computer, Internet, and ICT, are undeniably crucial to higher education. They have to be made integral to the university curricula, syllabuses and courses. Online mode has to be incorporated to the present system as a complementary part to reinforce the present classroom practices. Incorporation of online tools is not optional anymore.

At the outset it has to be accepted that Virtual Teaching is not a substitute for the Real that has all exclusive advantages of being real. Nonetheless, in the current circumstance of physical distancing Virtual Teaching/Learning is the sole alternative, which has already been complementing classroom teaching. Design, transmission and assessment of courses in online mode would gain precedence over the campus mode so long as physical distancing and immobility remain unavoidable. Even after the removal of pandemic restrictions, online mode would continue as synchronous and asynchronous complement. Blended teaching/learning shall be a new normal.

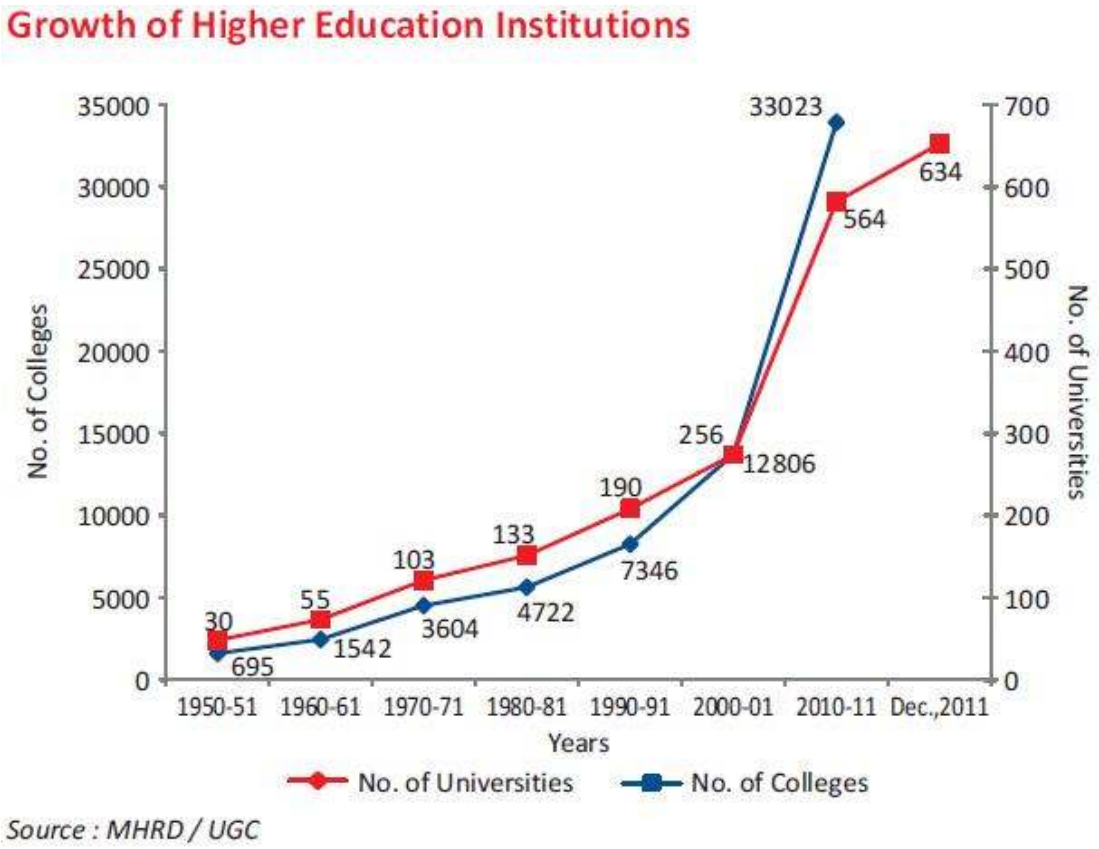
a) Online Infrastructure

Online teaching without necessary tools and professional competence will compromise quality. Online teaching without its sophisticated multi-media digital content is a tedious job for teachers and a burden done the students. It should be well-designed audio-video data transmission exploratory enough to teachers and an extremely rich learning experience inspiring enough to students.

Differences between online and classroom teaching are not just those confined to the medium and environment. They range across the art or science of teaching, designing of learning outcomes, techniques of communication, ways of facilitating learning, and methods of evaluation. Synchronous instructions and asynchronous learning replicating on-ground teaching/learning in online mode cannot meet these challenges.

Teachers have to use online instructional methods/tools such as software-driven course designing, web-based instruction, computer-mediated communication, mind mapping, administration of videos, imaging technology, infographic visualization, participatory learning facilitation, hosting the audio/video podcasts, and effective management of digital content. Visual tools help in a graphical or pictorial way to represent ideas and concepts amenable to comprehend, analyze, synthesize, evaluate and generate their new forms. Opposed to a linear text, mind mapping, infographic, and imaging tools help structure knowledge along the line of the cognitive process. Quality online teaching/learning and evaluation tools are high-input

facilities demanding considerable investment for establishing the necessary technological infrastructure.



Source : MHRD / UGC

Uninterrupted access through satellite or fibre-optic circuits or mobile networks of sufficient bandwidth is considered essential in all. High speed and low cost Internet access must be available to all higher education institutions.

The availability of hardware, software, network equipment, connectivity, and 24X7 reliable information are keys to bridging the digital divide in education. It is necessary to provide a benchmark for institutional infrastructural requirements.

It is high time every university has completed campus area networking and implemented institutional administration based on the system of enterprise Resource Management (ERP) enabling perfect academic career accountability of teachers as well as students from their entry to exit.

b) Digital Divide

Many teachers are worried what they would do if students prefer virtual mode of learning to actual. Even then teachers as trained professionals in web-based teaching with advanced digital tools would be inevitable as good mentors helping students how to learn. Technological obsolescence of pedagogy will widen the generation gap between students and teachers.

Many socio-economic inequalities and cultural discriminations still persist in the state, which have their negative impacts on higher education. As regards higher education institutions, there is grave academic and extra-academic unevenness among colleges, universities, and their faculty. Unevenness exists in matters of basic learning facilities, curricular and co-curricular activities. Nevertheless, there are certain minimum facilities benchmarked. Similarly, there should be benchmarks for institutional level infrastructure for online education. Digital divide in the competitive context puts one section totally disadvantaged. Bridging the digital divide among teachers and students as well as between teachers and students helps improve academic performance.

It is extremely important to evolve ways and means of bridging the digital divide. Concrete data regarding the nature and causes of digital divide existing in Kerala have to be collected for adopting measures to bridge it. There must be safeguards to ensure that there is no dropout due to online turn. If online is to work effectively there must be flexibility in place, time, transaction and evaluation. Such flexibilities must be brought in as a part of the online system. Introducing flexible systems and practices suitable to online systems of education is hence a crucial factor. Basic requirements to permanently bridge the digital divide in education are availability of hardware, software, network equipment, connectivity throughout 24x7. In Kerala the local self-governing institutions, voluntary organizations, and industries can help in setting up renewable energy based digital technology centres for rural colleges as they did in the case of schools in the remote villages along the forest fringes.

c) Quality

We should redefine the parameters of equity, access and excellence to ensure that the online mode does not operate outside the ambit of these essential requirements.

Pandemic-driven shift to online mode would increasingly encourage mushrooming of various soft skill-based programmes and shallow hands-on trainings in all the universities.

It is important to take precautions to ensure quality. Unless employability is ensured through guaranteed skill/competency, the programmes would only add to the various self-financing programmes.

Although the UGC allows such certificate/diploma programmes, it is important that universities confine themselves to their institutional mandates – research, production of knowledge and its transmission..

Technological sophistication alone cannot ensure quality, for it helps higher education to be more centralized and bureaucratic. In order to achieve quality higher education we have to decentralize and de-bureaucratize the whole set up.

d) Online Technology Training

Teacher training programmes in the country have not been adequately updated in the country as yet, in spite reforms proposed regarding the duration. Although teachers in colleges and

universities are periodically updated/upgraded in their knowledge fields, they lack pedagogic training.

Onset of online mode will put them more disadvantageous. We have to think about the ways and means of training teachers in the use of the latest technology and tools. It is necessary to turn all teachers into professionals capable of using the technology innovatively and train students how to make the best of it.

Many have switched to online teaching but under compulsion and mostly without previous experience. By and large online teaching today is the classroom lecture carried forward to the virtual. It should have been at least a smart classroom teaching rendered as podcast. Online teaching/learning as COVID19-induced mode under crisis management has been largely the conventional practices carried to the virtual mode. It is important for teachers to be formally accustomed to the art, science, and methods of ICT based pedagogy for being effective in Virtual Teaching.

