

**August 2020**



**REPORT OF THE  
EXPERT COMMITTEE ON  
UNIVERSITY EDUCATION:  
COVID-19 PERIOD  
AND AFTER**

**UNIVERSITY OF KERALA**  
Palayam, Thiruvananthapuram

# **Report of the Expert Committee on University Education: COVID-19 PERIOD AND AFTER**

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## Message

University of Kerala deemed as the mother of all Universities in the state was founded in 1937. University of Travancore, later renamed as the University of Kerala has always striven to be on the right path towards academic excellence and inclusivity. Apart from the legacy that it bears, its contribution towards higher education sector of the state makes this University distinct and significant. Of late, the University has initiated several novel ventures for improving academic research and for infusing social responsibility among students. The CLIF, a central laboratory at the Kariavattom campus is a unique experiment in this regard. The *Harithalayam* project spearheaded by the University aims at increasing the green cover on campuses, for inculcating practical knowledge of agriculture and self-sufficiency among students and also for promoting paddy cultivation, coconut and vegetable farming, and gardening of trees and rare plant species indigenous to Andaman and Nicobar Islands. It is expected that the University campus will provide rich experience to the students who enrol for the programmes here. In the wake of COVID-19, an expert committee has been constituted for formulating adequate measures in tune with the present times, for revamping the education sector.

I hope that the report will facilitate the University to provide better services to the student community and society. I wish all success to the efforts of the committee and hope that the recommendations will be implemented at the earliest. Though we are in the midst of the pandemic and not having resumed the routine academic activities, I strongly believe that we shall overcome these challenges and continue our journey with added vigour towards our goal. Hope we will have a productive academic year ahead.

**Prof (Dr.) V.P. Mahadevan Pillai**  
VICE CHANCELLOR



## Preface

COVID-19 has affected lives in almost every part of the world. Economies, businesses, entertainment, education, sectors both private and public, and needless to mention, other day to day activities are also being heavily impacted and disrupted by the virus which, as predicted, will continue its havoc for a foreseeable period. COVID-19 pandemic has eerie parallels with many other epidemics in the past. The Black Death, a fatal epidemic of bubonic plague that wiped out almost a quarter of the population of Europe during 1347-51 and the 1918 Spanish flu that killed nearly 500 million people the world over had disastrous effect on humanity. But what makes COVID-19 different is its unprecedented pace and reach across the globe and its huge impact on human mobility. Synchronous with the ongoing research to develop vaccine, studies on the impact of COVID-19 on different domains including education are also ensuing in different parts of the world. Highly sensitive and volatile, higher education sector today is divided over the strategies to combat the situation created by COVID-19. The debates hitherto have also exposed the flaws, weaknesses and limitations of online learning identified by many as one of the strategies to tide over the current situation. While teaching and learning in the online platform is the need of the hour, the strategy of using a hybrid mode, combining both online and offline methods can pay rich dividend for the learners. Access to technology is the key for the student to participate in educational practices, which if in online mode can create much more novel demands and anxieties. Technology by itself is politically neutral, whereas, the questions as to who has access to it, and who is controlling it are politically loaded. Strategies have to be devised to make use of technology for the benefit of all, irrespective of the social and economic background. COVID-19 has taught us many lessons, most importantly the need for a wholistic approach. We have long forgotten the fact that people, places and non-human entities and processes are all connected, and have ignored these connections even in pedagogy. We have now resumed our talk on green economy and sustainable development in the context of COVID-19. For how long will it remain in our memory? Will it be forgotten, once the

normalcy returns? As Sujatha Byravan observes, “We must recognise, at an early age, the interconnectedness of the natural world with our everyday lives, and with the well-being of the planet. To accomplish that, education in history, geography, economics, biology and chemistry, for example, would have to be very different. Instead of presenting each discipline as distinct and separate, we ought to integrate their domains with the natural world.” In place of studying things in isolation we must embrace a strategy to link disciplines and connect concepts with their milieu. Efforts are on to develop inclusive studies that integrate literature, culture, history and sociology, but a significant level of “unlearning will have to be done along with new learning.” Programme designing and curriculum development will have to be reoriented to meet the new challenges and demands. Educational experts assert that the instructional paradigms are shifting. Instead of focusing on the memorization of learning material, the emphasis should be on the application of knowledge. The teaching and learning will have to shift from theory to praxis. Such kind of an approach can mould the students rightfully to face challenges in their lives and help them to be good competitors in the job market.

**Prof (Dr.) P.P. Ajayakumar**

PRO VICE CHANCELLOR  
Chairman, Expert Committee

## Foreword

**T**he report on the academic reforms in the University of Kerala is an attempt to develop concrete proposals for the revamping of the academic administration and management of the University. It is true that a system that was designed at a particular historical juncture should undergo restructuring at regular intervals to make itself relevant to the changing times. The University system is no exception to this rule. The suggestions incorporated in the report are compilations of proposals received from various teaching departments and the recommendations of members of the expert committee. I hope that this will help in the modernisation of the academic administration and will help in the reorientation of teaching learning process in the University. In this report, we have concentrated on teaching learning, research and examination at the University level, as the scope of the committee is limited to the academic realm. Right now, this pandemic has added a new layer of complexity and confusion to the higher education sector, to those who work in the sector, and to those who seek to study in colleges and universities. But the virus has also presented higher education with opportunities which can continue to be productive even after the current pandemic situation passes by and normalcy returns.

COVID-19 may accelerate the end of the traditional semester-based system for graduation because this generation of students are accustomed to being online all the time. The possible predictions can be a dramatic increase in blended learning, emergence of online education as a strategic priority of most institutions, centralized augmentation of instructional system design and extraordinary changes in the conduct of research and research collaborations. The attitude of the researchers who are trained under blended learning may be different from the existing ones. In addition, Artificial Intelligence has become a part of our daily life with voice recognition software programs and route-finding applications getting increasingly popular. Researchers are progressively being drawn to AI to design new materials, and to improve the living standards and life expectancy. I am thankful to all those who helped us in framing the ideas and proposals and hope that the concrete suggestions mentioned in the report will be implemented on time.

**Dr. K.G. Gopchandran**  
Convenor, Expert Committee  
University of Kerala

## **Report of the Expert Committee to Study 'University Education: COVID-19 Period and After'**

We, the members of the Expert Committee, constituted by the University of Kerala, to study 'University Education: COVID-19 Period and After' have adopted the report and submitted it.

<b>Dr. P.P. Ajayakumar</b> <i>Pro-Vice Chancellor, University of Kerala</i>	Chairman
<b>Dr. K.G. Gopchandran</b> <i>Convenor, SC of the Syndicate of Students' Discipline</i>	Convenor
<b>Adv. K.H. Babujan</b> <i>Convenor, SC of the Syndicate on Finance, University of Kerala</i>	Member
<b>Adv. A. Ajikumar</b> <i>Convenor, SC of the Syndicate on Planning &amp; Development</i>	Member
<b>Dr. S. Nazeeb</b> <i>Convenor, SC of the Syndicate on Academics &amp; Research</i>	Special Invitee
<b>Prof. S.K. Satheesh</b> <i>Professor, IISc, Bangalore</i>	Member
<b>Prof. Sunoj R. B.</b> <i>Professor, IIT, Mumbai</i>	Member
<b>Prof. Jameela Begum A.</b> <i>Professor (Rtd.), Institute of English, University of Kerala</i>	Member
<b>Prof. G.M. Nair</b> <i>Professor (Rtd.) Department of Botany, University of Kerala</i>	Member
<b>Prof. Unnikrishnan Nair</b> <i>Professor (Rtd.), Department of Physics, University of Kerala</i>	Member
<b>Sri. K. Anvar Sadath</b> <i>Executive Director, IT @ School Project, Vice Chairman &amp; Executive Director, KITE, Government of Kerala.</i>	Member
<b>Sri. Damodar Prasad</b> <i>Director, EMMRC, University of Calicut.</i>	Member

## Acknowledgements

The preparation of the report 'University Education: COVID-19 Period and After' was done to compile ideas useful for overcoming the present stalemate created by the pandemic COVID-19 and to amass ideas for the future development of the University. The ideas were derived from our own experiences and association with the University system and the desire to bring about reforms in the present system. We are extremely thankful to our Honourable Vice Chancellor, Dr. V.P. Mahadevan Pillai for giving us an opportunity to prepare a report of this magnitude. Moreover, he gave valuable insights to improve upon the recommendations. We express our deep-felt gratitude to the members of the University Syndicate who were actively involved in the preparation and discussions at various stages. The encouragement and support offered by the University Syndicate was phenomenal and it contributed much in making this a comprehensive report. We received inspiration and support from well-wishers who are always concerned about its development. Discussions were held with various stakeholders including, educationists, teachers, researchers, students, Members of the University Syndicate, Members of the Senate, Members of the Academic Council, Deans of various Faculties; Director & Members of the IQAC, University of Kerala; office bearers of the University Union, Researchers' Union, Departments Union; representatives of students' organisations, teachers' organisations, employees' organisations; University officials and media personalities. As a result, the report grew in size, scope and magnitude. We hope that the report will help the University to grow with a vision and sense of direction. We express our gratitude to all for their valuable suggestions.

A Special word of appreciation should be mentioned to Dr. E. Shaji, Joint Director, IQAC, for preparing the charts and diagrams and also to Godfreys Graphics for the design of the report.

**Expert Committee Members**



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## I. Preamble

The Expert Committee was constituted by the University Syndicate to submit the recommendations related to the reforms required in University Education in the context of the COVID-19 outbreak and the subsequent closure of educational institutions. The main objective was to identify ways in which the educational processes could be continued during this period.

### **‘PostCOVID-19’**

While deliberating on the strategies to be developed for overcoming the deadlock in the COVID-19 period, the committee also became conscious of the fact that education after COVID-19 will be entirely different from what it was during the pre-COVID-19 period. It is this understanding that persuaded the committee to look into the probable reforms that need to be initiated for renovating higher education in the postCOVID-19 period. The term ‘postCOVID-19’ does not refer merely to the period after the outbreak of COVID-19, but to the moment at which the after effects of the pandemic still persist. The pandemic in divergent forms may persist, with the indication that the social, economic and behavioural changes induced by the pandemic will continue for a considerable period of time in future. So, the COVID-19 period and after does not refer to a break but a continuum of particular socio-cultural economic, and behavioural practices. Meanwhile the organisational structure and the business of teaching and learning in Universities have been undergoing considerable transformation, and so, no institution can keep away from concocting plans for restructuring the academic and administrative design and imagine it in novel perspective.

### **Digital Divide**

The technological revolution, popularly known as the fourth industrial revolution has altered the way we live, work and relate to each other. It has grown beyond the previous revolutions in its scale, scope and complexity. If the first industrial revolution used the power of water and steam power to mechanise production, the second used electric power for mass production and the third used electronics and information technology to automate

production whereas the fourth is building on a digital revolution that blurs the lines between the physical, digital and biological spheres. Beyond these, that have been said, it is true that the digital revolution is all pervasive and has crept in to the entire systems of production, management and governance, not to speak of education. The kind of inequality that may persist in future is predicted to be on the basis of access, or lack of access to digital technology, and attainment of, or inability to attain the skill in the use of technology. Though the statement appears to be rather superficial, digital technology has become an integral part of human activity in the contemporary situation. So, reforms and reorganization in the field of education cannot be initiated without addressing the core issue of digital divide. Instead of keeping technology at the bay, we should take it and use it for the benefit of all. One of the prerequisites of educational reforms today is the establishment of high-speed internet in the nook and corner of the state and easy access to the electronic devices for all sections of the society. Hope our state will be able to achieve this aim of 'Internet for all' because in the present context this is going to be the first step towards the larger aim, 'Education for all.'

### **Co-operation, not Competition**

One of the lessons that COVID-19 teaches us is the interconnectedness of all phenomena. It is interesting to note that COVID-19 does not remain as a health-related issue. It affects our economy, social life, movements, business, cultural life and even our everyday life. Life in the digital age is supposed to be inwardly oriented, but COVID-19 leaves no stone unturned to prove that our independence is highly conditioned and rigid, our movements are connected with the movements of many others, our life is tied up with the life of other living beings including the microorganisms, or in short, the interrelatedness of things. These lessons must be incorporated in to the curriculum to provide insights into the interrelatedness of nature. The awareness gained from the experiences of COVID-19 pandemic must be the launching pad to take the journey forward. The success of a few is not the sign of development or progress, be it in the class room or in the society. Competition for the survival of the fittest is not the strategy required of a country like India, but cooperative and concerted efforts towards academic excellence. In a country like India what is demanded is cooperation and coordinated efforts towards academic excellence. This should begin from the root level. A successful student should support a weak student, an established institution should support a developing institution; care and support shall be given to those who fail to cross the line. If cooperation and collaboration is developed among educational institutions, all of them are likely to grow and flourish. Incessant interaction between Universities, University departments, research institutes and colleges, and sharing of resources including human resources, library resources and facilities in the laboratory; can help in developing a new model of educational practice as against the theory of 'compete or perish.' The Kerala model of development has been hailed for its achievements in the fields of education and health. While tracing the history of the establishment and maintenance of educational institutions in Kerala it is heartening to see that, irrespective their affiliation, almost all of them were established by the joint efforts of people, organisations and the government. This legacy and working model should be followed in future also, for the protection, promotion and upgradation of our educational institutions. It is vital to promote academic cooperation among educational institutions in order to make the institutions exemplary and to provide high quality education for all.

### **‘Open Access’ to Education**

Education is the key for upward mobility of the individual and the society. The slogan, ‘education for all’ intends to enhance the growth of the society by providing education for all the people, irrespective of their caste, creed and financial status. The democratic distribution of education demands access to educational institutions at an affordable fee. Exposure of educational resources and study materials to all is an important step required at this point of time. In this digital age, providing open access to educational resources has become comparatively easy. Linking libraries and allowing access to the digital resources are the preliminary steps towards larger democratisation of knowledge dissemination. The report of the Expert committee on ‘University Education: COVID-19 Period and After’ focuses on some of the basic assumptions of democratisation and cooperation for the growth and development of higher education.

### **The Future of Higher Education**

Higher education institutions provide educational progress and social prosperity. They must be drivers of social change, stimulating fresh movements to secularise knowledge and promoting innovative research and social transformation in favour of the downtrodden. The history of Kerala reveals that progress in higher education can go a long way in transforming the society and the fortune of the people. A silent revolution has been going on in the field of education related to the use of digital technology for imparting education. Digital technology opens up new avenues of application to be exploited for the interests of the participants in education and for the society as a whole. Higher education primarily should aim at the production of new knowledge. Universities should develop an educational ecosystem suitable for pursuing research without being affected by transient happenings of the day. Moreover, higher education must train students to become specialist workers possessing skills necessary for various positions. Higher Education institutions in Kerala have been undertaking these responsibilities satisfactorily during the past eight decades. Of late, more and more new players are crowding in to the higher education sector resulting in the proliferation of Colleges of Engineering and Technology and certain other specialised areas offering accelerated qualification in specific disciplines. Specialised education may be the need of the present, as they offer specific skill essential for particular jobs. The increase in the use of digital technology in the field of education provides easy access for the corporate sector to enter the field of higher education and establish institutes offering programmes of shortest duration levying huge course fees. This trend is likely to grow in the near future. One of the challenges that the traditional Universities will have to face in future will be the temptation of conducting programmes addressing the short-term market trends. It is to be seen that the demands of the skill-based programmes are addressed while holding on to the programme outcomes related to critical thinking, empathy and imagination. Higher Education institutions must develop a methodology for systematic and holistic confrontation with the consequences of the commodification of education and the increasing corporatisation of higher education. Universities will have to reorient the teaching-learning strategies appropriately adapting to the new situation. On the one hand, they must develop new models for imparting knowledge and competencies required for the present. Added to these they should adopt sustainable and practical approach to virtual and decentral forms of teaching that can be combined with the direct, face to face teaching in the classroom. Research will continue to play a central role in the Universities. Research in the fundamental gaps of knowledge areas should also be promoted along with other areas.



Creating a network of Universities to promote dialogue among them is rudimentary for the promotion of our institutions. University campuses must develop an ecosystem conducive for open interactions and deliberations. The architectural design, arrangement of gardens, pathways and open spaces must be in tune with this vision. The public Universities have a pedigree of promoting secularism, augmenting democratic dissemination of knowledge and introducing new intellectual perspectives. The future development of these higher educational institutions depends heavily on the ways the challenges posed by the present are confronted.

## II. University of Kerala

University of Kerala is one among the earliest Universities in India. It was the third of its kind among the Princely States and the sixteenth in the whole of the country. The Royal Proclamation establishing the University of Travancore was issued on November 1, 1937, the twenty sixth birthday of the late Sri. ChithiraThirunal Balarama Varma, Maharaja of Travancore. For more than eight decades, the University has been striving to fulfil its goals, very well explained through its motto, “KarmaniVyajyatePrajna” (true knowledge manifests itself in action), quoted from a verse from *Panchathanthra*. The establishment of the University of Travancore was based on three clear objectives as stated in the preamble of the Travancore University Act, 1937; 1) “the gradual development of technical and technological education”, 2) “the furtherance of original research in the various branches of applied sciences”, and 3) “the conservation and promotion of Kerala Art and Culture.” Many visionaries including, Sir. C.P. Ramaswamy Iyer, A.R. Raja Raja Varma, Krishna Aiyangar, R. M. Satham, C.V. Chandrasekharan and T.K. Velu Pillai worked hard behind the establishment of the University.

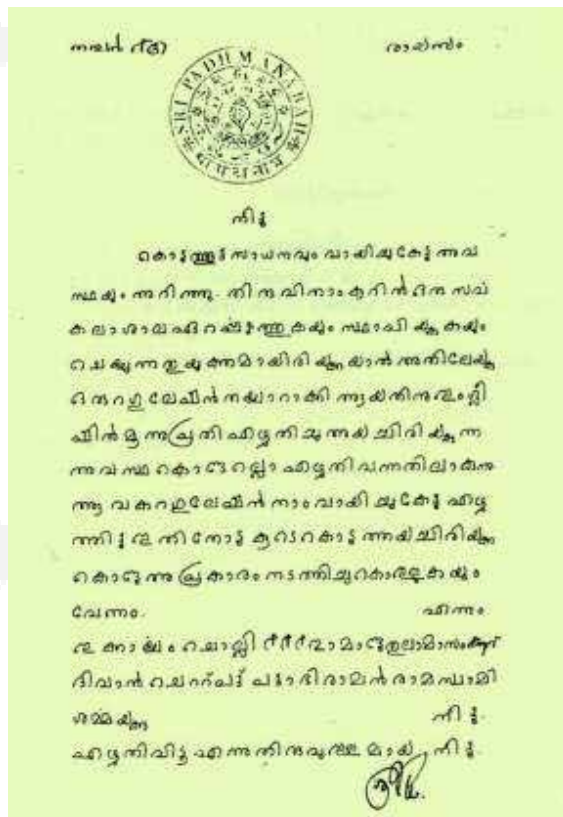


Figure I - Royal proclamation

It started functioning with ten affiliated colleges having a student strength of 3137. The University was reconstituted in 1957 under the first elected ministry headed by Sri. E.M.S. Namboothiripad, the entire state within its jurisdiction. University of Kerala was thus established based on the Kerala University Act of 1957 which came into force from 30 August 1957. Different from the earlier Act the new Act of the University of Kerala gave considerable autonomy to the University and proposed to constitute the Senate and the Syndicate on democratic lines. The University was bifurcated in 1968 to establish a separate University for the Malabar region of the state with its headquarters at Calicut as decided by the Ministry headed by Sri. E.M.S. Namboothiripad. University of Calicut was established through an ordinance issued

on 23 July, 1968 by the then governor, Sri. V. Viswanathan. The four revenue districts of Trissur, Palakkad, Kozhikode and Cannanore were brought under the jurisdiction of the Calicut University. The Kerala University Act, 1969 that came into force on 28 February 1969 declared the Senate as “the Supreme Authority of the University.” It also provided for the constitution of the Academic Council and the Finance Committee. Two more new Universities came up in 1971, Kerala Agricultural University and Cochin university of Science & Technology. The Departments of University of Kerala in the Ernakulam Centre became the Departments of the Cochin University. The Kerala Agricultural University had its headquarters at Mannuthi in Trissur. Both these Universities were established during the tenure of the Ministry headed by late Sri. C. Achutha Menon.

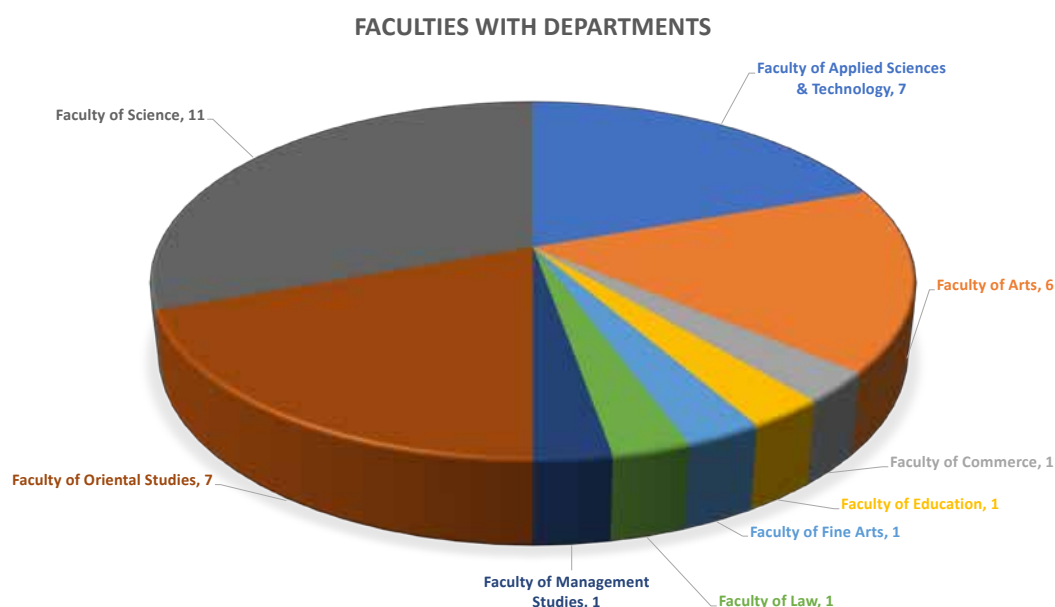
The Kerala University Act 1974 which came into force on July 26, 1974 provided for the election of a student member to the University Syndicate and the enforcement of the principle of communal reservation in appointments to various posts in the University. University of Kerala was further divided in 1983 with the establishment of Mahatma Gandhi University at Kottayam during the tenure of Sri. K. Karunakaran as Chief Minister. It had its jurisdiction over the districts of Ernakulam, Idukki & Kottayam, the Kuttanad Taluk of Alappuzha district and the Taluks of Kozhencherry, Mallappally, Ranni and Tiruvalla in Pathanamthitta district. Thus, the jurisdiction of University of Kerala was confined to the districts of Thiruvananthapuram and Kollam and portions of the districts of Alappuzha and Pathanamthitta.

The popular Governments of Kerala have taken steps to democratise the administration of the University by ensuring the participation of various sections of the society in the governance of the University. The hierarchy in the University administration is as follows; 1) the Senate 2) the Syndicate 3) the Academic Council 4) the Faculties 5) the Boards of Studies 6) the Students’ council 7) the Finance Committee 8) such other boards or Boards of the University as may be declared by the Statutes.

The amendments in the Statutes of the University clearly reveals its progress in democratising the administration and in adopting an inclusive approach very well exemplified in the structure of the various bodies. The Senate, constituted every four years, is the “the Supreme Authority of the University”, which has 117 members (24 ex-officio, 78 elected and 15 nominated). It represents a cross section of the society, with its members drawn from different walks of social life. The Academic Council is the supreme academic body of the University. It is also a large body like the Senate, with its members drawn from different spheres of academic spectrum. The Academic Council has the power to make regulations and to advise the Senate and the Syndicate on all academic matters. The Syndicate, the chief executive body of the University, has a strength of 25 (including the Vice-Chancellor, the Pro-Vice-Chancellor, the Secretary to Govt. (Higher Education), the Secretary to Govt. (IT Dept.), the Director of Public Instruction, the Director of Collegiate Education, twelve elected members, one elected student member and five nominated members. The Syndicate, which meets as per statutory requirement, has executive powers including the general superintendence and control over the institutions of the University.

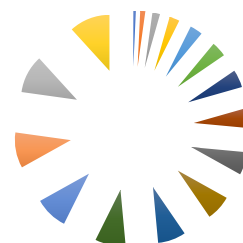
### III. Teaching & Research Departments of the University

The sanctioned strength of teachers in the University Departments is 298. As of now, we have in service 200 teachers. The number of teaching positions is crucial in lifting the University to greater heights.



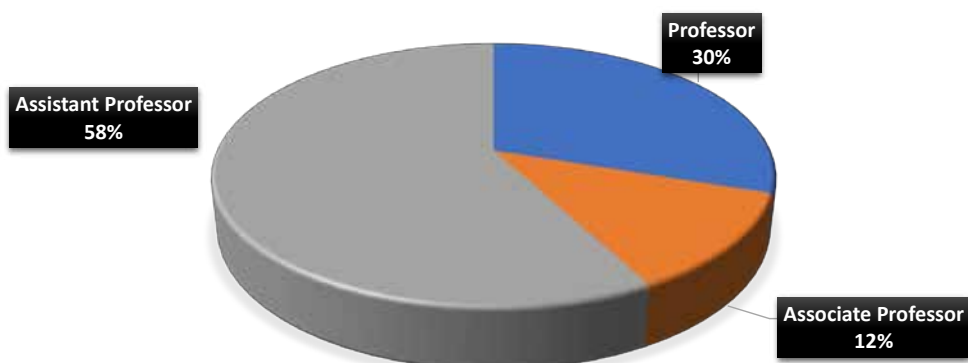
#### LIST OF FACULTIES : TOTAL 16

6 faculties have no departments



More over there should be a proper distribution of faculty positions among various departments. At present the distribution is not even. While some departments enjoy the privilege of having a decent number of teachers, certain other departments are heavily crippled because of the lack of faculty positions. This is true in the case of some of the comparatively new departments like Nano Science & Nano Technology, Department of Kerala Studies, Institute of Management in Kerala and Biotechnology.

## STATUS OF ACADEMIC FACULTY

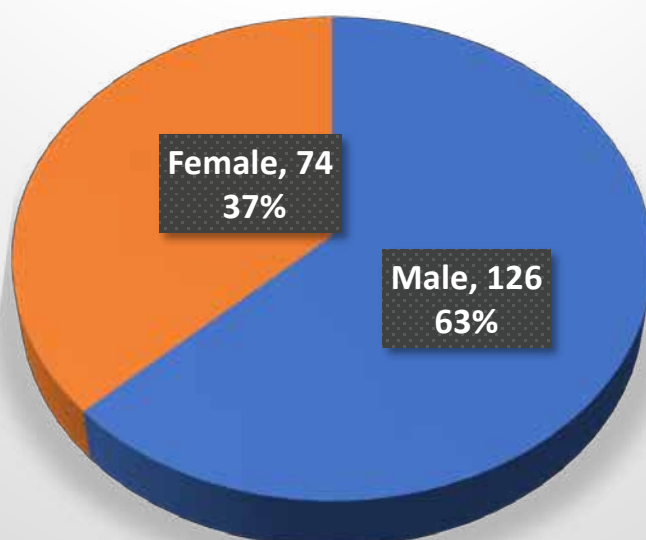


Professor	Associate Professor	Assistant Professor	Total
61	24	115	200

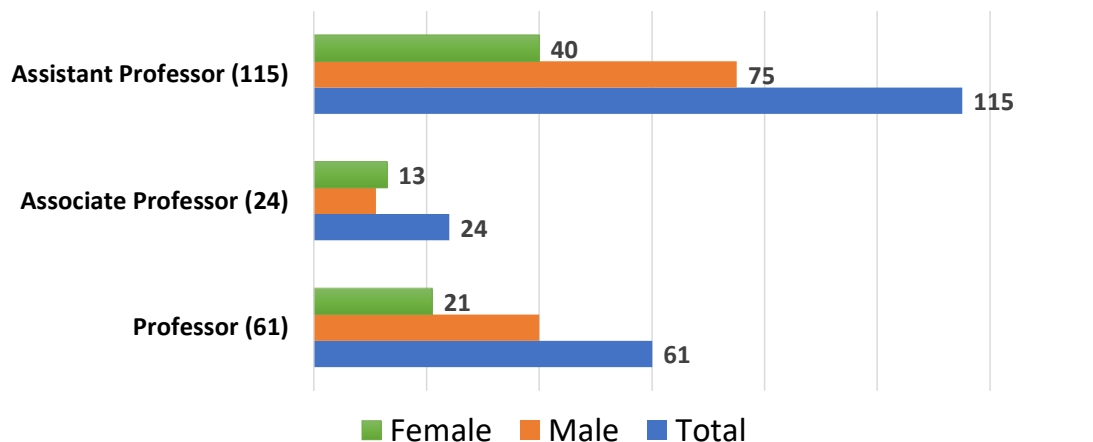
Minimum seven teachers in a teaching and research department will be the immediate target for University of Kerala as the minimum number of teachers needed for applying for the Special Assistance Programme of UGC is six. So, filling up of vacant posts of teachers, sanctioning new posts for the departments that suffer from shortage of staff, and deployment of teaching posts wherever possible; should be the strategy that we could adopt for the immediate future, to maintain a balance.

## GENDER RATIO OF FACULTY MEMBERS

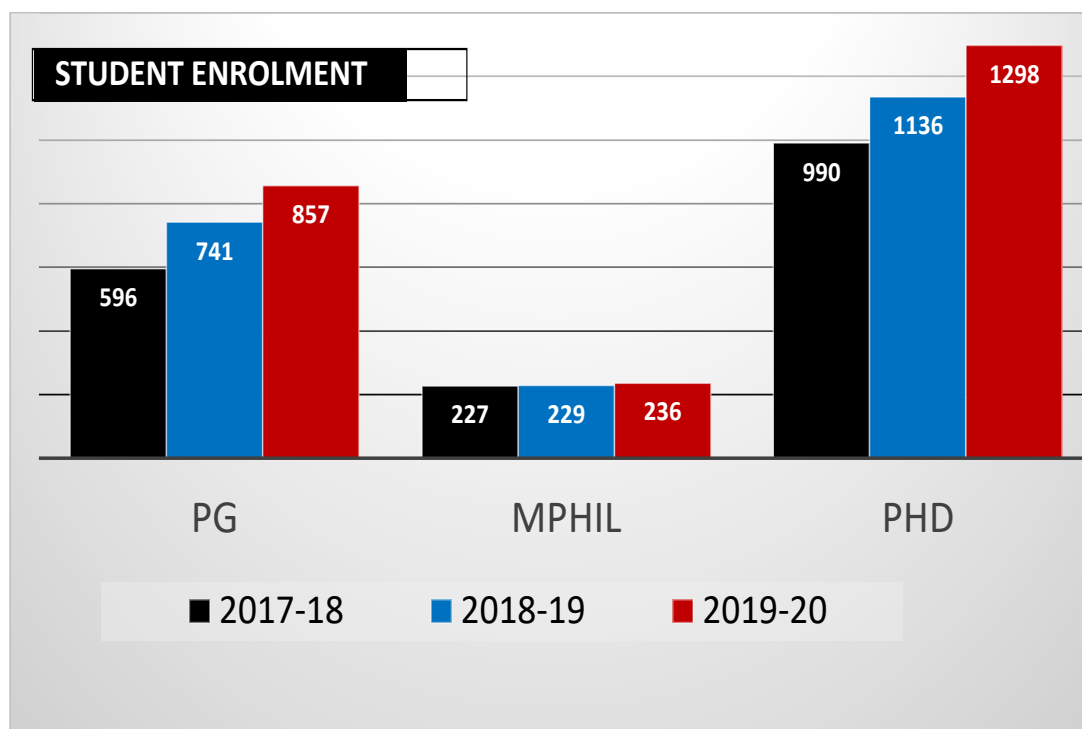
TOTAL 100



## GENDER GRAPH OF FACULTY MEMBERS

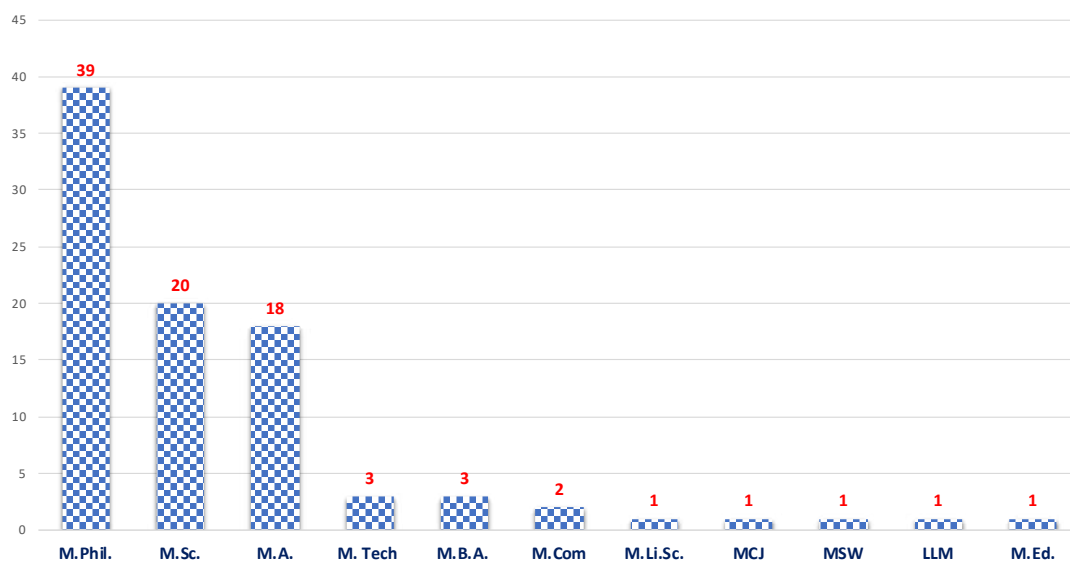


University of Kerala has 44 teaching and research departments that come under 9 faculties, the total number of Faculties being 16. But the lion's share of the departments come under four faculties, Faculty of Science (11), Faculty of Applied Science & Technology (7) and Faculty of Oriental Studies (7) and Faculty of Arts (6). The teaching and research Departments excluding SDE offer 51 PG programmes and 39 M Phil Programmes.





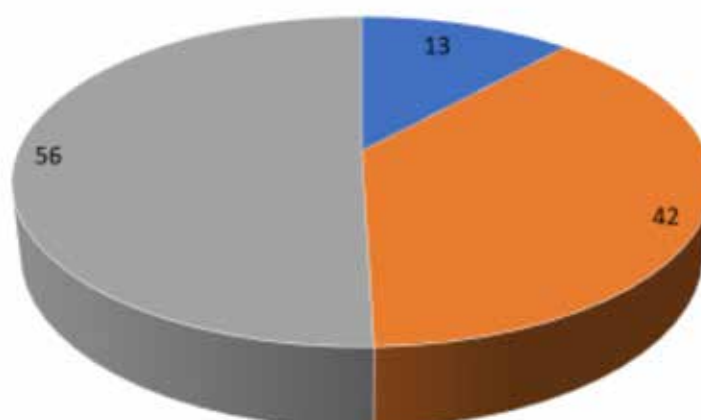
## PROGRAMMES OFFERED BY UNIVERSITY DEPARTMENTS



## IV. Affiliated Colleges under University of Kerala

The total number of colleges affiliated to the University is 189, out of which 111 are Arts & Science Colleges, 48 Training Colleges, 9 Management Colleges, 7 Law Colleges, 4 Colleges for MCA, 3 Colleges for Hotel Management & Catering, 2 Colleges for Fine Arts, 1 College each for Physical Education, Music, Special Education, Fashion Technology and one College for Engineering. Apart from these, 51 Self- financing institutions, which include 34 UITs, 10 KUCTEs and 7 UIMs are also functioning under the University.