A teacher should learn online instruction methods and models of communication to run online courses effectively. Finally, s/he should know the use of technology for formative and summative assessments of online courses. Converting a conventional course into online mode is not an easy task.

Teachers have to formally learn how to design online courses using the Instructional System Design (ISD) based on ADDIE, the generic five phases —Analysis, Design, Development, Implementation, and Evaluation.

National Programme on Technology Enhanced Learning (NPTEL), which is an initiative by seven Indian Institutes o f Technology (IIT Bombay, Delhi, Guwahati, Kanpur, Kharagpur, Madras and Roorkee) and Indian Institute of Science (IISc) will be helpful for creating course contents in engineering and science.

It is important to understand the features of online technology and acquire skills in using the open source platforms and Learning Management Systems (LMS) like SWAYAM and MOODLE. Many have started familiarizing themselves with platforms like Zoom, Google Talk, Google Hangouts, Google Classroom, Google Docs, Google Forms, G-meet, JIt, Cisco Webex etc., for running online courses and participating in online conferences. Training in all these is extremely important as an essential means of quality assurance in higher education. Teachers need participatory workshops and hands-on training in multimedia tools for enabling them to professionally rearticulate themselves without leaving their tasks to substitutes. They must be trained in Multimedia Production Tools as well. All this are going to be integral to teaching and learning even during the post-pandemic times.

For the promotion of group activities and human research development in experimental science and other branches of knowledge, Universities in the state should take help from Inter University Accelerator Centre, the first Inter-University Centre established by the UGC for developing within the university system world class facilities for accelerator based research,

formulating common research programmes, and developing collaboration with universities and other premier research institutions.

UGC-Department of Atomic Energy (DAE), created for developing competence and promoting research in front line areas of science and technology in Indian Universities..

Inter University Centre for Astronomy and Astrophysics (IUCAA), Pune helps initiate research and developmental activities in Astronomy and Astrophysics in the University sector by providing advanced centralized facilities for subjects not adequately taught in the university departments and colleges. Our university departments interested in the field can use the facility.

Consortium for Educational Communication (CEC), an Inter University Centre of the UGC for 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). Of the 22 Educational Multi-media Research Centres (EMRC) established by CEC for the production of educational programmes, one is at Calicut University.

2. Strengthening Autonomy

Autonomy and flexibility are indispensable for higher education institutions to be enterprising and innovative.

Autonomy of universities has been steadily declining for the last two decades as a result of the post-GATS reforms of higher education. COVID19 emergency situation has accentuated the process.

Universities have to be wary of the impairment of their autonomy in the wake of the pandemic emergency that necessitates bureaucratic dictation of the terms and norms of academic working, alterations in the curricula, instituting new programmes, and design of courses.

A new set of accountability criteria would be necessary for higher education institutions to function smoothly and autonomously with Online Course Management Systems.

It is necessary to modify the university Acts, Statutes, and Ordinances with a view to strengthening the autonomy of Universities and enabling them to creatively respond to crises in future.

3. Centralization and Discrimination

Covid19 pandemic crisis demanding a total juridico-political centralization and bureaucratization has deprived higher education of its academic autonomy.

There would be high-level centralization of higher education in the country using Internet and ICT. A single online podcast hosting academic programmes, courses and course-material by way of texts and videos has already been proposed.

Centralization is a need of corporates, which they have been trying to nationally impose for homogenizing the curricula under the pretext of enhancing academic quality and industrial employability.

It is necessary to rethink the management of higher education in Kerala by drawing insights from the state's decentralized set up under democratic centralism, which could effectively combat the pandemic and excite global recognition.

Kerala's people's plan, local self-governing bodies, cooperatives and decentralized healthcare in collaboration with the district administration, line departments and the larger public have set a new model for crisis management. A decentralized but actively convergent, it is a model appropriate to counterbalance the rising trend of over-centralization in higher education.

In a developing country like India, where education is viewed as an item of expenditure rather than investment, ordinary universities would be asked to give importance to vocational programmes.

There would be a systematic reduction of allocation for teaching and research in liberal arts, humanities and social sciences. Programmes in them would be offered only in some of the old universities in the public sector and in a few very rich institutions.

Gradually universities offering liberal arts, humanities and social sciences would be subjected to academic and institutional discrimination.

4. Self-financing Institutions

Quality Assurance of Self-financing institutions in the higher education sector has been possible only in the case a few, while a large number of them remain unaccountable with respect to the academic qualification of teachers, their remuneration, students' fees, and their facilities of learning.

Barring a very few of them that are exceptionally good, the functioning of the rest has been abysmally poor and has deteriorated further under the pandemic lockdown.

It has already been nationally stipulated by the UGC that all higher education institutions must undergo assessment and accreditation ensuring academic accountability and credibility.

Assessment and accreditation is the only means that would promote their institutional self-regulation and guarantee social acceptance.

KSHEC has completed the prerequisites for launching state level assessment and accreditation of the self-financing and other higher education institutions in the state through its Centre (SAAC).

KSHEC has also initiated programmes like the All Kerala Survey of Higher Education Institutions and the Kerala Institutional Ranking Framework (KIRF).

These initiatives are based on several parameters and some of which like understanding the research output of individuals/institutions necessitate the use of bibliographic databases like Scopus or the Web of Science.

Ranking systems like National Institutional Ranking Framework (NIRF) and other Global Ranking Systems use Scopus database to populate and verify the data of parameters of research, patents, h-index etc.

Accordingly, the Government of Kerala has to strictly require the self-financing institutions to undergo assessment and accreditation for being eligible to start new academic programmes.

5. Added Relevance to the Commencement of Open University

Universities providing the facility of distance education to people who are unable to pursue regular courses have become more relevant in the wake of the pandemic lockdown. Under COVID19 pressure regular universities having forced turned to operate in distance education mode, Open University system has acquired an added legitimacy too.

There are Fifteen Open Universities in India offering various certificate/diploma, undergraduate, postgraduate and doctoral programmes under Open Distance Learning System (ODLS).

On an average about three lakh candidates used to enroll every year to continue their higher education through ODLS provided by three regular universities in Kerala and Open Universities elsewhere, especially Indira Gandhi National Open University (IGNOU), until its disruption by the UGC's insistence of NAAC Grade above 3.25 as mandatory (UGC Regulations 2018).

Some interim arrangements have taken care of the students already enrolled. A very large number of candidates are deprived of ODLS strongly desire an Open University in the state at the earliest. Kerala has been in an all set stage of preparedness for the past two years to launch its Open University. We urge the Government to speed up its launching as an urgent need. It has been over two years since KSHEC has given necessary pieces of advice to the Government in this regard. Having realized the urgent need and the avoidance of further delay, the Government has issued orders for its immediate establishment. It is expected that the Open University will come true at the earliest.

6. Strengthening the Institutional Social Base

COVID19 situation demands Universities and Colleges to strengthen their social base and community support.

Higher education institutions have a social responsibility to help the larger public to be aware of how advanced knowledge impacts the quality of life and conditions of human existence. People have to be made aware of the problems and prospects of new discoveries and inventions.

COVID19-induced restrictions like physical distancing, lack of freedom to travel and the precedence of the open online mode would force campus spaces to undergo changes. Lecture halls and classrooms would turn into integrated teaching spaces and hands-on learning workshop spaces accommodating not only regular students but also others in the larger society.

There would be a conversion of rigidly defined specific spaces in the higher education institutions into flexible open spaces amenable to multiple uses including those of the community learning and research.

7. Entrenching Cross-disciplinary Perspective

Entrenching cross-disciplinary perspective is easier said than done, for disciplines would not allow it. Nevertheless, as knowledge grows, disciplines are drawing closer to one another, blurring their traditional contours and boundaries. There is convergence of disciplines explicit in all the emerging knowledge fields. Teachers with cross-disciplinary literacy alone would be able to handle them. Students would need the help of such teachers for them to acquire high order cross-disciplinary adaptability, an indispensable prerequisite for higher studies.

It is extremely difficult to pull teachers out of their rampant and impervious disciplinary silos. Most of them are not amenable to initiatives of cross-disciplinary literacy.

Like technology, it is too difficult for the majority to resist the rise of cross-disciplinary knowledge fields that the dominant economy engenders. Interestingly, it is not disciplines, but some of the cross-disciplinary fields that can confront the dominant economy's agenda. Critical political economy, anthropology of development, environmental science, women studies, Dalit studies etc., are examples. Dominant economy would not allow such cross-disciplinary fields to thrive for obvious reasons.