## ARTS AND SCIENCE COLLEGES



■ Govt. ■ Aided ■ Unaided

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## V. Teaching, Learning & Curriculum Design

### ■ General Observations

Drastic changes in the strategies of teaching and learning are required in the present context in the University departments and affiliated colleges. It will be good if we can adopt the strategies of blended learning and use a mixture of online and face to face teaching which could be termed as 'hybrid' teaching/ learning strategy. The classroom will be converted into a space for online and direct interaction with the students with provision for live streaming of classes.

**Hybrid Learning Strategy:** Teaching learning process in the postCOVID-19 scenario demands the adoption of strategies of blended learning in which online educational materials are used in the face to face classroom. In the present context of social distancing we could modify the approach a little and start using a mixture of online education and face to face teaching. This hybrid approach will help in reaching out to our students through the online platforms and provide uninterrupted educational support. Once the situation changes, for the better classes can be started dividing each class into two batches so that 50% of the students can attend the class at a time. Students will be permitted to attend classes on alternate working days. Timetable and the distribution of classes will be rearranged to suit this method. This system will be continued until the situation comes back to normalcy.

**Accessibility and Inclusivity:** Accessibility to the electronic gadgets is going to be one of the impediments in implementing on-line mode of teaching and learning. University should address this issue and should find ways in providing electronic gadgets to the students who do not possess one. It will be difficult to use data for hours together for many students. So, it will be better if the classes are recorded and uploaded to an E-Knowledge Bank so that the students can download the same and listen to. But in continuation online interaction based on the video lesson will be arranged to clarify doubts, to generate discussion and to provide opportunity for them to express their views on each topic. Specific time slots will be arranged for such interactions after uploading the video lessons. The survey conducted by CSS to identify the number of students who do not possess electronic gadgets like Laptops or Smart phones, revealed that 2.3% of students do not possess smart phones and 4.2% of students do not have access to internet. But in the case students in the affiliated colleges the percentage of students who do not have access to internet and electronic gadgets is estimated to be 25 to 30 %. The data referred above proves that issues of accessibility prevail among students of University departments and affiliated colleges. So, it is important to take measures to provide accessibility to all of them. Funds for purchasing smart phones for the use of students who do not have access to the same must be given to the Vice Chairman, CSS. Provision for using the DDF, with the permission of the Vice Chancellor, for this purpose, will also be considered.

**Learning Management System:** University of Kerala has recently launched Moodlebased learning management system and is available at <lms.keralauniversity.ac.in.> The system can be used for delivering both Massive Open Online Course (MOOC) and

small private online course (SPOC) for those enrolled for Programmes offered by the teaching and research departments of the University of Kerala. The system can deliver and manage almost all kinds of e-resources needed for the course. It can be used for providing teaching materials, sharing databases, providing links to online resources, formulate forums of group discussions, conducting surveys among the participants and online assessment/examination. All academic activities, including attendance, assessment, access to knowledge resources, online classes and examinations should entirely be brought under the LMS. Each student will be able to log in and access the information and resources, take tests and be informed of the examination schedules. LMS will be introduced in the affiliated colleges as well. Training programmes will be arranged for teachers in the online platform.

## Recommendations for the COVID-19 Period

### ■ University Departments

- ▶ The Learning management System already in use must be made mandatory for all departments from the academic year 2020-21 onwards. Internal Assessments, sharing of digital resources, mid semester examinations and discussions with students can be done using LMS.
- ▶ **Student centred teaching and learning:** Teaching and learning strategies have to be revamped considerably in the new context.
- ▶ Online teaching and learning cannot be a replica of the face to face teaching and learning.
- ▶ It is true that the benefits of face to face learning cannot be fully made available in the on-line mode. At the same time interaction to a certain level is possible even in the on-line mode and optimum use of technology that promotes interaction must be ensured. After evaluating the condition of the spread of the epidemic, face to face classes must be started in small batches conducting classes at different time schedules.
- ▶ Upload recorded classes of 30 minutes duration and then live discussion with students based on the video lesson. The students will be able to listen to the classes at their convenience. They can repeatedly watch the class if needed. The discussion time will be used for clarifying doubts and for deliberations on the topic.
- ▶ **Promote Student Interaction:** Students must be allowed to make presentations frequently on topics related to their field of study. The same can be monitored and adjudged by the teacher concerned. This will help them to work on their own under the guidance of the teacher. Another strategy that can be adopted will be to persuade them to start blogs to review various sessions and upload a summary of the ideas. Student coordinators can be employed by teachers to monitor the content uploaded in the blogs.
- ▶ A survey reveals that 2.3% of students in the University Departments do not have smart phones and 4.2% do not have access to internet. This issue can be resolved by supporting them with smart phones. The possibility of providing Mini Laptop to students can be considered. DDF, PTA funds etc. can also be used based on formal official sanction.

## ■ **School of Distance Education**

- ▶ SDE should have a Learning Management System for managing the contact programmes and internal assessment. LMS will ensure the smooth conduct of the internal assessment and exchange of digital materials and the monitoring of the students.
- ▶ Classes can be conducted online. A mixture of recorded videos and podcasts followed by live discussions using Microsoft Teams/UoK Meet/ Google Meet etc. will be better.
- ▶ Distribution of Study materials in pdf format must be attempted. Fee for study materials can be reduced for those who opt for the pdf version.
- ▶ Assignments can be reduced to five pages for this year. Scanned copies of the same must be uploaded for evaluation.
- ▶ Software for the submission and evaluation of assignments must be developed by KUCC. Another option will be to conduct internal assessment through an objective type test using the LMS.

## ■ **Affiliated Colleges**

- ▶ Learning Management System can be introduced in all Colleges. Internal Assessment, mid semester examination, sharing of digital resources, sharing of PPT and even recording of attendance can be done using the LMS.
- ▶ Training on on-line teaching and LMS shall be given to teachers of affiliated colleges through HRDC.
- ▶ Online classes will continue as a temporary arrangement for the conduct of classes. Apart from the videos and online sessions, podcasts on relevant topics could also be used. There should be mechanism to monitor the online sessions. A committee headed by the Principal will prepare a timetable for the same and will supervise the conduct of classes. It will be good if the sessions are recorded.
- ▶ Scope for interaction can be explored through blogs, diaries, and allowing presentations by students. Three tier system; teacher, student monitor, student learner will be followed for ensuring interaction between students. Student monitors will coordinate discussions and group activities by students.
- ▶ Timing of the class hours could be arranged taking into consideration the convenience of the students. So classes can be arranged during the evening after 6 pm to include students from the poor background who do not possess mobile phones on their own.
- ▶ Face to face classes can be started in different batches when the situation improves. The College Council will monitor the arrangements for online and face to face sessions. The face to face classes will be arranged by dividing the programmes into two and then dividing each class into two batches. If there are four UG and two PG programmes in a college, Monday and Tuesday can be devoted to two UG and one PG programmes and Thursday and Friday for the rest. The students of each programme must be divided into two batches, so that they can be allowed to attend only either F.N or A.N session every day.
- ▶ For Science programmes, practical sessions must be compensated in the ensuing semesters whenever possible. Meetings of the Boards of study must be convened

urgently to rearrange the practical classes for the ensuing semesters so that the teachers and students can maintain distance in the laboratories during this time.

- ▶ Classes for each semester shall be conducted as per the Academic Calendar. However the schedule for the conduct of examination must be revised as per the situation of the spread of COVID-19.
- ▶ Colleges should address the issue of digital divide. This can be done by attracting resources from various agencies and organisations. The colleges should use programmes offered by the Government. The possibility of arranging financial support from local bodies, MLA fund, MP fund, PTA fund or Alumni Association must be explored.
- ▶ Training programmes for teachers must be arranged to familiarise the teachers with the LMS and the possibilities of online teaching.
- ▶ Every college must conduct a survey to assess the number of students who do not possess smart phones or laptops and internet facility.

### Recommendations for the PostCOVID-19 Period

#### ■ University Departments

- ▶ In view of the growing demand for online classes and live streaming sessions, IT infrastructure in the University departments needs to be upgraded and improved.
- ▶ **Theatre Classrooms:** In order to implement the strategy of combining online and face to face teaching learning, the upgradation of the infrastructure facility of the departments, is a must. University has already proposed the introduction of theatre classrooms in departments which will cater to the needs of online streaming of classes, recording of classes and also for playing video and audio recordings in order to enrich the classroom (Physical & Online) experience of the students.
- ▶ **Distribution of Tablet:** Some of the educationists are of the opinion that it is highly redeeming that mobile phones are going to be future classrooms. The interesting fact is that the official order that expels the mobile phone from the campus is still in force in certain institutions. Though slightly exaggerated, the statement appears to be relevant as we have made the mobile phone, a classroom and even conference room. University must think of providing Tablets for each student at the time of admission. This will function as a virtual classroom. The submission of assignments, conduct of internal examinations and most other educational activities could be executed online through the iPad. It could also be used for writing the end semester examination.
- ▶ **KU Padasala:** University of Kerala has already launched a programme to develop video lessons, KU Padasala. Efforts are on to materialise the same. To begin with, videos must be made on one course in every semester of each Programme. The videos should be limited to 30 minutes. Students must be persuaded to interact with the teacher and also with other students about the topic after watching the video lesson.
- ▶ **Knowledge Portal:** Knowledge portal is a repository of digital resources. University of Kerala should develop a portal which should function as an institutional repository. Institutional repository (IR) is an online archive for collecting, preserving, and disseminating digital copies of the intellectual output of an institution, particularly a research institution. It can be viewed as a set of services that the university offers to



members of its community for the management and dissemination of digital materials created by the institution and its community members.

- ▶ **Digital Resource Mobilisation:** Teachers and students are exposed to digital resources in the form of online journals, e-books, e-libraries, digitised dissertations, You-tube lectures etc. Each department should mobilise the digital resources available to them to develop an institutional repository of the academic contribution of the University as a whole. The contributions of all teachers and researchers in every department must be collected and digitised and uploaded to this repository so that a Knowledge portal is developed. The benefits of establishing an institutional repository of University of Kerala are many. It will provide open access to institutional research output (Electronic Theses and Dissertations (ETD)) by self-archiving it, create global visibility for the institution's scholarly research, store and preserve other institutional digital grey literature (unpublished) produced from each department like seminar reports, technical reports, conference proceedings, project reports, etc. Moreover, the repository will give access to e-Books and other online journals subscribed by the University preserving organization's legacy and also give publicity to the research findings. The Knowledge portal will be an extension of the University library, could be termed as a digital library with easy access to students and researchers.
- ▶ **Centres of Excellence in Research:** All University Departments must be developed into Centres of Excellence in Research. Interdisciplinary research must be promoted in all departments. There is enormous possibility for collaborative research at Kariavattom campus where majority of the departments are located. Apart from inter-department collaboration, joint research with research institutes outside the campus must also be started. Some of the departments like Department of Nano Science and Nano Technology could bring together scholars from departments like Physics, Chemistry, Opto-electronics, Bio-technology, Bio-chemistry and Botany for extremely novel projects. Department of Kerala Studies can attract scholars from other departments like Economics, Malayalam, History, Archaeology, Environmental Science, Aquatic biology, Performance Studies, Linguistics, Zoology and Journalism and Mass communication. It could function as a nodal centre for the study of Kerala society, economy, environment and culture. The Department of Kerala Studies is meant for study and research in divergent areas of Kerala society and culture. Kerala has a rich heritage of performing arts. *Koodiyattam*, one of the oldest forms of performing art of Kerala, *Kathakali*, *Theyyattom* and various folk performances add to the variety of the performing tradition of Kerala. If the department collaborates with the Centre for Performing and Visual Arts it can lead to high quality research on performing arts and dance forms of Kerala. Moreover, short term programmes on Kerala culture and visual arts of Kerala can be offered jointly.
- ▶ **Credit Transfer:** Student mobility from outside Universities to University of Kerala is likely in the present context of the spread of the disease. The present system is not flexible enough to accommodate students from outside, in the midst of an ongoing programme. Arranging facility for credit transfer is one option. According to this, students will get their credits transferred from one University to another if they shift their study and location. This will enable them to continue their studies uninterrupted even when they are forced to move. In anticipation of the student mobility from other Universities in the

postCOVID-19 scenario, credit transfer from other universities to University of Kerala must be allowed.

- ▶ **Skill Development:** Basic training in presentation skills, academic writing and research methodology must be part of the curriculum of all PG programmes. This will help the students to perform well in interviews as well as in work places. Professional training must be given to the students for developing basic skills. The training can be entrusted with the Centre for Academic & Professional Training. Skill development of students should be made part of the curriculum. Presentation skills and academic writing must be the part of all programmes.
- ▶ **Foreign & Indian Language Baskets:** Provision for learning at least one foreign language, must be arranged by introducing a Foreign Language Basket. For this, the School of Foreign Languages can be strengthened by introducing faculty members from French, Chinese, Spanish and Japanese. The ability to read, write and converse in a foreign language will enhance the quality and confidence of the students and will help them develop their career in future. Indian language basket can offer Bengali, Telugu, Kannada and Marathi apart from Malayalam, Sanskrit, Tamil and Hindi. Certificate programmes on each language must be offered to develop basic knowledge of these languages. One Assistant Professor will be appointed for each language.
- ▶ **MOOC Programmes:** University will offer MOOC courses on relevant areas. This will help in developing programmes that have regional flavour and relevance. Students can also join selected MOOC programmes that are already in the list.
- ▶ **SWAYAM:** SWAYAM is an integrated MOOC platform that aims at the three cardinal principles of 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.
- ▶ **Working Hours of Laboratories:** Laboratories are at the heart of a research institution. It should work round the clock. At present, the functioning of laboratories are from 10 am to 5 pm, which is quite insufficient for the promotion of serious research. To begin with, laboratories must be open at least from 8 am to 8pm. This will help in promoting more active research in the departments.
- ▶ **Research on the Impact of COVID-19:** Research is one of the major responsibilities of a University department. So, the departments should respond to the issues that demands academic research. The impact of COVID-19 has opened up immense possibilities for research in various fields from Bio-sciences to Social Sciences. So the University departments should concentrate on research on the impact of COVID-19 on the society, economy and culture of Kerala. Documentation of how Kerala prevented the spread of COVID-19 should also be done.

#### ■ **School of Distance Education**

- ▶ At present, around 28000 students are pursuing nearly 26 UG and PG programmes at SDE. Further, every year 9000 to 10000 students enrol for various programmes. Out

of these, 25 per cent are from outside the jurisdiction of University and NRIs. SDE has been offering contact classes online during the past three months. As per the reports of the SDE Director, the number of participants for the online classes is higher than face to face contact programmes conducted earlier. So, online contact classes must continue to be offered in future as well. The academic activities and functioning of SDE need total revamping. All activities including the contact programmes, examinations and administration will be made on-line allowing participants to enrol the programmes from every part of the world. However, managing the teaching-learning process of the programmes, including the conduct of the contact classes, maintenance of students' attendance, admission, and valuation of assignments based on the revised curriculum of the University and UGC, creates major hurdles without the assistance of a sophisticated system based on ICT. Hence, it is required to establish a sophisticated e-Learning system called LMS for managing the programmes of the SDE.

► **Revamping SDE:** School of Distance Education, University of Kerala is the first of its kind in the state. Suggestions for uplifting it to a prestigious institution are given below:

1. There should be an academic advisory committee consisting of eminent academicians from the fields concerned for each programme. All academic activities of SDE must be monitored by these committees. The academic activities should be shifted to an e-learning platform. The study materials and the lectures must be provided on-line.
2. The preparation of the study materials (SLM) must be a collective activity and should be done by a team of experts to ensure very high standards and quality. Since the Self Learning Material is the key for distance education the procedure for preparing materials should be clearly specified.
3. Video lectures for each unit will also be developed and uploaded in the SDE portal.
4. Face to face sessions will be conducted for limited hours every year to clarify doubts and for those subjects that need practical training or laboratory work.
5. Infrastructure facilities for recording, editing and live streaming of classes must be arranged at SDE.
6. The distribution of academic staff will be rearranged so that there is a permanent teacher for every programme. If needed, additional temporary teachers can be recruited.
7. Assignment and project submissions will be integrated with the LMS and will be done online.
8. A Students' portal will be developed for providing all academic services to the students.

## ■ **Affiliated Colleges**

- Upgradation of IT infrastructure and high speed Wi-Fi connectivity in Colleges are the basic requirements for the continuance of the academic activities in the colleges. So top priority shall be given for the same.
- **IT@ College:** IT@ School was successfully implemented in the state of Kerala to provide good IT infrastructure in schools. This proved to be of great use during the time

of the pandemic. Similar project in the model of IT@ School shall be implemented for the improvement of IT infrastructure in the colleges with the support of government using KIIFB fund or any other allocation.

- ▶ **KU Padasala** shall be extended to include general topics related to the field of study in the colleges. The preparation of the videos shall be done systematically ensuring the quality of the videos. University shall appoint a team of experts to design, develop and upload the videos for each programme. Willingness of teachers shall be obtained for working voluntarily for this project. Then the teachers shall be allotted topics. They shall prepare a draft lesson plan for the same and present the same before the committee. The committee shall suggest revision if needed and approve the same after correction. A mock class shall be conducted after that. The committee shall suggest corrections if needed. This shall be followed by the final recording.
- ▶ **Training in LMS & On-line Teaching:** Training programmes shall be arranged for college teachers to equip them in IT enabled teaching.
- ▶ **Record Videos using OBS Studio:** Teachers can record videos on their own using OBS studio. Videos produced by teachers could be uploaded in the KU Padasala after verification by the expert committee.
- ▶ **Academic Collaboration:** Should develop greater academic collaboration between University Departments and affiliated colleges. Colleges should also develop collaborations with other research institutes. Collaborations of this sort will help in upgrading the research potential and academic standard of the college.
- ▶ **Academic Support for Accreditation:** Academic collaboration between colleges is also extremely significant. Collaborate and develop shall be the motto. Colleges accredited with 'A' grade should provide academic support to at least one non-accredited College in the nearby area by adopting that college.
- ▶ **Online Certificate Programme for College Students:** University shall offer online certificate programmes for foreign language learning. This will help the students in the affiliated colleges to learn the language.
- ▶ **Academic Support to Local Bodies:** Colleges can contribute in the development of a locality in many ways. Teachers and students shall provide academic support in preparing projects and in conducting surveys and studies for the developmental activities of the Panchayats/ Local Bodies. They could also help in popularising ideas related to the protection of the environment, healthy living and sustainable development in the surrounding areas.

## ■ Curriculum Design

- ▶ **Integrated Curriculum:** We should create rigorous, relevant and engaging curriculum. Along with the concepts, teaching how to think and write in a coherent, structured way should also happen. Integrated curriculum is all about making connections across disciplines. A course on deforestation and indigenous communities should also refer to colonialism and imperialism. Similarly, a student of Environmental Science should learn about the socio-political reasons that lead to the extreme exploitation of the environment. Language programmes like English, Hindi and Malayalam can be offered

with computing as an additional subject. Students of Psychology should be exposed to literature and Philosophy. Each curriculum should be a multidisciplinary curriculum. If community projects are made part of the curriculum, wherever it is possible, students can learn more about the people and life in their surroundings. University shall entrust the Boards of Studies with the responsibility of revamping curriculum with the support of experts from outside to make it truly interdisciplinary.

- ▶ **Outcome Based Curriculum:** University is currently engaged in the processes of transforming the curriculum to OBC. But the change in the curriculum should be reflected in the type of questions for the end semester examination as well. It will be good if we prepare a Question Bank which could generate questions automatically. Software must either be developed or purchased for implementing the Question Bank system.
- ▶ **Academic-Industry Collaboration:** The collaboration between academic institutions and industries will be useful in improving the curriculum in tune with the demands of the contemporary times. Collaborations can pay rich dividends in research output and in the form of placement for the degree holders. Discussions must be made with highly experienced technocrats from the industry during the process of designing the curriculum.

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## VI. Examination and Evaluation

### ■ General Observations

- ▶ University of Kerala has been persistently following a well-planned examination calendar, as of now. Even when the dates of examinations are declared far in advance, the demand for the postponement of examinations often lead to litigations. This also reveals the fact that the fear of examination is very high among students even at the UG/ PG levels. The problems related to the smooth conduct of examination in the University departments and affiliated colleges separately have to be considered. The examinations for the students of the University departments are managed by the CSS office at Kariavattam whereas; the exams for the CBCSS, Semester PG, Distance Education (UG & PG), Private Registration (UG & PG) are managed directly by the Controller of Examinations. Of late, the conduct of examinations for the students of affiliated colleges has become a laborious and strenuous exercise involving majority of the administrative staff, teachers, a network of institutions and support staff. While majority of the student protest is for postponing the examinations, there is always huge pressure for the early declaration of results. In fact, almost all staff members of the University are in one way or other involved in the conduct of examination and evaluation. This affects the academic activities at the University adversely. So, better strategies are to be devised for the conduct of the examinations. The preparation of question papers also poses several issues like repetition of the questions from previous year's question papers, questions from outside the syllabus prescribed for study and typographical errors. All these points to the fact that large scale modification and improvement is needed in the mode of conducting the examination and preparation of question papers.



- ▶ The number of examinations conducted by the University has increased considerably with the introduction of the semester system. Majority of the employees are pooled in the examination section in one way or other severely affecting all other activities of the University. We will have to devise strategies to overcome the problems related to the conduct of examinations and evaluation in the postCOVID-19 scenario. As of now, the final semester examinations for almost all programmes except MBA and LLM have been conducted. Some of the pending S2, S4 examinations of UG and S3 examinations, PG Project evaluation, Viva-voce examinations and practical examinations of the PG programmes are also pending. PG exams in Colleges that come under the Thiruvananthapuram Corporation could not be conducted due to the declaration of lockdown. The present situation demands innovative strategies for overcoming the challenges. The Examination Calendar planned for the year 2020-21 must be modified considering the present situation and the dates for the conduct of examination must be rearranged judiciously.
- ▶ **Question Bank:** University should go forward for the creation of online question bank which could generate questions on demand for every programme. This will to a great extent solve the issues related to the preparation of questions. Moreover, this will also help in conducting repeated examinations if necessary.
- ▶ **Examination on Demand:** Most often it is found that some students cannot attend examinations due to a variety of reasons such as health issues, for participating in national level championships or due to similar assignments assigned by the University, as a result of which an entire year is lost. In order to help such students, the facility for examination on demand can be introduced. There should be strict regulations for the conduct of such special examinations.
- ▶ **Bar-coded Answer books:** At present, false numbering of the answer books and transportation of papers from different examination centres to the University centre and back to the evaluation centres after false numbering has become a time-consuming affair. If bar-coded answer books are used, the answer books could be transported directly from the examination centres to the valuation camps.
- ▶ **Analytical Type Questions:** Currently, majority of the questions at the end semester examinations are those that test the memory of the students and they tend to answer them with assisted means. If the questions are good enough to test the analytical skill of the students the real knowledge of the student will be tested and the tendency of copying answers from other sources can be prevented.
- ▶ **Student Life Cycle Management System for the Examination:** University has taken steps to develop SLCMS to automate all activities related to the conduct of examination. This will be a total software solution for the conduct of examination. It will cover the whole process from registration to the publication of results.
- ▶ **Data Centre for Quick reference at CEs office:** A Data Centre will be started in CE's office for getting information about the number of examination centres, seating capacity of each centre, details of examinations conducted each day, current status of examination and evaluation etc. The Data Centre will provide quick access to the statistical data extremely important for planning examinations and making quick changes in case of an emergency.

## Recommendations for the COVID-19 Period

### ■ University Departments

- ▶ **LMS:** LMS shall be used to conduct all Internal examinations during this academic year. Submission of Assignments, conduct of test papers can also be done in this platform.
- ▶ Training programmes to familiarise teachers with the LMS shall be organised without delay.
- ▶ **Online Submission of Projects and conduct of Viva:** Students shall be allowed to submit Projects in pdf format. The Projects shall be duly recommended by the guide and the Head of the Department. Plagiarism checking shall be conducted before submission, and certificate shall be attached with the Projects. Comprehensive Viva-Voce and Project Viva-Voce shall be conducted online. Evaluation of the Projects shall also be conducted online. KUCC shall be directed to develop a software for the online submission and evaluation of Projects and dissertations immediately.
- ▶ **End Semester Examination:** During the academic year 2020-21 conduct of examination will not be possible at the end of each semester in the present condition of the spread of COVID-19. So instead of waiting for the examination to be over, the classes for the ensuing semesters shall be started as per the Academic Calendar, and the date for the examination can be fixed after considering the situation in the areas under the jurisdiction of the University.
- ▶ **M Phil/Ph D/PG Dissertations:** Permission may be given to submit the soft copies of M Phil Dissertation and Ph D thesis. Hard copy need not be insisted. But one hard copy of the Dissertation shall be submitted in the Department for reference. In the case of PhD Dissertations Hard copies shall be submitted in the University and the thesis shall be sent as per the choice of the evaluator. Hard copy can be sent for evaluation if the expert insists on sending the hard copy.

### ■ School of Distance Education

- ▶ The School of Distance Education has been conducting examinations of two semesters jointly at the end of the year though the academic programmes are conducted semester wise. This practice of conducting the examination for two semesters as one will be continued.
- ▶ All internal examinations must be done through LMS. This will ensure the smooth conduct of the internal assessment.
- ▶ All assignments and projects must be submitted in pdf format. This will be beneficial for the students and the teachers as the management of the paper clutter is a real headache for the administration. Moreover, this will enhance our journey towards the environment friendly concept of paperless office. Comprehensive Viva-Voce and Project Viva-Voce must be conducted online.

### ■ Affiliated Colleges

- ▶ **Examinations in the Academic year 2020-21:** Considering the spread of COVID-19 the examinations for the different semesters shall be rearranged based on the condition of the spread of COVID-19. However the classes for each semester shall be conducted as per the Academic Calendar.

- ▶ The question papers must be modified in such a way that the number of choices in each section of the question paper will be enhanced keeping the format intact. This will be a temporary arrangement for the year 2020-21.
- ▶ Provision for online submission of projects must be provided.
- ▶ Viva-Voce examinations must also be done online.
- ▶ Since the conduct of practical examination demands the physical presence of the candidate it can be conducted in small batches following the protocols of the Department of Health.
- ▶ The online mode of question paper transmission to colleges must be followed for the UG programmes. In the first phase the same will be implemented for the CBCSS (CR) and CBCSS BSc.
- ▶ For the effective management of printing of question papers all colleges must procure 2 to 3 high speed printers urgently.
- ▶ All Pre-Examination Board and Pass Board meetings must be conducted using U o K Meet.
- ▶ College Principals must report the progress of academic activities including conduct of online classes, practical classes and examination to the DCDC at regular intervals.
- ▶ For the timely completion of the evaluation process, valuation centres must be started in the adjacent 12 colleges in the jurisdiction of the University for the convenience of the evaluators.

## Recommendation for the PostCOVID-19 Period

### ■ University Departments

- ▶ **Online Examination in University Departments:** The conduct of examination needs to be revamped to suit all the emergency situations. Students should be given the opportunity to write the examinations on demand if they fail to attend the examinations on stipulated date due to valid reasons. Online examination will be introduced in the University Departments from 2020-21 academic year onwards. The system prevalent in the Manipal Institute of Technology can be adopted and software for the same will be developed by KUCC. For the successful implementation of the same, Tablet must be distributed to all the students who join the programme. They can complete all the academic activities including the submission of assignments and writing the end semester examinations using this Tablet. This will also help the students in enhancing learning through technology and will create a marked difference in their academic output.
- ▶ The practice of on-line submission of projects must continue.
- ▶ Provision for joining Viva-Voce online must be retained for those who could not travel or otherwise held up due to valid reasons.

### ■ School of Distance Education

- ▶ The possibility of conducting online examination for the students of SDE can be considered since students are from different regions. This will also help in enhancing the enrolment to various programmes.

- ▶ Provision for joining Viva-Voce online must be retained for those who could not travel or otherwise held up due to valid reasons.
- ▶ There must be fixed centres for examination. Students will be informed of the examination centre well in advance.
- ▶ Instead of conducting examination on working days the possibility of conducting examination on holidays (Saturdays and Sundays) can be explored.
- ▶ Distribution of question papers must be made online. The QP will be sent to the examination centre half an hour before the start of examination.

#### ■ **Affiliated Colleges**

- ▶ Question Paper for the UG programmes must also be sent online on a phased manner introducing the system at the beginning for the Career Related Programmes and BSc Programmes. The feasibility of the conduct of on-line examination in future must also be explored.
- ▶ The practice of on-line submission of projects can continue.
- ▶ Members of the Examination Boards must be allowed to join online for the meeting in future as well.
- ▶ Provision for joining Viva-Voce online must be retained for those who could not travel or otherwise held up due to valid reasons.

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### **VIII. Research & Extension**

Research is the most important academic activity of a University. University of Kerala has initiated several steps to augment research activities in the University Departments recently. Research council is one such initiative. A Research Directorate and a Research Portal to automate all the activities related to research would become significant.

**Promote Research in Emerging Areas:** Research in emerging areas and topics of contemporary relevance must be promoted. It will be good if departments develop linkages with the industries. Botany department can collaborate with Pharmaceutical companies to develop new herbal products, identify bio-active molecules with anti-viral properties and use of tissue culture facility for propagation of rare plants and extinct variety of plants. Similarly, studies on disaster management, issues of the coastal communities, Dalit and Adivasi communities and their displacement are extremely relevant in the present context of Kerala. Studies on similar areas should also be promoted. Every department must conduct brain storming sessions with the help of experts from outside to identify broad areas of research that are socially relevant and meaningful. This will help in streamlining research and in developing new projects in relevant areas. Chairs sponsored by Government/Academic organizations/Private enterprises working in the field of research, must be instituted in the departments to take up challenging industry relevant research programmes. IPR issues must be sorted out if the MoU is to be signed.

#### **Recommendations for the COVID-19 period**

- ▶ The process of registration for PhD for the previous session has not begun yet due to the impasse created by COVID-19. As the presentations of synopsis and doctoral committees

could not be conducted, the possibility of conducting the synopsis presentation sessions and the doctoral committees in the online platforms must be considered. The processing of the pending applications for registration will be started without delay.

- ▶ University Departments must actively participate in the research work on the impact of COVID-19. Apart from the departments of Science, the department of Social Science could also contribute in this area.
- ▶ Libraries and Laboratories in the approved research centres, except those in the containment zones, can be open for continuing the research activities strictly adhering to the restrictions of the health department.

### Recommendations for the postCOVID-19 period

- ▶ **Research Director & Directorate:** The role of Research Director should be properly defined and clear guidelines must be prepared for the functioning of the Research Directorate. An expert committee consisting of senior professors and at least one Research Director from a reputed University must be constituted to study the matter and to prepare guidelines. Apart from research leading to Ph D, start-ups, industrial liaisoning, research projects can also be brought under the control of Research Director. The Research Director must be a special invitee to the meetings of the Standing Committee of the Syndicate on Academics and Research. Research Directorate must be established at Kariavattom Campus. The distribution of Research Fellowships must also be brought under the Research Directorate. All sections that come under the Directorate shall also function at Kariavattom.
- ▶ **Research Council:** Research Council was formed as a joint initiative where research agencies and Institutions functioning in the jurisdiction of the University would tie up with the University of Kerala for mutually beneficial research projects and on sharing of resources. The Objective is to make research more application oriented and outcome based along with making it socially relevant. We have formulated a research Policy in this regard and the same is being reviewed in the light of the reconstituted Research Council. The activities of the Research Council need be brought under clear guidelines.
- ▶ **Research Portal:** Research Portal must be updated to automate all processes connected with research from enrolment to the award of degree. The process for developing software has already been started. This will help the researchers to get updated automatically the various stages of progress of their research and will avoid unnecessary impediments and delay in processing.
- ▶ **Innovation and Research:** University of Kerala has initiated policies with specific interventions for research, innovation and start-ups. Besides, funding for Patent filing and Support for intellectual property has been taken up in the form of Research Awards and Grant for High end Publications.
- ▶ **Kerala University Technology and Business Start Up Centre (KUTBSC):** Startups are usually small and initially financed and operated by a handful of founders or one individual. In the early stages, startup companies' expenses tend to exceed their



revenues as they work on developing, testing and marketing their ideas. University of Kerala encourages start-ups in their formation and functioning in the campus with sharing of university expertise and resources for innovation and idea generation, working in association with KSUM, along with that University has MoUs with other institutions for new start-ups and encouragement interventions for deeper involvement. Proper infrastructure facilities will be provided for the Incubation Centre. Apart from supporting startups University should take a stake in those start-ups from the campus. This will help the University to generate funds when these companies grow big. Some of the world's greatest companies like Google and Lenovo were born in the campuses. The entrepreneurial spirit at the university level is willing and eager: nearly 90 percent of young people believe that entrepreneurship education is important. With the advent of the internet, free access to resources, and lowered barriers to the entry into the world of business, students can start companies with minimal capital. Special emphasis must be given for promoting startups in the campus and see that at least few more startups come into reality in the near future. Steps must also be taken to nurse the existing startups to realize the goal and explore the possibility of making the expenditure incurred by the University into equal number of shares in the startup so that University can get its due share in future, once the company becomes a profit making one.

- ▶ **University Consultancy Cell:** University of Kerala has a unique Consultancy Cell and a policy on Consultancy where linkages with the industries and other institutes are established through expertise and services. The revenue so generated is shared in a triangular mode among the Principal Investigator, the Department/Centre and the University. Each Department will have a unit of the Consultancy Cell and a coordinator in charge of it.
- ▶ **Centre for Academic and Industrial Collaboration (C-AIC):** Centre for Academic and Industrial Collaboration provides greater collaboration and connect with the industries. The specific objectives are, to ensure summer internship and live projects for students pursuing Master's Programme and for M Phil Programme, draw inputs for curriculum design and delivery under the OBE mode and support skill enhancement initiatives through bridging skill gaps and similar support services. The possibilities of collaborative research must be explored. The city of Thiruvananthapuram houses several research institutions of national and international importance such as VSSC, Tropical and Botanical Garden, IIST, Centre for Development Studies, Sree Chithra Institute of Medical Sciences GIFT, CTCRI etc. University should use this opportunity to do quality research in collaboration with the scientists and scholars working in such institutions.
- ▶ **Prioritisation of Research Areas:** Research work in each department must be prioritised based on current demands. The departments must assign areas of study that are of great significance to the teachers and promote research in those areas. Departments must develop linkages with other research institutions and industries to develop quality research in socially useful areas and to convert the findings into products if possible. Departments should conduct brainstorming sessions for identifying potential areas for research.
- ▶ **Institutional Ethics committee:** Institutional Ethics Committee (IEC) is the committee formed of a group of people who go through the research protocol/proposal



and state whether or not it is ethically acceptable. The intervention of IEC is essential for research that involves clinical trials on human beings. So, the establishment of separate committees are needed for dealing with divergent groups and fields like animals, plants, humans and bio-safety. So, there should be Animal Ethics committee, Human Ethics committee and Bio-safety Committee to verify and regulate research in these areas. All research proposals that involve clinical trials must be permitted only with the consent of the Ethics Committees.