Corporate economy subsidizes production and transmission of cross-disciplinary knowledge in science-tech hybrid fields, which is globally marketable. Under its pressure most universities would be encouraged to turn themselves into multi-disciplinary institutions of high standards with cross-disciplinary teaching and research.

Universities and autonomous colleges would be required to develop innovative courses and curriculum in such fields, follow centrally approved learning outcomes, and conduct continuous evaluation.

8. Emerging New Areas of Knowledge

It is not possible for us to percolate all the emerging new areas of global science and technology into our university and college education. It is not necessary either, for it is counterproductive to dump pre-packaged science and technology of global value into all heads. Knowledge is not a linear growth in technology/science, but dynamic, uncertain and in flux always.

There are several liberal arts, humanities and social sciences of great relevance not appropriately promoted in the higher education institutions of Kerala. While all of them are taught independently, their mutually complementary combinations have not been tried much. Any of them in viable combinations is a potential area of knowledge in the present day context. Anthropology is the most suitable elemental discipline that turns any of the liberal arts, humanities and social sciences into alloy like combines of strength.

Anthropology, a leading knowledge field among social sciences the world over including India, though had renowned advocates in Kerala, is least represented in the state's higher education today. It is being taught independently and in combination with all other branches of knowledge including science and technology in most universities the world over.

Universities and colleges should think of combining anthropology with languages, linguistics, arts, archaeology, history, economics, political science, sociology, psychology, ethics, gender studies, food science, public health, community studies, local self-government, cooperatives etc., at the undergraduate and postgraduate levels. Schooling of ethnic groups in their own language has been a question in Kerala too against the loss of indigenous cultures. Anthropology of orality and literacy has been a scholarly area of wide world attention, but for Kerala. As a cross-disciplinary field, it deserves attention of the state's higher education institutions.

Economic anthropology dealing with livelihood systems, development, urbanization, globalization etc., has developed into newer sub disciplines of anthropology, like business anthropology today. It is very important as a sub-discipline in relation to the various fields of medicine, environment science and disaster management studies.

Anthropology of Disasters has developed in India since the Tsunami. Disaster prevention and preparedness, vulnerable populations, cultural factors inhibiting preparedness and prevention, equitable resilience and other factors, are becoming increasingly relevant to Kerala.

9. Revamping the Examination System

A major challenge that the online mode poses is the need for a total revamping of the existing Examination System that is heavily dependent on descriptive accounts. Mere shift to Optical Mark Recognition/Reading (OMR) evaluation system, heavily dependent on multiple-choice questions, will not help. Technological adoption must be sophisticated enough to be in perfect alignment with Outcome Based Education (OBE).

Assessment methods have to be based on Bloom's action verbs or stem words adequate for ascertaining the knowledge categories (KCs) and cognitive levels (CLs). Teachers have to frame questions with action verbs targeted to capture understanding of each KCs and CLs separately or in combinations. Different values have to be assigned to KCs and CLs in order to evaluate the demonstration in the answers as the proof of attainment of the level. They have to

set the Criteria for identifying the perfection in attainment at each level and evolve Criteria Relied Assessment Method (CRAM) for the graded evaluation of students.

Institutions and Governments have to bring about necessary changes in the organisational structure for facilitating the OBE based evaluation as new normal in the higher education institutions. Many technologically updated proctored centres will have to be established by universities themselves for the conduct of examinations assured of reliability and quality.

10. Earn While You Learn

Earn While You Learn (EWYL) is a socially significant scheme that deserves promotion with caution. Kerala has great potential for the implementation of the scheme provided there is proper planning, funding and co-ordination by government and universities. For a state like Kerala it adds to social security, equity, and access guaranteed to a certain extent by merit cum means scholarships.

There are many benefits for EWYL Scheme. Most important is mitigation of economically backward students' hardships in education due to income shortage, inculcation of dignity of labour including values of hard work among students, enhancement of skills adding to employability, strengthening of resourcefulness to take up better jobs in the future, development of personal interest and preference in the fields of learning, reduction of the sense of alienation in the students' minds about what they learn, and transformation of higher education into a self-directed, personal, and life-related enterprise, not always curiosity driven though.

EWYL Scheme will be effective and sustainable as a transforming initiative only if the Universities and Colleges provide for flexibility and choice in their governance, which should attract and retain students by providing them adequate environment to acquire professional skills to take up temporary jobs to earn while they learn.

We have to be cautious because in the developed countries this scheme is meant to encourage the Government to withdraw from the financial assistance to the poor students. It is a scheme that gives the employers a good opportunity to influence curriculum design and course content, so as to reduce their recruitment and training costs.

II. Recommendations

Recommendations given below are mainly contingent and selective under the COVID19 crisis pressure. Although some of the general points are also included, they are not exhaustive. We have to go on evolving the implementable ways and means of overcoming challenges.

Measures to make the shift to online mode smooth and quality ensured:

Integrate Computer, Internet, and ICT to the university curricula, syllabuses and courses. Incorporate them as inevitable tools of higher education.

Virtual Teaching/Learning, the sole alternative under the compelling circumstance during the pandemic, has to be rendered possible with all necessary infrastructure and technology.

KSHEC seeks to advise universities in the state to assess not only their obsolescence in the curricular content and pedagogy but also in the technological infrastructure.

Traditional parameters should undergo changes when the online mode gets integrated into the formal system. Therefore, KSHEC would undertake a study regarding the changes in such parameters to ensure that Kerala retains its merits even while using online education as a complementary system.

All higher education institutions should have online blended teaching/learning facilities of synchronous and asynchronous types as a new normal.

Every university and college should have more smart classrooms with computerized writing/display boards.

All advantages of technology in the art or science of teaching, designing of learning outcomes, techniques of communication, ways of facilitating learning, and methods of evaluation must be utilized to narrow down the differences between the actual and virtual.

Teachers should be following Learning Management Systems (LMS) developed in open source platforms like SWAYAM and MOODLE. They should use MHRD's Virtual Laboratory.

Ideally, it is better for every institution to have a platform and LMS of its own for designing and teaching online courses.

Teachers must be enabled to use online instructional methods/tools such as software-driven course designing, web-based instruction, computer-mediated communication, mind mapping, imaging technology, infographic visualization, participatory learning facilitation, hosting the audio/video podcasts, and effective management of digital content.

Adopt measures to ensure the availability of quality online teaching/learning and evaluation tools that are high-input facilities in as many institutions as possible. Ensure there is sufficient allocation for providing the necessary technological infrastructure.

Uninterrupted high-speed low cost Internet access through satellite or fibre-optic circuits or mobile networks of sufficient bandwidth must be available to all main colleges and universities in the state.

Outcome Based Education has to be properly understood to rearticulate the Curricula, syllabuses, Course Outcomes, Programme Specific Outcomes and Graduate Attributes before integrating the online as complementary to the classroom teaching learning environment.

Measures to bridge the Digital Divide and strengthen the cause of equity, access

The first step towards bridging the digital divide is a detailed stocktaking of the situation. KSHEC should generate concrete data regarding the nature and extent of digital divide existing in the state for evolving strategies to bridge it.

KSHEC has to conduct a survey to assess the social preparedness to satisfy the prerequisites for online teaching and learning.

It is specifically to assess the technological accessibility of the students and identify the ways, means, and source of support for equipping the students lacking it.

Support of Local Self-Governing Bodies, State Library Council, Kudumbashree, cooperatives, voluntary agencies, charitable societies and individuals could be sought for assessing the number of students unable to access the facilities as well as for resolving their problems.

Immediate attempts must be made to ascertain whether there are dropouts in higher education due to the lack of essential facilities for online learning. Institutions must be told to ensure that there is no dropout wanting facilities to access online teaching.

There must be immediate steps to provide laptops/tablets or smart phones to poor students. Institutions have to provide free Internet and free equipment/tools for the poor.

Government should institute more scholarships for poor students to buy the necessary equipments to avail themselves of the online learning facility.

Special attention is required to resolve the shortage of infrastructural facilities among colleges and universities in the backward areas.

It is necessary to determine the benchmarks of technological infrastructure for online education and make sure that all the public funded colleges, where the poor students congregate, satisfy them.

It is necessary to introduce flexible systems and practices, which are suitable to online systems of education. Flexibility in place and time of teaching and evaluation has to be ensured.

Colleges and universities should make sure that online teaching and evaluation involves no competitive context putting poor students disadvantaged.

There should be special care about bridging the digital divide among teachers. KHEC has to advise the government to provide enough funds for upgrading technological infrastructure.

Institutions should mobilize support from Local self-governing institutions, cooperatives and other voluntary agencies/individuals for equipping poor students hailing from remote areas of no connectivity for online learning.