- ▶ **Centres for Area Study:** There are more than 60 centres for area studies and research in the university. While some of the centres are active with productive research work other centres are rather dormant and less productive in terms of research output. A review of the activities and contributions of the Centres must be conducted immediately to pick and choose the active centres. An academic audit on the functioning of these centres must be conducted. The inactive centres can be either merged with other centres or withdrawn. Revamping and strengthening of Inter-University Centres with outreach programmes, training, knowledge dissemination and translational research must be considered. Industry linkages, external funding and programme mode research must be supported. The Centres must also address the contemporary issues of the State by seeking funds from external agencies on a real time mode. For administrative convenience, each centre must be attached to the department concerned and all communications must be routed through the Head of the Department. Moreover, advisory committees must be constituted for monitoring and managing the centres. The advisory committee should meet once in every six months.
- ▶ **Community Lab:** Community lab can be used to transform ideas developed in the laboratories to products. Irrespective of researchers whether they are retired or not, their services can be used in this laboratory. Selected researchers who have completed PhD research programme must be given an opportunity to work in the community laboratory for transforming their findings to products. In all these cases, suitable fellowships with the idea of retaining talented personalities in the University for making the mission success should be adopted by the appropriate authorities from time to time.
- ▶ **Socially Useful Research on Microbial Science:** In the context of COVID-19, research in microbiology and microbial science must be promoted in the Department of Biotechnology.
- ▶ **Project Management & Facilitation Centre:** The preparation of standard project proposals and the presentation of the proposal in a convincing style need proper training. Project Management & Facilitation centre must be instituted in the University to give proper guidelines and training to teachers and researchers in developing good projects and vetting projects before submission. This centre will coordinate all activities related to external project management. Vetting of the projects before submission, fund management, facilitating product development and IPR and all other coordination and requirement for making quality and meaningful research management in the University can be facilitated by the Centre. The PMFC should also facilitate inter-institutional interactions and multidisciplinary programmes. The centre can be brought under the Director of Planning & Development.

- ▶ **Single window system for projects:** Single window system must be introduced for processing research proposals.
- ▶ **Project Challenge:** Research is the central academic activity of the University departments. Fund Generation and idea inception are necessary for further expansion of the University. Externally funded projects add to our research output and helps in the inflow of money. As of now we have 200 teachers in our University. Project challenge will be a new strategy to persuade our teachers to apply for projects. We propose that it should be made mandatory that all teachers in the University Departments must make it a point to apply for project funding. University should provide proper training in the preparation of project proposals and the presentation of the projects. The point is that every teacher should have at least one project running. If adopted, this strategy will augment research activities, high impact publications, attract funds and will provide support in purchasing equipment and books in the University Departments. Project challenge must be introduced from 2020-21 academic year.
- ▶ **Revamping Research:** The process of registration for research must be reoriented in a more creative way for the future.
  1. Most of the researchers do not possess enough background knowledge on the area of research at the time of registration. This leads to various problems in their research work.
  2. The researcher must spend one year for background study with the support of the research guide.
  3. The researcher can identify and zero down to a topic at the end of one year.
  4. This will help the researchers to study the pros and cons and work and rework on the topic before the formal registration.
- ▶ **Pre-Doctoral Training at CLIF:** Research is an activity that demands high level technical skill and knowledge. At present the research scholars were not given formal training in the research methodology, statistical tools, bibliometric analysis etc. It will be good if they undergo a training programme in the beginning of their research career, immediately after registration. Two months pre-doctoral mandatory training programme must be given for the research scholars. It can be held during April-May and October-November every year for the candidates admitted to PhD programme in the two sessions. Ninety percentage attendance and a pass requirement in this programme are essential for the candidates to appear for the Course Work examination. The training must be held separately for Science and Humanities. The supervision of this programme will be vested with Deans Council. The programmes can be held in CLIF and the CLIF Director can be the programme coordinator. A tuition fee (revisable) of Rs 3000 is recommended for the conduct of the programme. The services of University faculty and engineering staff can be used for this purpose. A syllabus for the programme for the two streams should be made and approved by the Deans Council every year with necessary modifications. The syllabus should include components such as research ethics, writing skills, how to read and write a research paper, diagnostic tools available in the campus, error analysis, bibliometric analysis, soft-ware packages and statistical tools. The period

spent by the research scholars should be considered as PhD programme period and they will be eligible for fellowship during this period. All candidates registered for PhD programme including full-time & part-time should undergo this training programme.

- ▶ **Research cum Teacher Associateship:** In order to promote quality research and to provide human resource support to teachers who are actively involved in research a Research cum Teacher Associateship should be allowed to candidates who completes PG/MPhil in the relevant discipline to assist those Professors/Associate Professors who have published more than 50 articles (for Science/Applied Science) and 30 articles (for Arts/Social Science/Oriental Studies), in UGC approved journals and produced ten or more Ph Ds. The appointment will be for a period of two years. After two years, extension for one more year can be given. Further extension need not be allowed. The Research cum Teacher Associate must be given a fixed amount of Rs.25000/- in the first year and Rs. 27000/- in the second year.
- ▶ **Eminent Teacher Fellowships:** Eminent Teacher Fellowships must be instituted for retired teachers with outstanding contribution in research. Teachers who have outstanding contribution in the field of research should be given extension on a fixed fellowship for three years. Apart from continuing their research work their services should be used in mentoring young researchers in the department. This will help the continuance of the research work done by these teachers.
- ▶ **Online Open Defence & Pre-submission Seminars:** Though Open Defence in the online mode was introduced in view of the restrictions related to the spread of COVID-19, it has proved to be a fruitful method as it has attracted experts and scholars from different parts of the country and even from abroad. Though there are three evaluators for the thesis, only one of them, the Chairman alone, is supposed to attend the Open Defence. But in the online mode all three evaluators can attend the Open Defence. Moreover, scholars from different universities can attend an Open Defence conducted in the online mode and offer their comments on the thesis. This is more effective in the case of Pre-submission as the candidate can incorporate the suggestions of experts in the thesis before the final submission. The provision for Online participation of experts must be retained even after the restrictions related to COVID-19 is withdrawn.
- ▶ **Plagiarism Checking:** Plagiarism checking must be brought under a common centre. University Library can be entrusted with this duty. The possibility of using new software for plagiarism check must be considered.
- ▶ **Co-guideship:** Co-guideship must be considered in addition to the allotted number of scholars. A research supervisor can be allowed to act as co-guide to at least three candidates at a time.
- ▶ **Research Chairs:** Research Chairs must be instituted with the financial support from Government agencies, Trusts, eminent Alumnus, private academic organisations for research work on specific areas. The proposals for establishing chairs must be scrutinised by IQAC and approved by the University Syndicate.
- ▶ **University Library as Research Centre:** As per the UGC norms the Central/State laboratories can function as research centre apart from the teaching and research

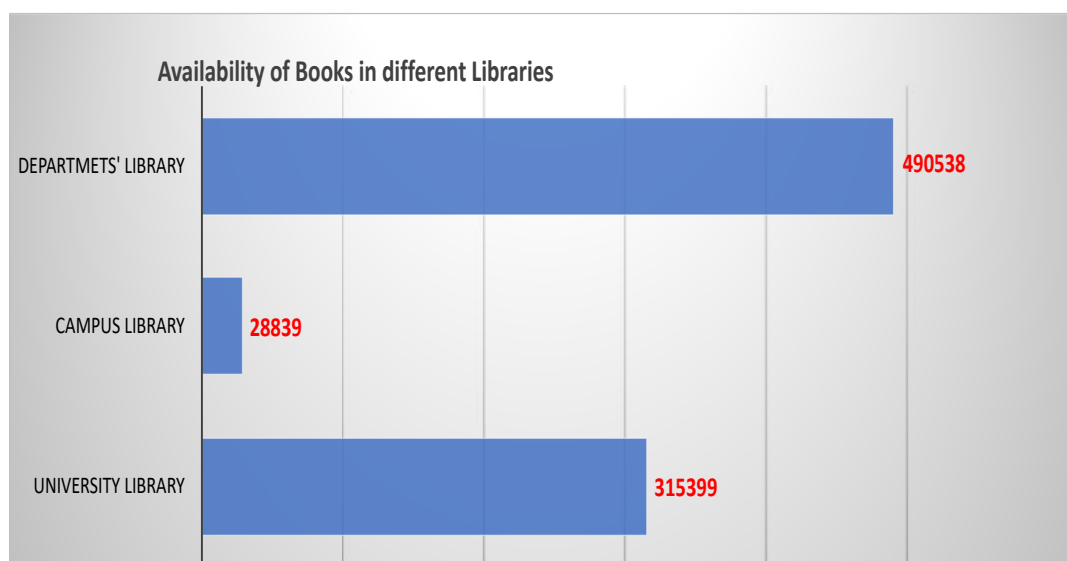
departments. The University library has huge potential, with 3,15,355 books, 2500 e-books and 9950 e-journals to its credit, to function as a research centre. So, the clause that allows Central/State laboratories will be extended to Central/State libraries as well. As the proposal involves clarifications from experts the same is submitted for further discussion in relevant bodies.

- ▶ **Meeting with Industries & Research Institutions to Augment Research:** University must convene meetings with representatives of industries and research institutions to explore the possibilities of collaboration and cooperation. This will further strengthen the research output of the University and will open up new avenues for the students and researchers for future career. Thiruvananthapuram has developed into an IT Hub and it has a considerable number of research institutions in various fields. The potential of these institutions must be utilised for the benefit of our University and our students.
- ▶ **Working Schedule of Laboratories:** At present the laboratories in various departments are open from 10 am to 5 pm. This time schedule is a hindrance to the development of research. Though the present time schedule is satisfactory with a laboratory that is used for teaching purpose, a research laboratory demands activities throughout day and night. To begin with, the time of the laboratories can be scheduled from 8 am to 8 pm. The same will be extended to 24 hours if there is demand.
- ▶ **Consultancy Services:** Each department must start consultancy service related to the field of study as there is immense scope for taking up consultancy services to support the projects of governmental and non-governmental organisations. While, Botany/ Biotechnology Departments can support tissue culture initiatives of local bodies and private nurseries, Archaeology Department can help in setting up museums. Language departments can take up translation work, language training, training in the preparation of reports etc. This will also develop extension activities of the University Departments. One teacher from each Department will be given charge to coordinate the activities related to the consultancy services.

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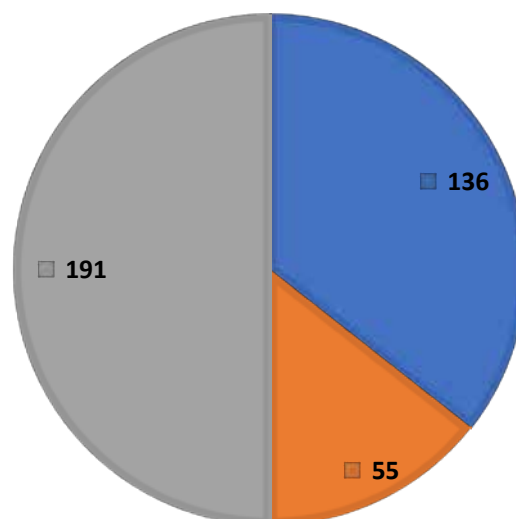
## VIII. Library Resources

In most Universities, the library building is placed at the centre of the campus. This centrality of the library denotes the significance that has been attached to it in an academic ecosystem. Most often, we consider the library as a place where books are borrowed and returned. It is imagined as a place where books are kept in perfect order, a place where we can 'smell knowledge.' But this idea of a traditional library is slowly changing. With the digitalisation of books and journals and the emergence of e-books and online journals, library has upgraded itself into a virtual entity. In the near future it may be viewed as a repository of digital resources that could be visited from anywhere at any time. This is a revolutionary change, more so, if it is opened up to the public with limited restrictions. All libraries irrespective of their affiliation to Universities or institutes must be open for students, researchers and teachers and even to the public at large. If it happens it will be hailed as a revolution in the dissemination of information and to a great extent knowledge itself. Thus, the democratic distribution of knowledge could be materialised with the support of technology.



#### AVAILABILITY OF PRINT JOURNALS

■ University Library   
 ■ Campus Library   
 ■ Department's Library

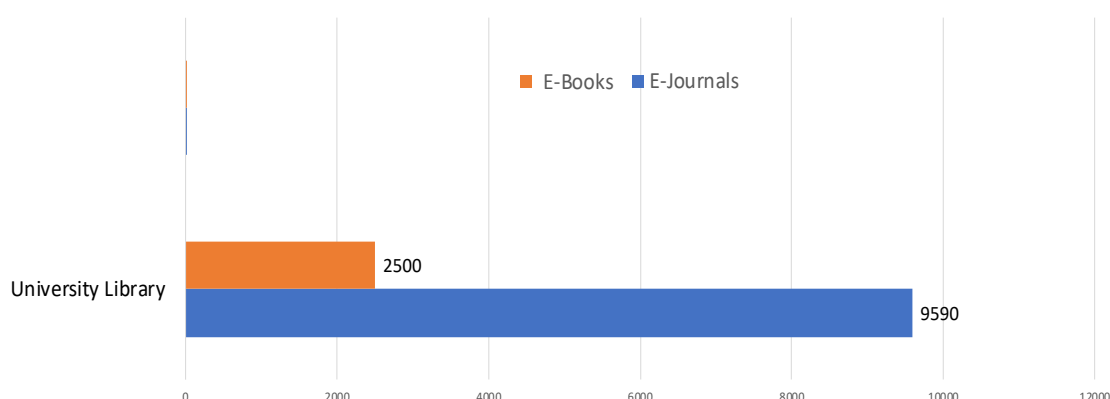


### Recommendations for the COVID-19 period

**Access to digital Resources:** At present Kerala University has many electronic resources subscribed through IP which can be accessed at the campus only. Many libraries have the most common method of off-campus access through the VPN and proxy server options. In addition to this, off-campus access can be provided through Shibboleth Access mechanism available through the INFED initiative of INFLIBNET. Kerala University Library can use any of the above methods preferably through Shibboleth for providing remote access to its electronic resources. The Shibboleth System is a standard based, open source software package that facilitates authentication of authorised users using organization's internal identity and access management system.



## E-RESOURCES IN THE UNIVERSITY LIBRARY



### Recommendations for the PostCOVID-19 Period

- ▶ **Library Networking:** We have a central library at Palayam, a reference library at Kariavattom and various department libraries at Palayam campus and Kariavattom campus. Networking of the catalogues of all these libraries will be of great importance for researchers, students and teachers, as they could identify and locate the book of their choice without visiting these libraries. This has been achieved through a multi lingual, integrated, web enabled database with complete automation of in-house services which comply with all the international standards using KOHA, an integrated open source software. Currently, more than 85% of the work related to this is complete. The libraries of the Colleges affiliated to the University, the regional centres of the University, and self-financing institutions of the University will also be integrated. The possibility of including all University Libraries in Kerala under one network may be explored.
- ▶ **Starting Forecasting and Marketing of Information Division:** A forecasting and marketing of Information Division must be formed under an Honorary Director, a working LIS professional with sufficient professional qualification and skill in using various tools in Library and Information Science.
- ▶ *Activities involved*
- ▶ **Research Support Service-** E.g. Information regarding grants/funding, strategic advice, applications, services to each and every phase of the research process, including the formation of new research ideas, research plans etc.
- ▶ **Academic writing and Research Ethics-** Administer Plagiarism checking- management and maintenance of tools and techniques.
- ▶ **E-Resources information** – Resources / Web pages (both Open Access and Commercial) with exclusive information for researchers. E.g. on dedicated resources/ services Courses/ Training programmes- E.g. on Research methodology or Research oriented tools- Citation styles, Reference management, Information Literacy, Technical writing, Research Productivity (Impact Factor, H-Index), Research Data management, Research Ethics, Writing tools, E-Learning platforms

- ▶ **Analyses and Bibliometric Services-** Making use of Web of Science and Scopus databases. E.g. bibliometric services, research output metrics, author metrics, journal metrics and Altmetrics., data analytics, Expert database, Citation Network Analysis.
- ▶ **Publication Services-** E.g. hosting of journals, procedure for getting ISSN for Journals, UGC-CARE List, of Journals in different subjects, research evaluation/registration and copyright.
- ▶ **Research Outreach** - E.g. expert databases, publication repository, Research implementation, the publication of research findings and project evaluation.
- ▶ **Consultancy Services-** Research topics consultation, RDM consultation, patent application consultation and intellectual property consultation on scholarly publishing and copyright.
- ▶ **Documentation and Marketing** - Prepare bibliographies, indexes and other information products based on demand and in anticipation. Promote and market those products through print, electronic or social media.
- ▶ **Researcher's Digital Interface (RDI):** Libraries are the centres of research. But the role of libraries and librarians are undergoing transformation in a hurried pace. From a manager of books, the role of librarians has changed to that of information manager. In the present context a librarian should be able to guide the researchers towards sources of relevant information for making research easy. Moreover, there should be provision for constant interaction between researchers and teachers and among researchers. For this, a digital alternative must be provided. It can be done by providing an Interactive Digital Interface for Researchers.
- ▶ **Subscriptions of Online Journals:** The subscription rate of online journals has mounted up. Since MHRD has withdrawn their financial aid for subscription, University will request KSHEC to function as a common agency for subscribing the journal and for sharing the same with Universities within Kerala.
- ▶ **Appointment of University Librarian:** The post of University Librarian remains vacant for the past 30 years. The absence of a full-fledged University Librarian has affected the growth and development of the University Library. Steps must be taken to appoint a University librarian.
- ▶ **Appointment of System Administrator at University Library:** University Library has a good collection of digital resources. It is being added to every year. A system administrator is extremely essential to manage the digital resources in the University Library.

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## IX. New Departments/Academic Programmes

Knowledge explosion has created innumerable fresh areas of enquiry--New Departments in developing areas and new academic programmes based on relevant branches of knowledge are the need of the contemporary period.