In Kerala the local self-governing institutions can help in setting up renewable energy based digital technology centres for rural colleges of Kerala as the state did for the schools in the remote villages along the forest fringes.

We should redefine the parameters of equity, access and excellence to ensure that the online mode operates strictly within the ambit of inclusiveness as well.

It is necessary to see that teaching/learning practices, their environment and administration ensure flexibility and choice.

Universities have to strictly follow the quality assurance criteria in the case of pandemic-driven shift to online mode that would increasingly encourage mushrooming of various soft skill-based programmes and shallow hands-on trainings in all the universities.

It is extremely important to see that such programmes satisfy the avowed skill/competency enhancing employability.

Although UGC allows certificate/diploma programmes, it is always better for universities, as institutions mandated for production and transmission of new knowledge, to concentrate on postgraduate programmes and research.

It is inevitable to decentralize and de-bureaucratize universities in order to enhance quality.

Strengthening Inter-University Networking

KSHEC should try and strengthen inter-university resource sharing networks among universities and colleges.

KSHEC has to persuade the Vice Chancellors to materialize KALNET, the inter-university library network initiated by the Council, by asking their Librarians to upload the data to the Council's Cloud.

Vice Chancellors have to see that their University Libraries are networked and their automation completed with Online Public Access Catalogues (OPAC).

They should ask their librarians to link the University level networks to form the KALNET.

KSHEC has more or less completed the prerequisites for launching state level assessment and accreditation of the self-financing and other higher education institutions in the state through its Centre (SAAC).

KSHEC has to go ahead with its initiative of the All Kerala Survey of Higher Education Institutions and the Kerala Institutional Ranking Framework (KIRF).

It would be useful to establish Inter-University Community Radio for knowledge transmission.

Institutions should prepare and circulate a multi-media package for social awareness about the implications of research in advanced knowledge fields. They should hold popular campaigns throughout the state with the help of local self-governing institutions.

Centralized Inter-University Consortium has to be established by KSHEC for enabling higher education institutions in the state to access Journals and Research publications at an affordable cost.

Training Programmes in Online Technology

It is essential to train teachers in the use of the latest technology and tools for making them professionals in online teaching.

It is necessary to organize training programmes suitable for mobilizing the resources of teachers by providing them a wide range of holistic solutions to the challenge of online teaching, which can make them professionals in the higher education sector.

The training should make the teachers formally accustomed to the art, science, and methods of ICT based pedagogy to be competent in Virtual Teaching.

Teachers should be trained how to convert a conventional course into online mode and how to design online courses afresh using the Instructional System Design (ISD) based on ADDIE.

It is important to enable teachers to use the open source platforms like SWAYAM and MOODLE, besides the tools like Zoom, Google Talk, Google Hangouts, Google Classroom, Google Docs, Google Forms, Cisco Webex etc., for running online courses.

Teachers in science and technology should be familiarized trained in the initiatives of NPTEL and IISc for drawing insights in creating course contents in engineering and science.

It would be necessary to train teachers in imaging tools and the use of multimedia for interactive online teaching and associated content delivery.

Online training should include the socio-economic and politico-cultural aspects the technology of online education as a prominent module of the teacher training curricula.

Centralization, Decentralization and Autonomy

It is important to resist centralization and bureaucratization in higher education under the emergency of COVID19 pandemic crisis.

A new set of accountability criteria should be evolved for higher education institutions to function smoothly and autonomously.

There should be measures to protect the autonomy of the Universities, which could impair in the wake of the introduction of online technology.

It is necessary to modify the university Acts, Statutes, and Ordinances with a view to strengthening the autonomy of Universities and enabling them to creatively respond to crises in future.

Universities should draw insights from the Kerala's decentralized set up under democratic centralism to effectively reorganize themselves to combat the centralization moves.

Universities should develop a decentralized but actively convergent model appropriate to retain their autonomy.

Universities should be able to resist central imposition of homogenization of academic programmes and introduction of new generation science-tech programmes at the expense of teaching and research in liberal arts, humanities and social sciences.

Universities should be able to resist withdrawal of financial support to liberal arts, humanities and social sciences to support new generation programmes.

Universities should resist discrimination against institutions offering liberal arts, humanities and social sciences.

Instead of following the Manual of Office Procedure and Secretariat Manual, a Manual of Academic Administration has to be evolved to place academic concerns above bureaucratic procedures.

Assessment and Accreditation of Self-financing and other Institutions

Assessment and accreditation of self-financing institutions in the sector of higher education should not be delayed anymore.

Accordingly, the Government of Kerala has to strictly require the self-financing institutions to undergo assessment and accreditation for being eligible to start new academic programmes.

SAAC has to be made more active under the institutional quality assurance programme for assessing the self-financing institutions in the higher education sector.

Assessment and accreditation of self-financing institutions must be scheduled immediately for the promotion of' their accountability, self-regulation and social acceptance, as stipulated by the UGC.

Need for Strengthening Community Base

Universities and Colleges should develop community higher education seeking to democratise social benefits of higher knowledge by adopting various ways and means of communication including multi-media.

This is to help the larger public to be aware of how advanced knowledge impacts the quality of life and conditions of human existence. People should be made aware of the problems and prospects of new discoveries and inventions.

Universities and Colleges have to embrace the local community and supra-local industries for support to reposition themselves as social extension centres of participatory research and life related student services both online and in-person.

Universities should come up with a protocol for disaster management ensuring both the continuation of activities and emergency policy adoption/decision making during crises like lockdowns.

If such a protocol were in place at the University level, it would have been possible for the university to extend academic interventions in local social issues and matters of public concern too.

Every university should strengthen contacts with the local self-governing institutions, cooperatives and health centres by inviting them along with the general public on the Open Day for interacting with the researchers, understand their research, and see their labs, workshops and museums.

Higher education institutions have to open up spaces of social collaboration for the production of socially essential science and sustainable technology relevant to their region.

Teachers and researchers must engage the space using the faculty to recognize the socially beneficial aspects of their fields and democratize them through people's participation.

Similarly, these proactive academics must be radical enough to democratize the negative aspects of the various fields of knowledge too.

A region like Kerala with its decentralized and de-bureaucratized self-governing institutions has enormous potential to make higher education institutions self-reliant in the field of production, consumption and exchange of socially useful new knowledge.

Without patent motives and IPR possessiveness, higher education institutions must direct part of their research towards the production of local problem solving knowledge.

If institutions fail to act accordingly the exploitative dimension of the knowledge industry will go totally unbridled, generating and widening consumer needs for detrimental goods and services.

Teachers' cross-disciplinary literacy and students' interdisciplinary adaptability:

Teachers have to acquire cross-disciplinary literacy to be able to handle the emerging fields of knowledge, which are invariably interdisciplinary.

More workshops should be organized for nurturing cross-disciplinary perspective in teachers for helping students to acquire high order cross-disciplinary adaptability, an indispensable prerequisite for their higher studies.

It is important to promote the cross-disciplinary fields like critical political economy, anthropology of development, environmental science, women studies, Dalit studies etc., which can confront the dominant economy's agenda.

New Academic Programmes in Emerging Fields – Guidelines

At the outset it may be noted that there is no point in duplicating discipline based traditional programmes anymore.

All new academic programmes in emerging areas of knowledge may be designed invariably in interdisciplinary/cross-disciplinary perspective and with clearly conceived measurable learning outcomes.

Nevertheless, programmes in basic sciences including social sciences and humanities are important, but all new undergraduate programmes in them must be multidisciplinary.

It is not advisable to institute undergraduate programmes in any of the specialized branches of basic sciences or interdisciplinary science-tech fields.

Undergraduate programmes in sub-disciplines like biochemistry, biotechnology, microbiology and the like should not be encouraged anymore, because they require strong knowledge base in the basic science of each first.

All undergraduate eight semester Honours Programmes must be combinations of two/three major disciplines, under the scheme of double majors or triple majors.

Conventional undergraduate programmes in Physics, Chemistry, and Biological Science may be turned into Integrated Sciences Programme with Mathematics and fundamentals of Earth and Environmental Sciences for BS/BSc Honours as combinations.

It is not advisable for universities to institute Diploma/Certificate programmes in any forms or schemes of examination at the undergraduate/postgraduate level, although the UGC approves of them. We insist adherence to production and transmission of new knowledge, the globally mandated principal objective of the university.

Postgraduate Diploma Programmes under the label, vocational or with the claim of employability could only worsen academic quality and add to the unemployable.

University level academic programmes in emerging fields of super-specialization must be research oriented and hence they must be offered as Ph.D programmes rather than postgraduate diploma programmes.