## Recommendations for University Departments

- ▶ **New Departments & International Centres:** The introduction of four new departments, four international centres and two Interdisciplinary departments are proposed here. Feasibility study and survey must be conducted before starting the new programmes.
- ▶ **Department of Renewable Energy:** The present condition of the world demands fresh sources of energy as the traditional sources of energy are fast depleting. It is in this context that the renewable energy projects become significant. Energy produced from sunlight, wind, rain, tides, waves and geothermal heat is from renewable sources and so the fear of total exhaustion does not exist. The department of Green Energy aims at studies and research in this area which is most relevant to the contemporary world. India is a fast-growing economy and its prime agenda are the transformation of increasing energy demand, improving its efficiency, increased use of renewable energy sources for power and transportation. As India targets to achieve a green energy capacity of 500 GW by 2022, University of Kerala can also effectively take part in the mission through the proposed Department of Renewable Energy. The main objective of the proposed department is to play a catalytic role to move towards the set goal of the National Energy Policy by promoting clean energy research. University of Kerala has already proved its potential in energy research with good publication records in the fields of materials and methods for clean energy research. To develop studies and research on alternate sources of energy, programme in **MSc in Renewable Energy & Ph D** will be offered.
- ▶ **Institute of Design:** Designing is an area of study that encompasses multitude of domains from small products to big cities and from a web page to animation films. So, the study of design has great scope for the future and is sure to create openings in the public and private sector. Students with creative minds could explore new heights if they are trained in this art. It is true that experts in this area is very rare and investment for setting up facilities are very high. But considering the fact that many students aspire to study design and that no such institution exists in Kerala apart from NIFT, Kannur offering programmes in this area, University of Kerala proposes to begin an institute. It can be materialised from the academic year 2021

*Programme: Master of Designs, M Des. & Ph D*

- ▶ **Department of Space Sciences:** The proposed Department of Space Sciences can initiate studies in Space Physics, Astrophysics, Cosmology, Space materials and climate change. The proximity to prime institutions in this area of study like VSSC and IIST in Trivandrum will help this department to get human resource support and research assistance in abundance provided an MoU is entered into with these institutions. The major objectives of the new Department of Space Sciences: Space activities having a positive impact today (such as Earth observation for weather and climate); Space activities that could have a positive impact in the next 5 to 20 years (such as communications satellite

mega constellations i.e., Satellites that can beam a broadband connection to internet terminals); Space activities that could have a positive impact in the more distant future (such as widespread space manufacturing and industrialization). The space era, initiated in 1957 with the launch of Sputnik-1, created in less than 50 years a genuine revolution in knowledge and our understanding of the Universe and of our own Solar System, which has no precedent in the history of the development of science. This is a clear illustration that the use of new technologies and techniques in astronomy has contributed to major scientific progress. Direct benefits of space exploration include an increase in the knowledge about space, that is out there about space and the discovery of distant planets and galaxies; it also gives us insight into the beginnings of our universe. Thiruvananthapuram Observatory can be made one of the laboratories of the Department, which has already equipped with sophisticated telescopes. *Programme offered, MSc Physics (Space Physics) & PhD*

- ▶ **Department of Forensic Science & Criminology:** This Department can function in collaboration with the Kerala Police Academy. The programme offered in this department will be a dual degree that will explore the nature of crime and the science behind it. The learners can explore what's behind criminal behaviour, learn valuable courtroom skills and get hands-on experience examining evidence in simulated crime scenes. Criminology is the study of crime and the motivations behind criminal behaviour. Forensic science is an applied science concerned with the law and legal proceedings and can include specialist areas such as crime scene investigation, forensic medicine and lab sciences. The Department will help in supplying experts who could support the police force in criminal investigation. *Programme: MSc Forensic Science & PhD*
- ▶ **International Centre for Latin American Studies:** The proposed International Centre for Latin American Studies emphasizes the study of the specific features of individual countries and a broad comparative coverage of major trends such as authoritarianism and democracy, the economic cycle, the evolution of the Left and the Right, revolutionary movements and the effect of neo-liberal economic models. The study of Latin American people, their culture and politics is extremely relevant in the context of Kerala as there is an identifiable similarity between the lived experiences, culture and politics in Latin American countries and Kerala. So, studies on Latin America will open up a new area of study before our students and researchers. The international Centre for Latin American Studies will help in developing collaborative research with Universities and research institutions in Latin American countries. *Programme: PG Diploma in Latin American Studies*
- ▶ **International Centre for Migration Studies:** Migration has been one of the most dynamic factors in the development experience of Kerala since its formation in 1956. Millions of Keralites migrate to foreign countries as well as to other parts of India. This is partly due to the demand for skilled and educated people, which Kerala could contribute due to its high literacy rate. With the opening up of the Gulf economies to foreign workforces in the 1970s, there was a continuous out flow of Keralites to Gulf countries. International migration and NRI remittances could bring about a lot of changes in Kerala's economy and society. The last two decades witnesses an unprecedented inflow of unskilled workers to Kerala from long distant states like West Bengal, UP and Bihar. This type of internal

migration also has far reaching implications on every sphere of activity within the state. Some critical questions emerge in the wake of COVID -19 crisis. What is the future of emigration to and return emigration from the Gulf? Can we depend on internal migrants from North Eastern states anymore? How Kerala's economy and society can cope with these challenges? In this context, Kerala University is aiming to set up an International Centre for Migration Studies to focus on various issues related to international as well as internal migration. The possibility of merging Centre for Diaspora Studies with the Migration Studies must be explored to study the various dimensions of migration of Keralites to different parts of the world and migration from other parts of India to Kerala and issues of rehabilitation. Programme: **PG Diploma in Migration Studies.**

### ■ **Interdisciplinary Departments**

- ▶ Interdisciplinary Department is to promote interdisciplinary programmes shared by teachers of different departments. It will be following a cafeteria system in which teachers from various departments collaborate to offer one Programme. Students who join the programmes will have to select courses and credits from different teachers belonging to different departments.
- ▶ **Interdisciplinary Department of Disaster Management:** Disaster Management is another key area of study that need attention, especially in the context of the floods. The programme shall be designed as an interdisciplinary programme in the sense that the courses will be shared by different departments. Department of Environmental Science, Geology, Botany, Zoology, Philosophy and Psychology can collaborate in offering programmes on disaster management. Programme: **MSc Climate Change and Disaster Management.**
- ▶ **Interdisciplinary Department of Exclusion and Inequality Studies:** The Department of Exclusion and Inequality Studies (Interdisciplinary), aims to create focused academic studies on multiple exclusions and rising inequalities in the age of neoliberal market and transnational capital. This would be a unique department in the country, the first of its kind, which would focus on combining empirical research with building engaged theoretical frameworks that would value fields of scholarship committed to the study of peoples and groups marginalized from society. Thus, teaching and learning would be more diversity oriented, built on ethics and social responsibility, as also academic integrity and commitment to restorative justice. The PG and PhD programmes of the department would aim to focus on topics and areas with curriculum that focuses on social justice, modes by which fellow humans are oppressed and excluded, minorities and migrant populations, the socially marginalized and underprivileged, with a thrust on deconstructing power and privilege. The focus would also be on developing modules that generate critical thinking and dialogues, aimed to look at the intersectionality of identity and various axes of power based on caste, class, race, gender and sexuality. Programmes: **MA in Women's Studies, MA in Exclusion and Inequality Studies.**
- ▶ **Work Group for Quantum Computing:** Today, the transistors in computers are as small as and as fast as we can make them with existing technology. So, computer innovators began to seek possible solutions at the atomic and subatomic level in a field known as quantum computing. Quantum computing is an area of computing focused on developing computer technology based on the principles of quantum theory, which

explains the behaviour of energy and material on the atomic and subatomic levels. Industry leaders are racing to develop and launch a viable quantum computer and make it commercially available. A workgroup consisting of teachers from Departments such as Physics, Mathematics, Future Studies, Optoelectronics and Chemistry must be formed to conduct research in this area.

- ▶ **The Physical Education Department:** The Physical Education Department shall be shifted to Kariavattom Campus arranging adequate infrastructure facilities and the PG programme in Physical Education, M.P. Ed shall be offered.
- ▶ **International Centre for Blue Economy** shall be started. It has great relevance in Kerala with a long coastline.
- ▶ **Centre for Community Health and Microbiology** to be started in the context of recurring pandemics, to promote research activities in this area.
- ▶ **Proposals for new programmes other than those mentioned above:**
- ▶ The recommendations of the Expert Committee appointed by the Higher Education Department to suggest new programmes is under the consideration of the University. This list is in addition to the above proposal. University should initiate immediate measures to conduct feasibility study, preparation of syllabus, approval of the same by the academic bodies concerned and also should address the issues of equivalency.

MA in Kerala Studies

MSc in Applied Aquaculture

MA Museology

MA Comparative Literature

MSc in Public Health & Community Development

MSc Physics (Space Physics)

MSc Life Sciences

M Com (International Trade)

MSc Computer Science (Artificial Intelligence)

MSc Chemistry (Radiopharmaceutical Chemistry)

M Ed Tech Educational Technology.

Master of Physical Education M.P.Ed

- ▶ **PG Diploma Programmes:** The introduction of ten new PG Diploma Programmes are proposed.

PG Diploma in Research Ethics

P G Diploma in Communication Technology

P G Diploma in International Finance

P G Diploma in Content Writing

P G Diploma in Viral Informatics

P G Diploma in Cyber law

P G Diploma in Russian for Communication

P G Diploma in German for Communication



P G Diploma in Professional Translation  
P G Diploma in Water Resource Management.

- ▶ **Short term training programmes at CLIF:** Start short term training programmes at CLIF shall be started to familiarise students with various equipment in CLIF.
- ▶ **Recommendations for Affiliated Colleges:** University should conduct feasibility study and should get the approval of all academic bodies before launching the new programmes. Most often problems of equivalence occur in the case of double main and triple main programmes. This issue must also be addressed by the University. The Expert Committee appointed by the Department of Higher Education, Government of Kerala has recommended several new programmes for the Universities and Colleges. Apart from those referred in the list and the PG Programmes mentioned above the affiliated colleges can select UG programmes from the proposal given below:

BA (Economics, Mathematics, Statistics)

BSc (Physics, Mathematics & Machine Intelligence)

BCom (Blue Economy)

BSc Data Analytics

BCom (Accounts, Data Science & GST)

BCom (International Trade)

BSc Industrial Chemistry

BSc Applied Life sciences with Agro-Chemicals & Pest Management

BA Archaeology and Museology

BSc Geology & Digital Surveying

BSc Triple Main Aquatic Biology/Fisheries and Aquaculture/Zoology

BSc. Botany (Botany and Ayurvedic Pharmacy)

BSc Botany (Botany and Zoology with Medical Laboratory technology) (Vocational)

BSc. Zoology & Infectious Diseases Epidemiology (Vocational)

B Voc. Pharmaceutical Chemistry

BSc Environmental Science

BA Anthropology

BA Translation & Linguistics

BA Economics, Mathematics & Journalism

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## X. Student Support Services

Students must be placed at the center of any discussion on educational reform. Most of the recommendations made under various subheads consider the welfare of the students as primary objective. University of Kerala gives top priority to student support services. University fellowship to all research scholars, insurance scheme for students, merit awards and endowment awards are some of the noteworthy initiatives of the University. Student Services need to be upgraded considerably. An interactive window in the University website for submitting grievances will be introduced. All information related to syllabus, examination, academic calendar, fee for all services and answers to frequently asked questions will be

uploaded to the website in a more systematic and easily accessible manner. The Department of Student Services should provide greater linkages with society by utilizing the services provided by various departments and centres of the University.

- ▶ **Dean of Student Affairs:** To look after the grievances of students and to coordinate the academic and cultural activities of students a senior Professor must be appointed as Dean of Student Affairs. At present the DSS is looking after the affairs of the University Union. But the Dean of Student Affairs will coordinate the redress of grievances, extracurricular activities of the students studying in the University Departments and will supervise the student support services within the University.
- ▶ **Enhance Facilities of Study Centres at Alappuzha & Kollam:** The Study Centres at Alappuzha and Kollam must be revamped arranging better facilities for students. Reading rooms, internet facility and information and collection counter will be arranged. Similar Centre will be established at Pandalam.
- ▶ **Timely Completion of Hearing:** Currently, students who have been identified as being engaged in malpractice have to wait for at least six months for hearing. This causes serious mental trouble and angst among students especially when they have not committed serious offences knowingly. It is a fact that some of the students were found not guilty by the committee and the delay in processing the cases put them in serious mental and physical agony. Considering all these issues steps must be taken to simplify the procedure and to avoid delay in taking decision on cases.

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## **XI. Societal Obligation**

### **■ General Observations**

University has recently initiated several steps to develop interaction with the society. University of Kerala will strengthen its societal connect through village adoption and school adoption.

### **Recommendations**

- ▶ **The Harithaalayam Project** is one such mega project aimed at inculcating awareness among students on farming. Another important objective of this initiative is to contribute towards achieving food security in the state of Kerala. The practice of community farming (*Harithalayam*) and student fellowship for Agri-services should be sustainably developed.
- ▶ **Community Laboratory:** Community Laboratory is another important initiative which aims at the production of socially useful products and to convert research findings into useful goods. Setting up of a Community Laboratory for need based societal applications through development of socially useful products and services must be implemented.
- ▶ **Community Radio** Service must be developed for imparting educational programmes. The possibility of starting internet radio which relays programmes on divergent topics, talks by eminent scholars and discussions on topics of research must be explored.

---

## **XII. Prestigious Institutions**

### **■ Central laboratory for Instrumentation & Facilitation (CLIF)**

- ▶ CLIF has great potential in augmenting research activities in the University. The administration and activities of CLIF needed to be reoriented so as to ensure optimum use of its potential. There should be proper mechanism to allow scientists, teachers, students and researchers from various research institutions and colleges to use the equipment and to develop research proposals and scientific papers utilising the facilities at CLIF. So, there must be change in the functioning of CLIF.

#### **Recommendations:**

- ▶ A full time Director shall be appointed
- ▶ Working time shall be increased to start at 8 am and to close at 8 pm.

### **■ ORI & Manuscript Library**

The Manuscript Library is a treasure house of knowledge that preserves the past for the present. The ‘wondrous charm of antiquity’ can be experienced while moving along the racks in the library. One of the oldest and biggest manuscript libraries in India, Oriental Research Institute and Manuscript Library was started way back in 1908 by the then King of Travancore, Sree MoolamThirunal, to collect, preserve and edit the manuscripts. The first Curator of this Library was none other than Dr. T. Ganapathy Sasthrikal, a doyen in the field of ancient language and literature. The library has an excellent collection of ancient manuscripts which are extremely valuable and very rare. The preservation of the valuable collections poses manifold challenges as the leaves of the manuscripts are likely to be damaged.

#### **Recommendations:**

- ▶ Measures must be taken to preserve and digitize the ancient manuscripts and also to copy and edit them for publication.
- ▶ ORI should offer short term programmes on Manuscript Palaeography, Indology etc.
- ▶ Possibility of starting on-line programmes on Manuscriptology must be explored.

### **■ The Department of Malayalam Lexicon**

- ▶ The “conservation and promotion of Kerala Art and Culture” was one of the three objectives of the University of Travancore. The Department of Malayalam Lexicon was started with the purpose of providing solid foundation for the Malayalam language by publishing a Lexicon with detailed analysis of each word exploring all its nuances. Started in 1953 under the leadership of Dr. SooranaduKunjan Pillai, Malayalam Lexicon showed great promise. It is different from other dictionaries in many ways. The Lexicon provides all possible interpretations of a word, various shades of meanings, its proverbs, homonyms, cognates, and divergent forms, scientific names of plants and animals, with detailed examples and illustrations. Nine volumes have been completed so far, taking

almost 67 years, to cover Malayalam words beginning with അ to ള. Four more volumes are yet to be published to complete the circle. Drastic changes in the functioning of the Department are required for the speedy completion of the work. The work of updating the Lexicon will have to be continued unabatedly as new words are being added to the Malayalam language with the progress of time.

#### **Recommendations:**

- ▶ Urgent measures to complete the first cycle of publication of the Malayalam Lexicon must be taken.
- ▶ The possibility of using softwares for this work must be explored.
- ▶ An expert committee must be constituted to suggest measures to modernize the Institute.

### ■ **Astronomical Observatory**

- ▶ Founded by Maharaja Swathi Thirunal in 1837, the Observatory is yet another institution with a long legacy. It has a history of 183 years. The infrastructure facilities in the Observatory has been improved considerably in recent years. Thiruvananthapuram Observatory stands on a hill, about 60 feet high, and 200 feet above the level of sea from which it is distant, in a straight line, about two miles. It commands an extensive and beautiful view of an undulating and finely variegated country towards north, the east, and the south-and of the sea horizon to the west. The eastern view is terminated by the Ghat Mountains. The geographical situation of the Observatory is 8-degree 30 min northern latitude and 76-degree 59 min eastern longitude. The Observatory which functions today as part of the University of Kerala commenced its operations in 1837 and is one of the oldest of its kind in modern India. Thiruvananthapuram Observatory owes its origin to the initiative and vision of Sri Swathi Thirunal, the versatile Maharaja of Travancore. Presently the facilities available include sophisticated telescopes.

#### **Recommendations:**

- ▶ The Observatory can be treated both as a historically important tourist attraction and as a laboratory for scientific exploration.
- ▶ It is recommended to utilise the tourist potential of this institution and also to make it a part of the Department of Space Sciences suggested in this report.

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### **XIII. Modernisation of Administration & Institutions**

At present, the University of Kerala is following a centralized administrative pattern in which all files will have to reach the top and back at least three times before the issuance of University order. This ladder structured administration leads to inordinate delay in decision making and implementation of the decision taken by the superior bodies. Decentralization of the administrative system and effective supervision by the middle level administrators can improve the situation to a great extent. Another grey area in which the University should intervene is the crisis in human resource distribution. As referred to at the beginning of this

report, the distribution of faculty members in the teaching departments and non-teaching staff in various sections are not as per the need or demand. University has automated several of its services, some are partial and some are total. But the number of technical staff in the form of Programmers and computer technicians is comparatively very low. In certain sections like the University Press lot of posts must be curtailed because of technology change used in printing. Proper work study of the sections must be conducted to distribute employees as per the need of the sections concerned and to redeploy the posts to ensure sufficient number of technical staff to support automation. A committee consisting of experts in this field from within as well as outside the University shall be constituted to formulate a strategy for the judicious deployment of staff and for administrative reforms. Some of the suggestions for administrative reforms are given below:

- ▶ **Amendment in the Statute:** Kerala University first statutes, ordinances and Examination Manual must be revised in tune with the changes brought about in the functioning of the University.
- ▶ **E-governance** system shall be strengthened to provide better services to the students and the general public. DDFS have been in use for the past two years. But due to lack of adequate IT infrastructure we could not implement the same in all sections.
- ▶ **Paperless Office:** In the context of the implementation of DDFS and digitisation of various services University shall aim at the establishment of the concept of paperless office. To begin with the meetings of the University Syndicate, Academic Council, University Senate, Faculties and Boards of Study shall be 'paper less'. The Agenda and Minutes of previous meetings shall be supplied online and the Syndicate members shall be given online access through iPads. In the case of Academic Council and Senate the Agenda items shall be mailed in advance and the same shall be displayed in big screens on either side of the hall. This will help in reducing the wastage of paper.
- ▶ Training in University Statutes, Ordinances, Service Rules, Examination Manual and in IT enabled functioning must be conducted for enhancing the efficiency of the employees.
- ▶ Transfer norms must be implemented in a scientific manner so that all employees will get chance to work in all the branches of Administration, Academic, Finance and Examination.
- ▶ At present work load of employees vary from section to section. So, a scientific assessment of the work load must be done and based on that redeployment of employees can be made to streamline the functioning of different branches.
- ▶ The possibility of delegation of powers to officers must be considered for decentralised functioning of the administration, and for efficiency in the implementation of projects.
- ▶ Infrastructure facilities including IT infrastructure must be augmented in the work place.
- ▶ To support and promote E-governance, IT (virtual) cadre must be formed as in the case of Government Secretariat. Employees who are well-versed in IT can be chosen for this cadre. However, this will be treated as an additional responsibility.
- ▶ Public Relations Wing must be modernised providing all sophisticated facilities to support the students and the general public.