University – Industry Tie-up Academic Programmes in science-tech fields with mandated hands-on/internship should be invariably as four semester Master's programmes or Ph.D programmes.

It is advisable to keep in mind International Standard Classification of Education (ISCE) and International Standard Classification of Occupations (ISCO) before choosing emerging fields of studies.

Some such emerging areas of studies for Ph.D/Post-Doc Programmes are Structural Genomics, Functional Genomics, Automated Methods and Microarray Technology, X-Ray Crystallography, High Field NMR Spectroscopy, Bio-pharmacology, Bio-informatics, Agro-biotechnology, DNA Bar-coding of Species, Industrial Biotechnology, Environmental Biotechnology, Medical Biotechnology, Synthetic Bioengineering, Medical Engineering, Imaging Technology, Molecular Engineering, Nano-technology, Graphene Engineering, Robotics, Artificial Intelligence, and Astrophysics.

We can think of advanced science and technology domain consists of various combinations like Natural Science and Environment, Materials Science and Chemistry, Industrial Fundamentals, Development Economics and Equity, Informatics and Energy, Renewable Energy and Conservation, Impact Physics and Non-classical Mechanics.

Universities should be able to pursue high-quality research across sciences and engineering. Development and Alternative Technology, Alternative Development and Appropriate Technology, Development and Equity, Social Infrastructure and Environment, Environmental Social Auditing and Sustainable Development, Development-induced Climate Change and Climate Justice, Climate Change-induced Disasters and Disaster Management, Environmental Engineering and Resilience, Sustainable Engineering and Resilient Rebuilding, It should be in symbiotic sciences, advanced natural science and applied technology contributing to environmental conservation as well as sustainable development.

Universities may encourage conduct of forefront researches meeting the various demands of society by deepening comprehensive knowledge in natural sciences and technologies. There is plenty of scope for such combinations across various sciences, technologies, social sciences, liberal arts and humanities as constituents.

Universities can do a lot in this line by opening up new science-tech fields as well as applied studies capable of contributing to sustainable development. Anthropology is the best element that can give the strength of an alloy in cross-disciplinary combinations.

Anthropology can combine itself with any of the liberal arts, humanities and social sciences. Anthropology of language and linguistics, social movements, leadership, decentralization, local-self-governing institutions, cooperatives, community medicine, public health, nursing, psychology, social work, aging population, crisis of youth, development, business management, industry, disaster management, vulnerable populations, gender discrimination issues, women empowerment are examples. Some of these are very relevant today as action anthropology.

Economics can be combined with any of the other social sciences. Local resource assessment and cartography, local economic geography and social composition analysis, rapid urbanization issues and heritage conservation methods, material culture studies and archaeological preservation etc., are other combinations in social sciences.

All Academic Programmes in emerging areas must be distinct for the well- conceived Programme Outcomes abstracted out of Course Outcomes as stipulated under Outcome Based Education (OBE) and with knowledge categories (KC) and cognitive levels (CL) tagged to each module of the syllabus content (SC).

Adding to the Social Security of Students

It is important that all the higher education institutions provide for the successful implementation of Earn While You Learn (EWYL) scheme that is a very important and socially significant initiative.

Universities and Colleges facilitate inculcation of dignity of labour including values of hard work among students, enhancement of skills adding to employability, and strengthening of resourcefulness to take up better jobs in the future through EWYL exposure.

Universities and Colleges should provide for flexibility and choice in their governance, to attract students to the Scheme.

Institutions should create an adequate environment through hands-on courses for students to acquire professional skills enabling them to take up temporary jobs to earn while they learn.

Institutions have to be cautious against the lurking danger of exploitation of student labour and penetration of industrial interests into the curricula at the expense of academic quality.

Government has to provide enough financial assistance to the poor students to make the best use of the Scheme.

Revamping the Examination System

Universities should undertake the task of a total revamping of the existing Examination System that is heavily dependent on descriptive accounts and the ability of students to remember. They should take care of assessing higher levels of cognition, analytical faculty, language power and creativity too.

Mere shift to OMR evaluation system, dependent on multiple-choice questions alone, will not be of any use.

It is essential to adopt technology/tools sophisticated enough to be in perfect alignment with OBE.

Assessment methods have to be based on Bloom's action verbs or stem words adequate for ascertaining the knowledge categories (KCs) and cognitive levels (CLs).

Teachers have to frame questions with action verbs targeted to capture understanding of each KCs and CLs separately or in combinations.

Different values have to be assigned to KCs and CLs in order to evaluate the demonstration in the answers as the proof of attainment of the level.

Examiners have to set the criteria for identifying the perfection in attainment at each level and evolve Criteria Relied Assessment Method (CRAM) for the graded evaluation of students.

Institutions and Governments have to bring about necessary changes in the organisational structure for facilitating the OBE based evaluation as new normal in the higher education institutions.

Questions are powerful guides that direct students to think in certain ways. Every question creates an internal frame of reference or perspective triggered by the words used to ask it.

Questions should demand the intended learning outcome. It could be to recollect facts or to illustrate a concept or to demonstrate understanding or to apply a theory or evaluate a theory or to criticize it or to modify or reject or substitute it.

Questions should demand the students to perform by way of remembering facts, understanding concepts, and applying procedures; making self-reflection, identifying a system/structure, analyzing it into its constituents, restructuring the constituents into other possible structures, evaluating the system/structure, and creating a new system/structure.

Questions should test the attainment of all outcomes intended of the course and the programme.

Questions should be given weightage on the basis of the level of cognition intended. The highest weightage is given to the cognitively most challenging question.

Fix the Structure/Pattern of the Question Paper scientifically. Scientific Method of doing it is by dividing the Questions into Six Groups in alignment with the levels of Cognition: Remember (R), Understand (U), Apply (Ap), Analyze (An), Evaluate (E), Create (C) or into three Groups by combining Cognitive levels: R+U, Ap+An, and E+C)

Distribute the weightage in terms of Marks/Points among the Six/Three Groups A,B,C,D,E&F Or A,B &C (Scientific Method of doing it is to give lesser weightage of marks/points to the Groups in the ascending order Eg: 5%+10%+15%+ 20%+25%+25% Or 10%+30%+60%) in the case of Undergraduate Examination.

Distribute the weightage in terms of Marks/Points with added importance to the higher levels of cognition: Apply, Analyze, Evaluate and Create; in the case of Postgraduate Examination. (Scientific Method of doing it is by dividing the Questions into Four or Two Groups with 10%+20%+30%+50% Or 40%+60%)

Preset the Model Structure/Pattern with Questions framed on the basis of the suitable out of the typology. There are software packages based on taxonomy available today.

Actually it is high time we have given up the system of centralized examination. If it is not possible immediately, Universities have to establish technologically updated proctored centres for the conduct of examinations assured of reliability and quality.

These centres should use Internet based electronically sophisticated devices like e-ink writers that can cover different ways of testing students' comprehension and cognitive levels.

It is advisable to use e-ink tablets amenable to online delivery of questions, reception of answers, and instant evaluation. This would enable introduction of Any Time Examination (ATE).

This would require only a few examination booths open over a fixed period of flexibility. Students could register their preferred slots, do the examination and get the result on the spot.

Various foolproof procedures ensuring confidentiality can be evolved by the university as required by the pedagogic requirements of knowledge fields and potentialities of the technology.

Technology will continue to grow whether or not the COVID19 phases out. Whoever uses it effectively will have precedence over others and the fate of the latter will be what Elizabeth Koobler-Ross described: People deny first, become scared, start bargaining, get depressed and finally accept. By the time they might have been considerably lagged behind.

Plan of Action

Survey of IT Infrastructural Facilities in HEIs in Kerala.

KSHEC has initiated steps to conduct a survey of IT infrastructural facilities in the higher education institutions in the state through its All Kerala Higher Education Survey Unit. This is a portal based survey to assess the ground realty about the availability of hardware, software, network equipment, and connectivity. It can provide significant inputs to government in the context of the proposed K- Fon project of the government of Kerala. The information gathered will be helpful for recommending policy measures to bridge the digital divide in education and prescribe a benchmark for infrastructural requirements in higher education institutions.

I. Short Run

1. Coverage of Syllabus

An Academic Action Plan for the current year for the University Departments and the affiliated colleges should be formulated by each university to cover the entire syllabus of those programmes which were disrupted due to the lockdown. Employing on line/offline and the blended modes, the unfinished parts of the syllabus have to be covered within a stipulated time frame. The university departments in the state are well equipped to handle this situation as they have the infrastructure facilities in hand. There is need for scaling up the facility of affiliated colleges with large number of students and infrastructural inadequacy, for which assistance should be made available by the state/other funding agencies

2. Conduct of Theory Examinations

The scheduling of the unfinished semester-examinations should correspond to the completion of the syllabi and the teaching/learning process. As usual the conduct of the examination should be under the strict monitoring of the university.

3. Conduct of Practical Examinations

External practical examinations can be given up. Instead, the mark/grade can be reckoned based on the performance during internal practical sessions. It is assessed and recorded by the teacher concerned as part of continuous assessment. The final mark/grade of the practical can be arrived at based on the average out of the marks/grades secured for each session. Where no internal practical sessions have been held, the practical examination has to be conducted observing the norms of social distancing.

4. Bar Coded Answer Books Inevitable

With the introduction of CBCSS at the UG and CSS at PG levels, majority of our Universities are using the Bar Coded Answer Books. This has not only ensured better security and confidentiality in the conduct of the examination, but also minimized the chances of malpractices in the examination hall. All universities should switch over to the system of Bar Coded Answer Books.

5. On-line Supply of Questions

All the Universities in the state should create in-house digital mechanism for online transmission of Questions to the affiliated colleges. The mechanism developed by some of the Universities in the state can be easily replicated. This change should be incremental and through modernization of the in-house facilities instead of outsourcing.

6. Return to Home Valuation

The conduct of Centralized Valuation Camps is not feasible in the present situation. Hence Home Valuation, the traditional practice has to be restored and carried out under the strict monitoring of the university ensuring no delay on the part of examiners.

II. Long-Run

Post-COVID educational scenario would be radically different from pre-COVID scenario. Still our basic objective would remain the same, namely democratization of higher education ensuring equity, access and quality. Traditional classroom technology is not irrelevant and is not going to be substituted by online learning on a massive scale. It is next to impossible for online platforms/universities to substitute physical and man power infrastructure available with traditional universities/colleges. However, online learning can provide the learners exposure to the virtual as a supplementary to the classroom learning. Traditional institutions can put in place essential online infrastructure with reasonable expense and expertise, to make virtual learning supplementary to face to face learning in such institutions. A blend of traditional and online learning strategy would be more effective than either traditional or online mode exclusively for ensuring greater access, equity and quality. Hence KSHEC has to conduct a detailed study to assess the digital infrastructure facilities available in higher education institutions in the state. Based on the study a DPR may be prepared and submitted to MHRD/UGC/State Government for policy approval/funds/other facilities.

III. Teacher Training

KSHEC should conduct massive online training programmes for all teachers in the preparation and delivery of e—teaching materials within a specified time.

IV. Blended Curriculum

Universities have to be urged to revamp the curriculum of all programmes by incorporating e-content and e teaching –learning-evaluation strategies along with direct teaching and evaluation. All universities have to undertake this task within a specified timeframe.

V. Educational Multimedia Research Centre (EMRC):

Of the 22 Educational Multi-media Research Centres (EMRC) established by Consortium for Educational Communication (CEC), an Inter University Centre of the UGC, one is at Calicut University. CEC is for 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). Universities in the state can depend upon the EMRC at Calicut University for the production of MOOCs, e-content and production of ETV contents.

VI. A State Level Repository

A State Level Repository of online learning resources should be created for the benefit of all universities/teachers/ students with KSHEC acting as the central digital platform for all the state level requirements

VII. A State Level Consortium

A State Level Consortium for e journal with the participation of all the universities in the state has been initiated by KSHEC. This has to be speeded up and made operational at the earliest.

VIII. A Scheme of Special Funding

The flow of internal resources of the universities has been badly affected by the lockdown, necessitating special funding for Universities. Hence a new scheme may be worked out to decide on the quantum of funds to be devolved to the Universities based on their academic requirements.

IX. Free/Subsidized Online Infrastructure

There is need for increasing the access to online education and provision for Telephone/Internet/ Television/Laptops free of cost or at subsidized price to the students Efforts taken by the Inter University Centre for Disability studies (MG University) and helpline

facility at the university level for addressing the student grievances are good examples in this regard.

X. Enhancing Girls' Facilities

Girl students face shortage of various basic facilities like hostel. Health care, online access etc., in higher education institutions. KSHEC should assess the situation requiring special attention and make recommendations.

XI. New Academic Focus

COVID19 Pandemic has made a new turn in fields of learning. Various emerging fields of teaching and research have gained a new focus. Multi-disciplinary topics relating to pandemics, health care, and Environment have become relevant to teaching and research in universities and colleges in the state.

i) Integrated Post-graduate cum research programmes in a variety of industry friendly combinations of science, technology and Management may be designed and instituted by Kannur University, Calicut University, KUHAS, CUSAT, MGU, Kerala University and KTU. Kannur University can institute various cross-disciplinary programmes with Anthropology as the main constituent.

ii) Kannur University may develop cross-disciplinary programmes in Biochemistry and Biotechnology jointly with Calicut University and KUHAS.

iii) Calicut University may develop cross-disciplinary programmes at its Falcon Research Centre and the Centre for West Asian Studies.

iv) CUSAT and MGU can run industry friendly cross-disciplinary programmes in IPR, International Relations, and Nano-technology.

v) MGU can seek the ways and means of making KN Raj Studies Centre as a regular Centre for Cross-disciplinary teaching and research in Centre and Economic Relations. Among science-tech fields, it can request the Government the sanction of faculty positions for its International Inter-University Nano Scence-tech Research Centre.

XII. Gender Audit of Terms

KSHEC should conduct a gender audit of textbooks in engineering, medicine, psychiatry and law by holding a conference of experts in the field with a view to preparing a check-list of terms that require legal up-dating. A comprehensive guideline thereof has to be drawn for submission to the Government for policy adoption in the matter.

XIII. Total Revamping of the Examination System

KSHEC should take initiatives in revamping the examination system in the universities by constituting an expert committee.

Item No.2 - Reporting –Guidelines for New Academic Programmes.

The details pertaining the Guidelines for the New Academic Programmes were reported.

Guidelines for New Academic Programmes

1. There is no point in duplicating discipline based traditional courses anymore.
2. All new academic programmes in emerging areas of knowledge may be designed invariably in interdisciplinary/cross-disciplinary perspective and with clearly conceived measurable learning outcomes.
3. Nevertheless, programmes in basic sciences including social sciences and humanities are important, but all new undergraduate programmes in them must be multidisciplinary.
4. It is not advisable to institute undergraduate programmes in any of the specialized branches of basic sciences or interdisciplinary science-tech fields.
5. Undergraduate programmes in sub-disciplines like biochemistry, medical biochemistry, biotechnology, microbiology and the like should not be encouraged anymore, because they all requires strong knowledge base in the basic science first.
6. All undergraduate eight semester Honours Programmes must be as combinations of two/three major disciplines ie., under the scheme of double majors or triple majors.
7. Conventional undergraduate programmes in Physics, Chemistry, Biological Science may be turned into Integrated Sciences Programme with Mathematics and fundamentals of Earth and Environmental Sciences for BS/BSc Honours as combinations.
8. It is not advisable for universities to institute Diploma/Certificate programmes in any forms or schemes of examination at the undergraduate/postgraduate level.
9. Postgraduate Diploma Programmes under the label, vocational or with the claim of employability could only worsen academic quality and add to the unemployable.
10. University level academic programmes in emerging fields of super-specialization must be research oriented and hence they must be offered as M.Phil/Ph.D programmes rather than postgraduate diploma programmes.
11. University – Industry Tie-up Academic Programmes in science-tech fields with mandated hands-on/internship should be invariably as four semester Master's programmes or two semester M.Phil programmes or integrated Ph.D programmes.

12. It is advisable to keep in mind International Standard Classification of Education (ISCE) and International Standard Classification of Occupations (ISCO) before choosing emerging fields of studies.
13. Some such emerging areas of studies for M.Phil/Ph.D/Post-Doc Programmes are Structural Genomics, Functional Genomics, Automated Methods and Microarray Technology, X-Ray Crystallography, High Field NMR Spectroscopy, Bio-pharmacology, Bio-informatics, Agro-biotechnology, DNA Barcoding of Species, Industrial Biotechnology, Environmental Biotechnology, Medical Biotechnology, Synthetic Bioengineering, Medical Engineering, Imaging Technology, Molecular Engineering, Nano-technology, Garaphene Engineering, Robotics, Artificial Intelligence, and Astrophysics.
14. Advanced science and technology domain consists of Natural Science and Environment, Materials Science and Chemistry, Industrial Fundamentals, Development Economics and Equity, Informatics and Energy, Renewable Energy and Conservation, Impact Physics and Non-classical Mechanics.
15. Universities may pursue high-quality research in advanced natural science and its applied technology contributing to sustainable development of earth and environment symbiotic sciences, through collaboration across sciences and engineering.
16. Development and Alternative Technology, Alternative Development and Appropriate Technology, Development and Equity, Social Infrastructure and Environment, Environmental Social Auditing and Sustainable Development, Development-induced Climate Change and Climate Justice, Climate Change-induced Disasters and Disaster Management, Environmental Engineering and Resilience, Sustainable Engineering and Resilient Rebuilding,
17. Universities may encourage conduct of forefront researches seeking to meet the various demands of society by deepening comprehensive knowledge in natural sciences and technologies and by opening up new science-tech fields as well as applied studies contributing to sustainable development.
18. Local Resource Assessment and Cartography, Local Economic Geography and Social Structure, Social Composition Analysis and Cultural Geography, Rapid Urbanization Issues and Heritage Conservation Methods, Material Culture Studies and Archaeological Preservation.
19. All Academic Programmes in emerging areas must be distinct for the well- conceived Programme Outcomes abstracted out of Course Outcomes as stipulated under Outcome

Based Education (OBE) and with knowledge categories (KC) and cognitive levels (CL) tagged to each module of the syllabus content (SC).