- ▶ **Reorienting Faculties:** Currently, we have 16 faculties of which 5 do have neither departments nor colleges that conduct programmes under its purview. The colleges that teach programmes that come under the Faculty of Ayurveda & Siddha, Faculty of Dentistry, Faculty of Homeopathy and Faculty of Medicine have been affiliated to KUHAS and the colleges that conduct programmes that come under the Faculty of Engineering & Technology, except the University College of Engineering have been affiliated to the Technological University, KTU. These faculties are to be retained for some more time as the supplementary examinations for students who studied while these colleges were affiliated to University of Kerala are still continuing. The proposal for reorienting faculties is given below:
- ▶ **Renaming the Faculty of Oriental Studies:** The term 'Orient' is used to refer to the countries of East and Southeast Asia. The term, Orient is a by-product of the colonial era. It has been problematised by theorists like Edward Said who argued that 'Orient' suggests the sum total of the prejudices of the West about the East. By referring to languages like Malayalam, Hindi, Sanskrit, Arabic and Tamil as Oriental languages we are knowingly or unknowingly sharing the prejudices of the West.

#### **Recommendations:**

- ▶ Remove the name Oriental Studies and rearrange the Faculty of Oriental Studies, Faculty of Arts and the five Faculties related to Health Sciences.
  - ▶ **Faculty of Languages:** All language Departments will come under this Faculty such as Malayalam, Hindi, Sanskrit, Tamil, Hebrew & Syriac, English, German, Russian, Arabic, French & Latin.
  - ▶ **Faculty of Humanities & Culture:** Will include Philosophy, Library Science, Communication & Journalism, Linguistics & Geography.
  - ▶ **Faculty of Health Sciences:** All subjects that come under Faculty of Ayurveda, Medicine (Nursing, Pharmacy), Dentistry, Homoeopathy will be brought under the Faculty of Health Sciences.
- **Renaming Departments:**
- ▶ Oriental Research Institute and manuscript Library must be renamed as 'Institute of Indology & Manuscript Library' (IIML).
  - ▶ Institute of Management in Kerala (IMK) must be renamed as 'Department of Management Studies' (DMS).
- **Centre for Academic & Professional Training (C-APT)**
- ▶ Training is integral to professional development and upgradation. In this era of knowledge explosion and technological advancement, regular training programmes are a must for updating the knowledge and skill of our teachers. The Human Resource Development Centre is conducting various training programmes for teachers regularly. But most often HRDC could not meet on its own the huge demand for training for teaching and non-teaching staff. Teachers will have to be familiar with new areas in various disciplines and must be well equipped to teach those topics. An English teacher has to teach Film



Studies without any training in that field. This will result in the failure of the course outcomes of the curriculum. So proper training in the relevant areas is very important for teachers to improve the quality of teaching. If we develop this centre further it could be used for providing training for professionals from Government organisations, Local bodies, Private companies and voluntary organisations.

- ▶ Professional Training for Students: C-APT can provide professional training for students which will improve their employability.
- ▶ ASAP programme already initiated by the University could be routed through this centre.
- ▶ The training and refresher programmes for employees could also be implemented through this centre.
- ▶ HRDC may be asked to present a project report based on the above concept.

### ■ **Public Relations Division**

The nature and scope of public relations have changed in the contemporary period from publishing the usual reports to providing and upkeeping the good image of the institution before the public. This is extremely important for an educational institution because it is the image of the institution that attracts good students from different parts. So, the public relations wing needs total revamping. The University should reach out to the public as well as the students regularly. One of the strategies that could be used is to actively intervene in the social media, like Facebook, Twitter, Instagram and Telegram and to promote our institution through short videos about the tradition and lineage of the University, its academic environment, infrastructure facilities etc.

#### **Recommendations:**

- ▶ In-order to intervene in social media, appoint two social media managers. Qualified candidates from among University Assistants can be considered.
- ▶ Produce short videos on prestigious institutions, University Departments and prestigious projects undertaken by the University.

### ■ **Department of Publications**

Started in 1938, the publication division has a long pedigree of publishing highly acclaimed books including *Hortus Malabaricus*, *Chithra Ramayanam*, *Kerala Sahithya Charithram* by Mahakavi Ulloor. A prestigious department of the University, the Department of Publications is supposed to project the research output of the University to the academic world. Though the Department of Publications has to its credit several prestigious books, it needs to be revamped in modern ways incorporating the latest technology in the field of publishing.

#### **Recommendations:**

- ▶ Publish Kindle editions of well known books published by the University.
- ▶ Publish eBooks.

## ■ **Kerala University Computer Centre (KUCC)**

- ▶ The Kerala University Computer Centre has almost over half a century old existence (dating back to the use of a Czech made electromechanical computer “Arithma” in 1950s and Core- Memory based IBM-1920 computer IBMs and Indian made TDC 316 in 1970s) and, today it spearheads the University’s e-Governance initiatives. Computing support for research is no longer centralized, thanks to the advent of affordable desk-top computing power. The University’s main campus in Karyavattom is securely connected to the cyber highway with broadband connection flowing into over 2000 computers. The University web site has also evolved since 2000 to become an indispensable cyber forum that connects the university community and serves information to all stake holders. The web site offers on-line admission portal, on-line payment system and Ph. D portal and is one of the most visited sites of the state, in public domain. University also has an official email system. The University also judiciously uses technology in many ways to serve academics & governance including systems such as 24-hour digital camera surveillance, over 100 digital security features in hologram affixed degree certificates, digitization of archival records, online admission for both University teaching departments and affiliated colleges, online grievance redressal system etc. The issue of degree certificates with hologram with over 112 security features is also being managed by KUCC. But the functioning of KUCC need modifications to make it more professional and effective in view of the growing demand for IT solutions.

## ■ **Proposal for Revamping the Workflow at KUCC**

### ***Present Status***

One-man team for all the work related to the software development and deployment of most of the critical projects. The supervision of the software development and other activities is currently done by the Director only.

### ***Defects of the System***

The single level-role-hierarchy that has been followed in KUCC is not appealing and generates more work pressure to each and every employee. There is no provision for consistent monitoring of the software development activities. In the single level-role-hierarchy, the absence of the concerned programmer will affect the smooth working of the project. There may not be sufficient design and planning of the project and it may lead to the delivery of immature and incomplete software.

### ***Solutions***

This problem can be rectified with the introduction of a multilevel role hierarchy in KUCC. A new multi-level role hierarchy at KUCC must be adopted as shown in the figure that abstracts the proposal. The proposal will ensure a proper testing and evaluation of the software before launching the same in the respective division. The responsibility of the project can be distributed to different layers and it will increase the confidence level of the entire project team. The timely completion of project and deployment of error free software with proper documentation. The entire work at KUCC can be categorized into three (1) Software Devolvment & Deployment, (2) IT infrastructure Management, (3) Office Administration.

### ***Software Devolvement & Deployment***

There are three level of roles – (a) System Manager, (b) Project Leader and (c) Contract Programmers. There will be another subgroup called ‘Testing and Quality Control Wing (TQC)’ for testing and ensuring the quality of new software or modifications in the existing software. The TQC will be responsible for prepare the test cases with the help of sections concerned and test the software accordingly before the release. The preparation of documentation can also be assigned to the Testing wing. Each software devolvement project will be headed by a Senior Programmer (here named as Project Leader). All the Project leaders should report the status of their projects to System Manger. Hence the System Manger can easily coordinate the working of all projects through Project Leaders. The project leaders and system manger can properly design the work and set the millstones before the implementation. After completing the testing of the newly developed software/module, it will be handed over to System Manger for the release in consultation with the System Analyst in IT Infrastructure division.

### ***IT Infrastructure management***

This division is dedicated for the IT infrastructure (Servers, Network, Security, etc) management. The outer level works can be assigned to the technicians and they have to report their work status to System Administrators. The System Administrators are coming under the System Analyst who will be the controlling official of the works related with IT Infrastructure management. The version control and release of the newly developed software/module need to be done by the System Analyst with the consultation of System Manger.

### ***Office Administration***

The overall supervision of the staffs and works at KUCC will be under the control of AO and he/she need to report the status of works to the Director.

### **Suggestions for the Implementation of the multilevel role hierarchy**

- ▶ The permanent senior programmers can be treated as Project Leaders, and the contract sprogrammers may be assigned to the respective Project Leaders. In future, the Director/ System Manger can assign new projects to the Project Leader. After the preliminary study, he/she can decide the man power and time to complete the project. The contract programmers shall be selected for a particular project only, and after completing the work the contract of the contract programmers need to be closed automatically. The System Manager and System Analyst are the two other higher-level hierarchy in the proposal. If the technically well-equipped permanent technical staff in the teaching Departments could be channelized for the time being, the proposal at the earliest can be implemented without making any higher-level recruitment.

Periodic training shall be arranged for the permanent programmers to understand the new developments in the software industry. Training for the staff shall be conducted periodically for the effective implementation of the developed software.

### **■ University College of Engineering**

- ▶ University College of Engineering is at present a Self-financing College managed by the University. It is conducting three BTech programmes. But the enrolment of students has

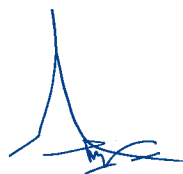
come down considerably during the last few years and the institution is not in a position to support itself financially. So, the first priority shall be to keep it at least in a no profit, no loss status for the time being.

- ▶ Another possibility will be to convert it into a Constituent College and start new generation programmes like BSc Honours in Robotics, BSc Honours in Artificial Intelligence, BSc Honours in Software Engineering, MS in Data Analytics MS in Machine Learning and MS in Entrepreneurship (MS programmes will be started after getting approval from UGC).

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#### **XIV. Conclusion: Implementation of the Proposal**

- ▶ The report on the academic reforms focuses mainly on two things, the immediate measures to be taken in University of Kerala in the context of the outbreak of COVID-19 and the direction to which it should develop in future. The report covers only certain areas directly related to the academic performance of the University. Some of the long term goals and proposals related to non-academic sectors have not been included in this report. We don't claim that this report is complete and is all-inclusive. But we are sure that this will help in furthering the deliberations on the educational reforms to be executed in future. The report is submitted for further discussions and suggestions. Implementation of the recommendations is a real challenge. So, a Task Force shall be constituted for the speedy implementation of the recommendations. Time frame for the implementation of each item shall also be decided in advance. The present situation warrants immediate action and decisions. So, implementation of the proposals on war footing is extremely essential.



**Prof. P.P. Ajayakumar**



**Prof. K.G. Gopchandran**

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## XV. Appendices

### APPENDIX - I

#### Details of Departments and the year of establishment

Name of Department	Year of Establishment
Oriental Research Institute & Manuscripts Library	1908
Aquatic Biology & Fisheries	1938
Tamil	1944
Statistics	1945
Chemistry	1957
Education	1957
Political Science	1957
Psychology	1957
Botany	1959
Economics	1959
German	1961
Library & Information Science	1961
Institute of English	1962
Geology	1963
History	1963
Linguistics	1963
Malayalam	1963
Sanskrit	1963
Mathematics	1965

Name of Department	Year of Establishment
Zoology	1968
Russian	1969
Sociology	1969
Bio-Chemistry	1970
Physics	1970
School of Distance Education (SDE)	1976
Communication & Journalism	1977
Demography	1979
Commerce	1985
Computer Science	1985
Philosophy	1985
Hindi	1988
Law	1988
Futures Studies	1990
Institute of Management in Kerala	1990
Islamic Studies	1990
Bio-Technology	1994
Environmental Sciences	1994
Optoelectronics	1994
Archaeology	1998
Music	1998
Arabic	2001
Comp. Biology & Bioinformatics	2011
Nanoscience & Nanotechnology	2016
Kerala Studies	2019



## APPENDIX - II

### Scopus analysis of the research publications from Departments



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## Analyze search results

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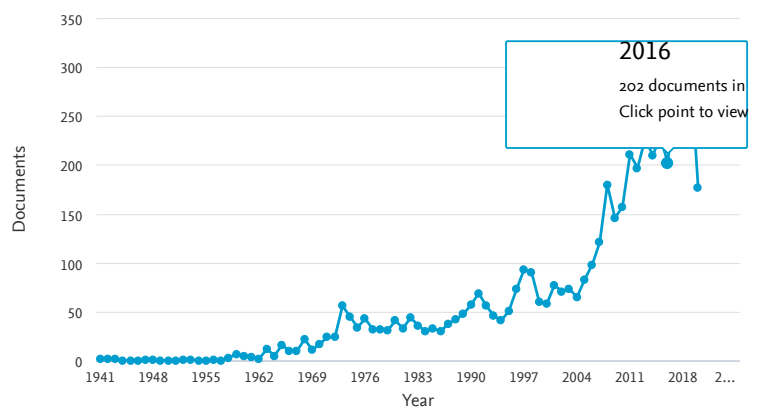
(AF-ID ( "University of Kerala" 60031566 ))

4,924 document results

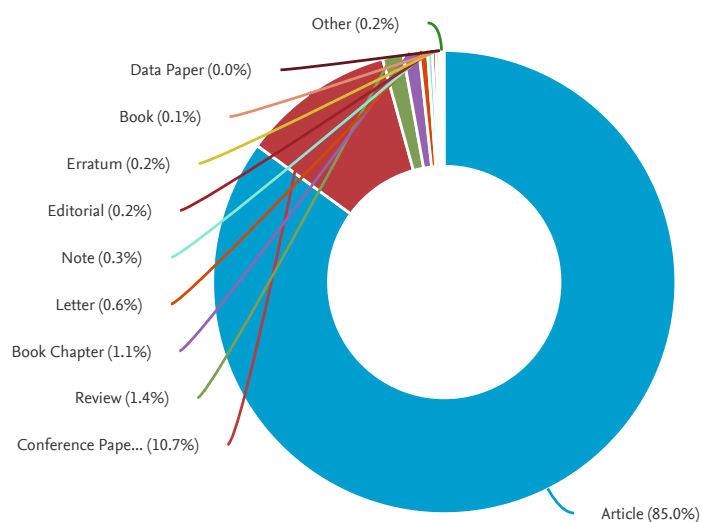
Select year range to analyze: 1941 to 2020 [Analyze](#)

Year ↓	Documents ↑
2020	177
2019	296
2018	289
2017	291
2016	202
2015	228
2014	210
2013	227
2012	197
2011	211

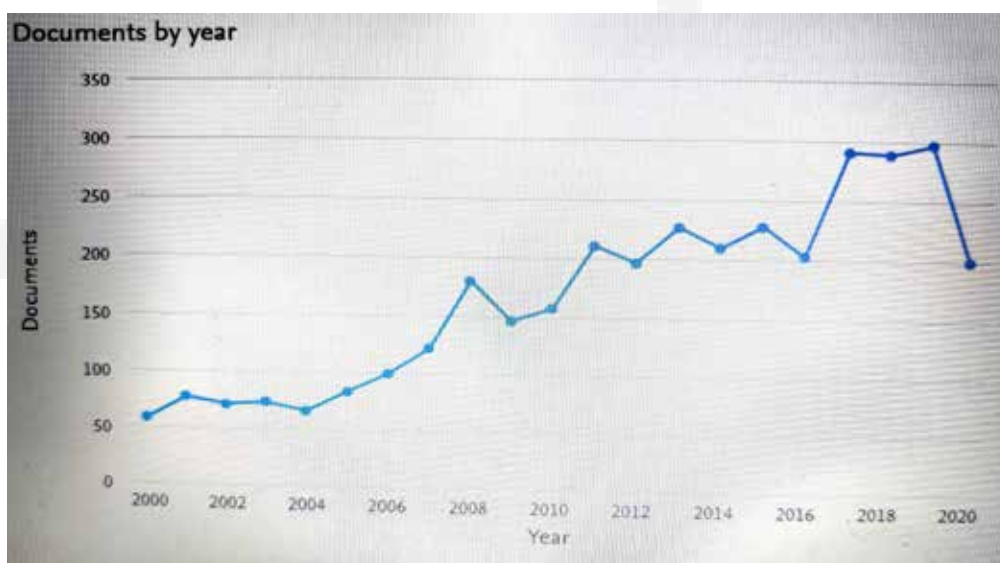
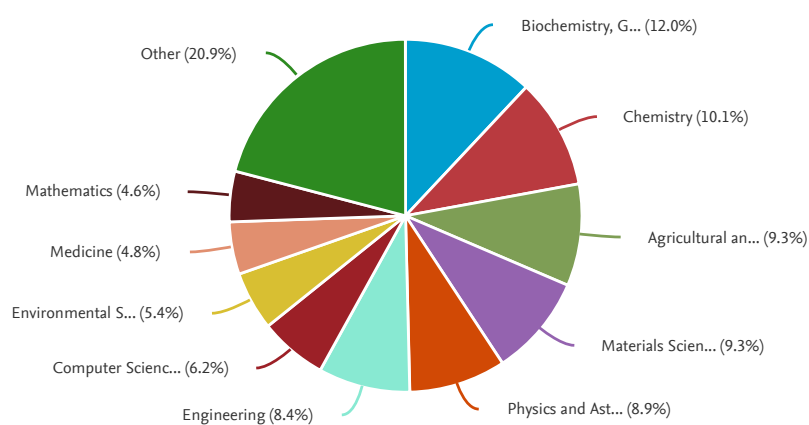
Documents by year