Item No.3 - E-journal Consortium

The following details pertaining to the E journal consortium were reported and approved

Making E- Journal Consortium Functional

The Kerala Higher Education Council proposed two initiatives in January 2020 in line with the declared mandate of the Council for providing quality higher education and common facilities to universities in the state.

i. E - Journal Consortium - for providing e-journal access to all the state universities and KSHEC acting as the nodal agency of the consortium.
ii. Kerala Academic Libraries Network (KALNET) to bring on a common platform the collections of all the libraries of the HEIs of the State which would be accessible to all researchers.

The following note deals with the formation of e-journal consortium

Background

An academic or scholarly journal is a periodical publication in which scholarship relating to a particular academic discipline is published. Academic journals serve as forums where the research that is carried out is presented and discussed for the benefit of the research community. Academic journal originated as print journals and with the advent of technology evolved into an electronic version while some still maintain the print version also. With the growth of the internet, the electronic version came to dominate the world of scholarly publications.

E-journals also known as online journals, electronic periodicals are produced, published and distributed through some electronic network, viz-the internet. They are available as individual titles on payment via vendors and allow remote access and are often used simultaneously by multiple users.

Need for E-Journal Consortium

With the rising costs of e journals, it became difficult for universities to purchase the e journals individually. The UGC-INFLIBNET then formed a consortium and provided access to these e journals/databases till 2-3 years back. This service is now discontinued. The UGC-INFLIBNET however offers access to HEIs to some databases free of cost, as shown in Table 1, but the

number of free access journal/databases provided to each university also varies and for example, the younger universities like Kannur University do not have access to all these free databases. UoK has access to 14, UoC and CUSAT 12 each, MGU 9, SSUS-7 and Kannur 4. These databases can satisfy only a small proportion of the needs of the academic community.

Table 1- Full text e-resources provided by UGC-INFLIBNET to the Universities

Sl No	Name of e resource	Universities with access
1	Springer Link 1700 Collection and Nature Journal	CUSAT; Kannur; MGU; SSUS; UoC; UoK
2	Institute for Studies in Industrial Development (ISID) Database	CUSAT; Kannur; MGU; SSUS; UoC; UoK
3	Taylor and Francis	CUSAT; MGU; SSUS; UoC; UoK
4	Oxford University Press	CUSAT; MGU; SSUS; UoC; UoK
5	JSTOR	CUSAT; MGU; SSUS; UoC; UoK
6	JGate Plus (JCCC)	CUSAT; Kannur; SSUS; UoC; UoK
7	Web of Science	CUSAT; MGU; UoC; UoK
8	American Institute of Physics	CUSAT; MGU; UoC; UoK
9	American Chemical Society	CUSAT; MGU; UoC; UoK
1	Economic & Political Weekly	Kannur; SSUS; UoK
1	American Physical Society	MGU; UoC; UoK
1	Project Muse	UoC; UoK
1	MathSciNet	CUSAT; UoK
1	Annual Reviews	UoC; UoK
1	ASME Journals Online	CUSAT
1	ASCE Journals Online	CUSAT

There are many other e resources/e journals to which the universities need access to and some of them are Science Direct 10 subject collection, Scopus(Elsevier), Institute of Physics(IOP), SciFinder(chemistry)(CAS); Collections of SAGE publications, Emerald, ProQuest, Cambridge University Press, Wiley, Oxford University Press etc.

Though the UGC has stopped access to journals other than those listed in table 1, it negotiates the rates of the other journals with the publishers and the ESS rates(e-Shodh Sindhu) are made available on the e shodh sindhu website. The universities can access the rates through their individual login and password. There are three tiers of institutions and each tier is assigned a different rate. The state universities of Kerala come under tier III.

Ever since, UGC INFLIBNET stopped free service, the Vice Chancellors of the universities of the State in the context of rising subscription cost had taken up this issue with the Kerala State Higher Education Council to form an e-journal consortium at the state level so that continued access could be ensured these e resources in their universities.

Steps Taken by KSHEC

The Governing Body of KSHEC discussed the matter in detail and resolved to establish a consortium of e journals in the State to cater to the needs of the academic community in wake of the rising costs of subscription to e journals and the paucity of funds faced by the universities (GB held on January 21, 2020, Item no 7). The Governor's Address to the State Assembly on 29th January, 2020 declared that the KSHEC will start a state level consortium for e –journals. Thus KSHEC decides to take the initiatives forward. In this context, an initial meeting was held with the Librarians of the universities on February 6th 2020 to discuss the matter. The Covid -19 pandemic delayed the process of consultations and negotiations with the universities and service providers.

Consortium Approach: Consortium approach is a joint venture approach to negotiate on behalf of all member libraries, wherein a central agency performs all the activities for licensing, pricing agreement etc. for e-joumal subscription. Even though, there is no such e-journal consortia in any state, the Rajiv Gandhi University of Health Sciences (RGUHS), Karnataka has conceived the Health Science Library and Information Network (HELINET) which provides access to medical literature to colleges affiliated to RGUHS.

Advisory Committee & Technical Committee

Two committees were formed in connection with the formation of e-journal consortium. The Advisory Committee consists of all the Vice Chancellors of the participating Universities in the e-journal consortium and the Technical Committee consisting of nominees of all the universities. The Technical Committee deals with the technical and other aspects of the functioning of the consortium.

The State of Kerala has 14 universities. Some of them follow the affiliated system in which large number of government, aided and self-financing institutions are attached with these individual universities according to their type.

Table 2-List of Universities in the State

Sl.No	University	Location	Type	Established
1.	A P J Abdul Kalam Technological University	Thiruvananthapuram	Engineering, Management, Technology	2014
2.	Cochin University of Science and Technology	Kochi	Multidisciplinary	1971
3.	Kannur University	Kannur	Multidisciplinary	1997
4.	Kerala Agricultural University	Thrissur	Agriculture, Engineering	1972
5.	Kerala University of Fisheries and Ocean Studies	Kochi	Fisheries, Climate science	2010
6.	Kerala University of Health Sciences	Thrissur	Medical, Paramedical, Health Sciences	2010
7.	Kerala Veterinary and Animal Sciences University	Wayanad	Animal Sciences	2010
8.	Mahatma Gandhi University	Kottayam	Multidisciplinary	1983
9.	National University of Advanced Legal Studies	Kochi	Law	2005
10.	Sree Sankaracharya University of Sanskrit	Kalady	Humanities and Social Science	1994
11.	Thunchath Ezhuthachan Malayalam	Malappuram	Malayalam Language and Literature	2012

	University			
12.	University of Kerala	Thiruvananthapuram	Multidisciplinary	1937
13.	University of Calicut	Malappuram	Multidisciplinary	1968
14.	Kalamandalam Deemed University	Thrissur	Culture	

The requirements of universities differ depending on the nature of the university, though there are some collections which are common to all. The universities were asked to provide a list of e-resources required by their academic community. A meeting of the Vice Chancellors was held on 29th July 2020, via videoconferencing to arrive at broad consensus in the matter of inclusion of e journals. The sharing of the subscription list of the E- Journals by librarians was discussed and the same was agreed in the meeting

Communication was sent to the publishers (from e-Shodh Sindhu Site) to provide details of their products.

The list of packages/ quotes received are tabulated and may be placed in the Technical Committee.

The list of members of the Technical Committee as provided by the university is given below

Sl No.	**Name**	**University**	**Designation**	**Mobile No**	**email ID**
1.	Beena C	CUSAT	University Librarian	9947878848	beenacherukuth@gmail,com
2.	Priya TK	Kannur University	Assistant Librarian	9446668080	dl@kannuruniv.ac.in
3.	Kunjumuhammed V.S.	KUFOS	Assistant Librarian	9388478597	vs.kunjumuhammed10@gmail.com
4.	Saidalavi C	Malayalam University	Associate Professor, Department of Linguistic Studies	9746739881	saidmuty@gmail.com
5.	Anil R Nair	NUALS	Associate Professor	984718364	anielnair@gm

				0	ail.com
6.	Mohammed Sageer T.K.	SSUS	IT Officer in Charge	9447269661	po@ssus.ac.in
7.	Mohammed Haneefa K	University of Calicut	Associate Professor, Dept. of Library Science	9895622811	dr.haneefa@gmail.com
8.	Suresh PK	University of Kerala	Assistant Librarian	9495718460	pksuresh@yahoo.com

In addition, communication may also be sent to the University Librarians of the other universities listed below

Sl.No	**Name**	**University**	**Designation**	**Mobile No.**	**Email**
1	Anu George	MG University	University Librarian in Charge	9495063091	library@mgu.ac.in
2	Mohanlal E.K.	Kerala Veterinary and Animal Sciences University	Assistant Librarian Head	9495464972	ekmlal@kvasu.ac.in
3	Jayalatha	Kerala University of Health Sciences	Assistant Librarian	9447805104	librarian@kuhs.ac.in
4	Francis, A.T.	Kerala Agricultural University	University Librarian	9496839409	librarian@kau.in
5	Lekha A	Kerala Kalamandalam	Librarian	9497063091	midhumekh@gmail.com
6	APJ Abdul Kalam	Nil	Nil	Nil	Nil

	Technological University				

Making the Consortium Functional

There is urgent need for making the consortium functional as access to e-journals are limited in universities which may adversely affect quality research activities.

Science Direct and Scopus are the most recommended e-resource of universities followed by Institute of Physics (IOP). Steps may be taken to provide Science Direct and Scopus as initial items of the e-journal consortium. The other items may be considered at a later stage depending on the preferences/priority of the academic community and other technical factors.

A meeting of the Technical Committee was held on Sept 24, 2020. 11.a.m. and discussed the various issues pertaining to the proposals submitted by various E-Journal service providers including the proposal on Science Direct and Scopus as it forms the dominant portion of the requirements submitted by universities in the state.

The Committee suggested the following points in this regard.

1. The subscription rates of E-Journal/ resources should not exceed the eSS rates(e-Shodh Sindhu rates).
2. Negotiations should be initiated with the service providers including access to back issues of at least 10-15 years.
3. The non science category of e resources should also be included in the list of e resources.
4. The number of articles downloaded, usage statistics and the clientele number may be considered during negotiations with the service providers.
5. IP authenticated access along with Institutional email domain and Remote IDs and Passwords be provided to universities by the service providers.
6. Access to Science Direct and Scopus be provided to University of Kerala, MG University, Cochin University of Science and Technology, University of Calicut and Kannur University as they are the major users of these data base and Document Delivery of articles be taken up by any one of these universities to cater to the requests from the other Universities, in the consortium.
7. The funds for the E- Journal consortium shall consist of funds from the KSHEC and funds from the participating universities in the consortium as agreed in the Advisory Committee meeting attended by the Vice Chancellors all Universities. The share of

funds each University may be worked out based on objective criteria such as usage level of journals by the universities. The possibility of direct government funding of the share of universities may also be explored.

Item No.4 -Amendment of Conduct Rules related to examinerships of Government college Teachers. – Govt. Letter.

It was decided to entrust Dr KK Damodran, Member, Executive Body to prepare a report in the matter.

Item No.5 -Representation of chartered academic librarians – as academic staff.

Resolve to forward the matter to the government based on UGC Regulations in this regard.

Additional Agenda

Item No.A1- NEP and Kerala & Reporting - Six Member Committee to study the implications of NEP 2020.

Reported the formation of the Six Member Committee as given below :

The Kerala State Higher Education Council formed a six -member committee to study and share observations on the New Education Policy 2020 approved by the Centre. The committee will scrutinise the points mentioned in the new policy, with special reference to Kerala and on matters pertaining to higher education. The committee will seek the views of all sections of the society including University /College teachers on the matter. Once the committee submits its report, following careful observations, KSHEC will convey its studied opinion on the new policy to State/Central Government.

Members of the Committee.

1	Prof.PrabhatPatnaik (Chairman)	Jawaharlal Nehru University (JNU), New Delhi
2	Prof.Rajan Gurukkal P.M.	Vice Chairman, KSHEC
3	Prof. N. V. Varghese	Vice Chancellor, National University of Educational Planning and Administration (NUEPA), New Delhi.
4	Dr.Gangan Prathap	National Institute for Interdisciplinary Science and Technology (NIIST)

5	Prof.K.Sachithanandan	Writer
6	Dr.Kumkum Roy	Centre for Historical Studies, JNU

Item No.A2 -Reporting - Minutes of the meeting of the Vice Chancellors held on 23.09.2020

Minutes of the meeting of the Vice Chancellors of state Universities convened by the Kerala State Higher Education Council to discuss and to facilitate the Government initiatives of starting new academic programmes in the emerging fields of higher education held through video conferencing on 23/09/2020 at 3.00 PM.

Prof. Rajan Gurukkal P.M. (Vice Chairman, KSHEC presided in the meeting

The following members attended the meeting.

Prof. Rajan Gurukkal P.M.	:	Vice Chairman KSHEC
Dr. V. P. Mahadevan Pillai	:	Vice Chancellor, University of Kerala
Dr. R. Chandrababu	:	Vice Chancellor, Agricultural University
Dr. Sabu Thomas	:	Vice Chancellor, Mahatma Gandhi University
Dr.M.K.Jayarajan	:	Vice Chancellor, Calicut University
Dr.Rajasree M.S.	:	Vice Chancellor, APJ Abdul Kalam Technological University
Dr. Mohanan Kunnummal	:	Vice Chancellor, Kerala University of Health Sciences
Dr. K.N. Madhusoodanan	**:**	Vice Chancellor, Cochin University of Science and Technology, (CUSAT)
Prof. Gopinath Ravindran	:	Vice Chancellor, Kannur University
Dr. Dharmarajan P.K.	:	Vice Chancellor, Sree Sankaracharya University of Sanskrit
Dr. V Anil Kumar (Dr Anil Vallathol):		Vice Chancellor, Thunchath Ezhuthachan Malayalam University
Dr. T. K. Narayanan	:	Vice Chancellor, Kerala Kalamandalam Deemed University for Arts & Culture
Prof. (Dr.) M.R. Saseendranath	**:**	Vice Chancellor, Kerala Veterinary and Animal Sciences University

Prof (Dr.) K. C. Sunny	:	Vice Chancellor, The National University of Advanced Legal Studies (NUALS)
Dr.B.Manoj Kumar	:	Registrar, Kerala University of Fisheries and Ocean Studies
Dr. Rajan Varughese	:	Member Secretary, KSHEC

Presiding upon the Conference, the Vice Chairman of the KSHEC briefed the mandatory features of the academic programmes in the emerging fields and conducted a detailed discussion of the problems and prospects of the subject matter.

Vice Chancellors generally agreed upon the idea of starting new academic programmes in the emerging fields. Each Vice Chancellor discussed the university's potentials and initiatives in this regard, individually and in collaboration. A few Vice Chancellors expressed their skepticism due to the lack of regular teaching faculty and the contingent situation forcing to run several programmes through Guest Lecturers. The Vice Chancellors of KTU and KUHAS expressed their limitations in choosing programmes outside what their National Councils have approved.

After detailed discussion, the Chairman of the Conference urged all the Vice Chancellors to finish the following statutory procedures at the earliest

a) Identification of the emerging, converging and cross-disciplinary fields of knowledge in science, technology, liberal arts for commencing new academic programmes.
b) Constitution of Expert Committees to design the courses and curriculum of the new academic programmes.
c) Providing guidance to the affiliated colleges to prepare/revise their proposals in the appropriate fields as their academic resources would allow.
d) Complete the most essential statutory formalities like securing the Academic Council's formal approval of the proposed programmes. Some of the universities might require Special permission of the Chancellor to accord change in the date of commencement of new programmes.

Most Vice Chancellors expressed reservations in making a rush about designing academic programmes. All the Vice Chancellors unanimously stated the need for seeking extension of the date of submission of proposals to the Government to 10th October, 2020.

The meeting which began at 3.00 pm concluded by 5.00 pm.

The minutes were read and confirmed.

The Executive Body meeting began at 11.00 am and came to an end at 1.30 pm

Member Secretary