## Documents by type



## Documents by subject area



## APPENDIX - III



Scopus

Search Sources Lists SciVal



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### Affiliation details - University of Kerala

Print Email

#### University of Kerala

Senate House Campus, Palayam,  
Thiruvananthapuram  
KL, India

Affiliation ID: 60031566

Other name formats: University Of Kerala Kerala University Univ. Kerala University Of Kerala Kariavattom

#### Affiliation profile actions

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Export subject area data

Documents, whole institution  
7,659



Documents, affiliation only  
4,924

Authors  
2,086

Documents by subject area

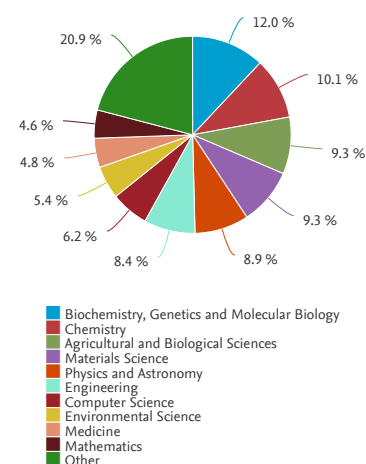
Collaborating affiliations

Documents by source

Sort by: Document count (high-low)

Subject Area	Count	Subject Area	Count
Biochemistry, Genetics and Molecular Biology	1043	Immunology and Microbiology	113
Chemistry	879	Energy	107
Agricultural and Biological Sciences	813	Multidisciplinary	89
Materials Science	809	Decision Sciences	59
Physics and Astronomy	772	Nursing	49
Engineering	732	Business, Management and Accounting	44
Computer Science	540	Arts and Humanities	38
Environmental Science	470	Economics, Econometrics and Finance	36
Medicine	418	Psychology	29
Mathematics	403	Neuroscience	26
Earth and Planetary Sciences	386	Dentistry	11
Pharmacology, Toxicology and Pharmacy	358	Undefined	11
Chemical Engineering	278	Health Professions	10
Social Sciences	167	Veterinary	8

#### University of Kerala

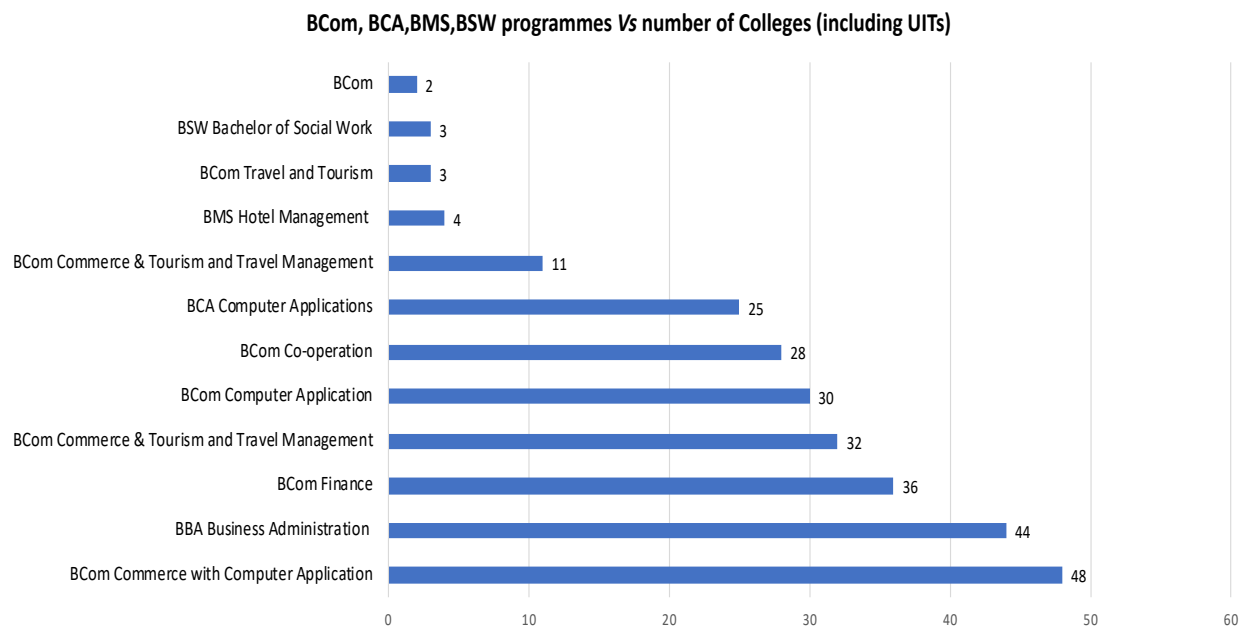
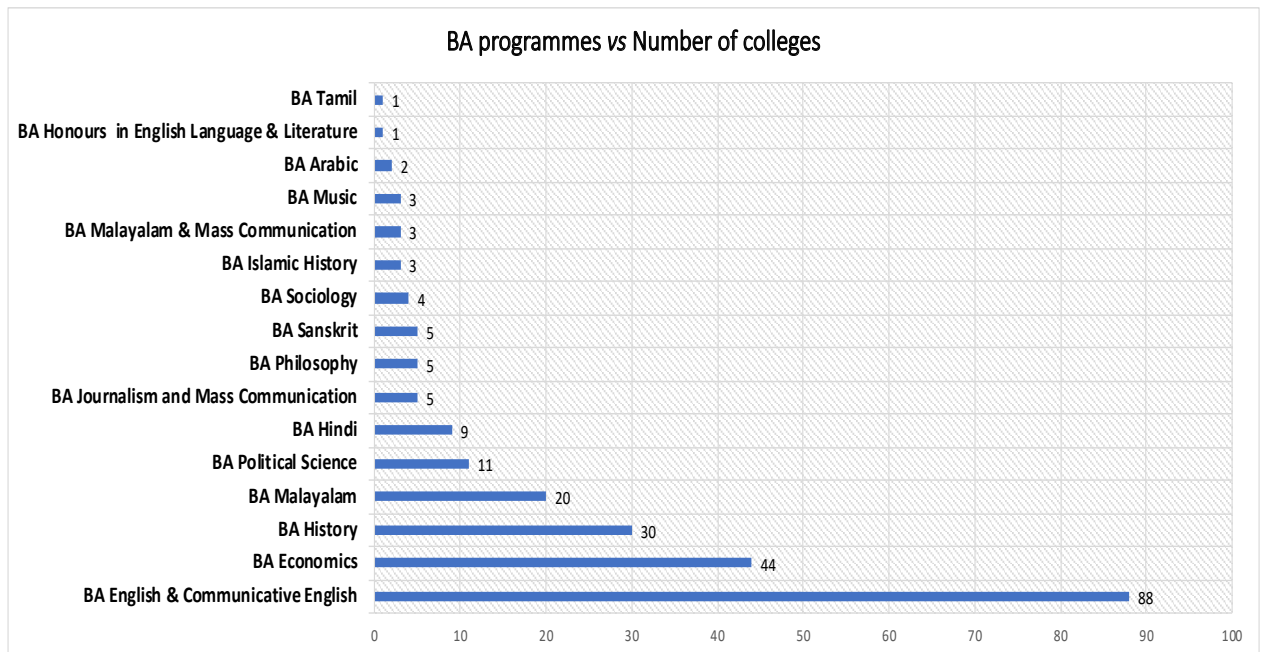


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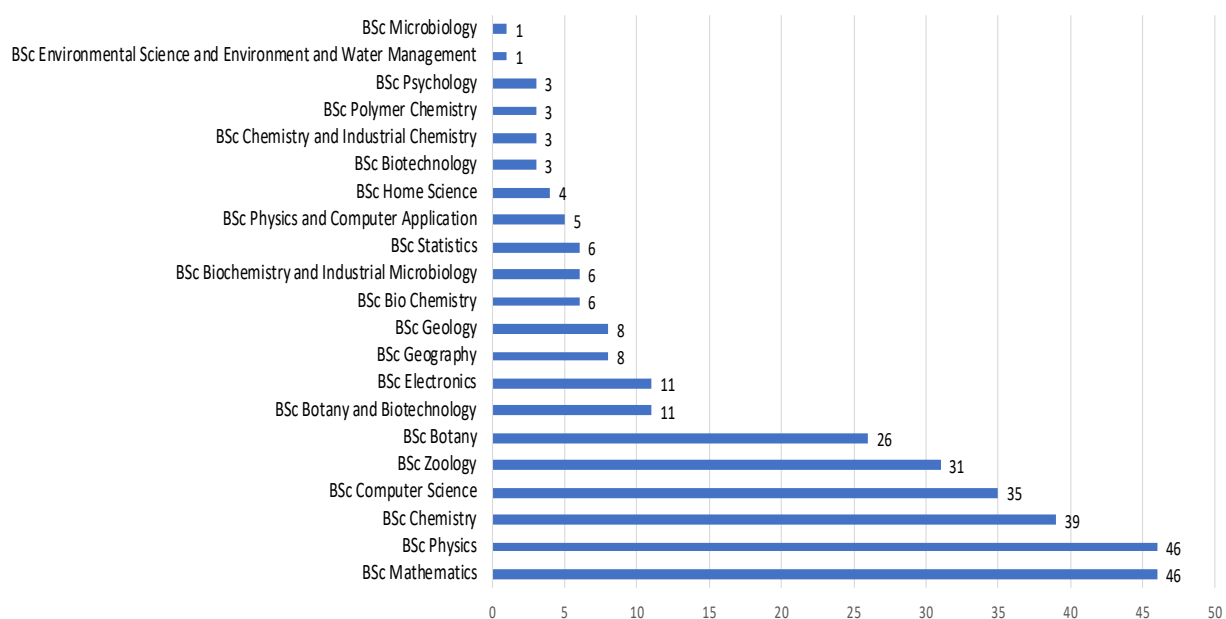
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## APPENDIX - IV

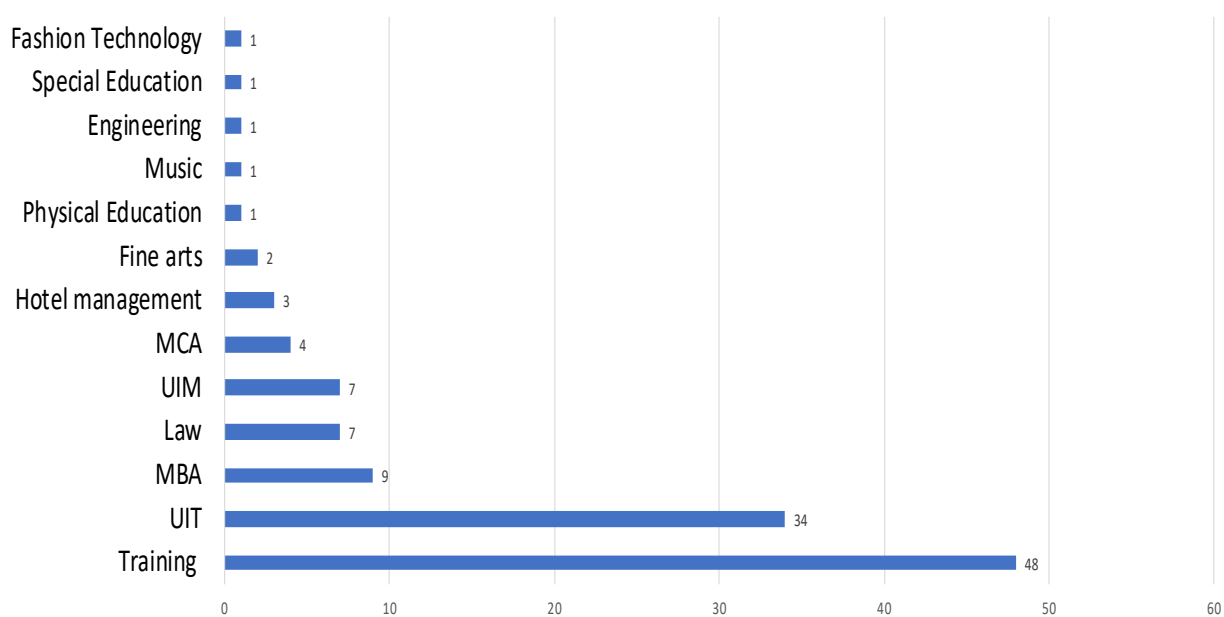
### Academic Programmes in Affiliated Colleges



BSc programmes Vs Number of colleges



Other Colleges and Institutions



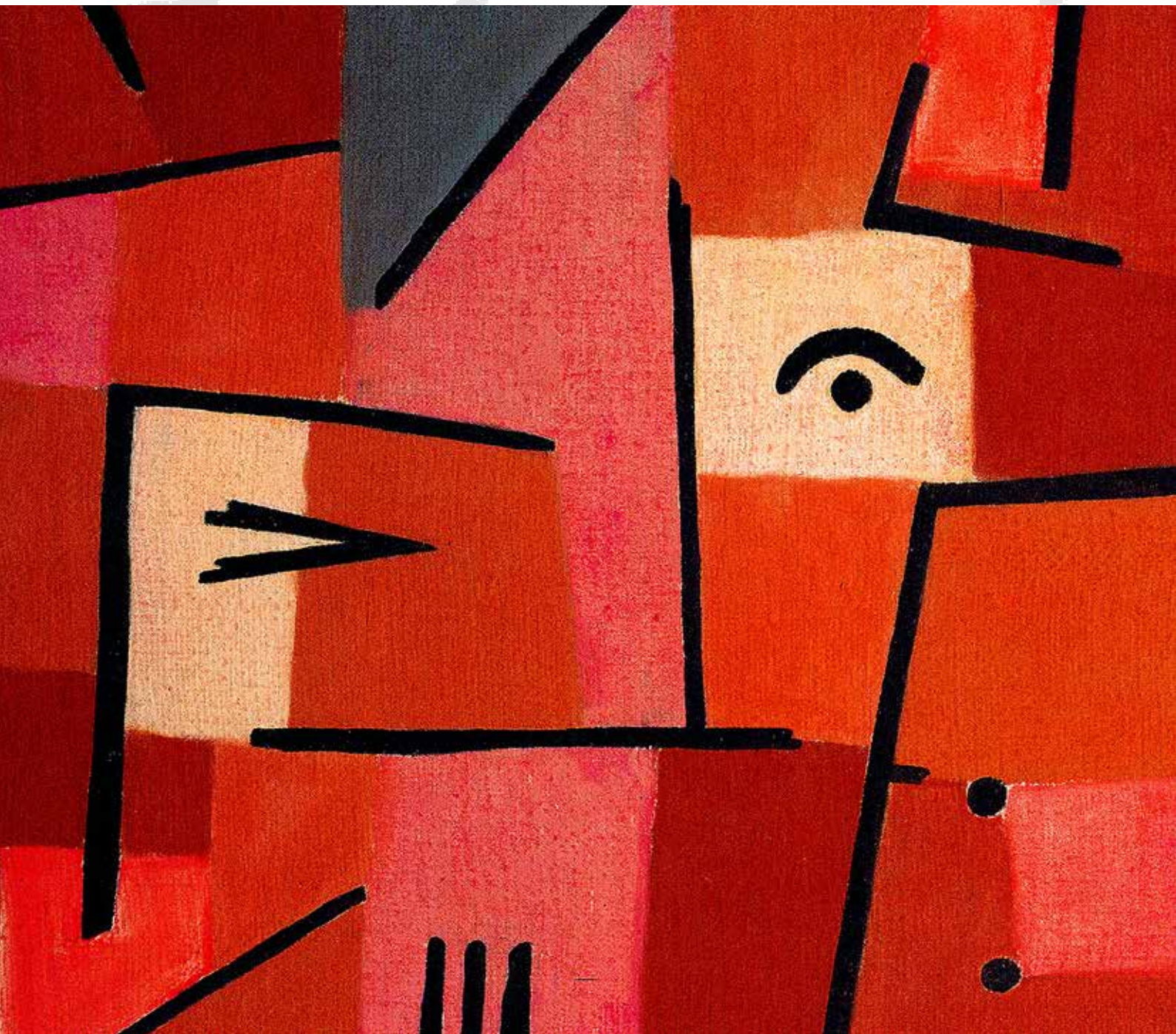
## APPENDIX - V

### Abbreviations Used

C-AIC	Centre for Academic and Industrial Collaboration
C-APT	Centre for Academic and Professional Training
CBCSS	Choice Based Credit and Semester System
CE	Chief Examiner / Controller of Examinations.
CLIF	Central Laboratory for Instrumentation & Facilitation
COVID-19	Corona Virus Disease
CSS	Credit and Semester System
DCDC	Director, College Development Council
DDF	Department Development Fund
ETD	Electronic Thesis and Dissertation
IEC	Institutional Ethics Committee
INFED	Inflib Net Access Management Federation
INFLIB NET	Information and Library Network Centre
IQAC	Internal Quality Assurance Cell
IT	Information Technology
KIIFB	Kerala Infrastructure Investment Fund Board
KSHEC	Kerala State Higher Education Council
KSUM	Kerala Start Up Mission
KTU	Kerala Technical University
KUCC	Kerala University Computer Centre
KUCTE	Kerala University Centre for Teacher Education
KUTBSC	Kerala University Technology & Business Startup Centre
LIS	Library Information System



LMS	Learning Management System
M-Des	Master of Design
M.P.Ed	Master of Physical Education
MCA	Master of Computer Applications
MHRD	Ministry of Human Resources Development
MOOC	Massive Open Online Courses
MoU	Memorandum of Understanding
NIFT	National Institute of Fashion Technology
OBC	Outcome Based Curriculum
OBE	Outcome Based Education
OBS	Open Broadcaster Software
ORI	Oriental Research Institute
PPT	Power Point
PTA	Parent Teacher Association
QP	Question Paper
RDI	Researcher's Digital Interface
RDM	Research Data Management
SDE	School of Distance Education
SLCMS	Student Life Cycle Management System
SLM	Self Learning Material
SPOC	Small Private Online Course
TQC	Testing and Quality Control
UGC	University Grants Commission
UIM	University Institute of Management
UIT	University Institute of Technology



**UNIVERSITY OF KERALA**  
Palayam, Thiruvananthapuram