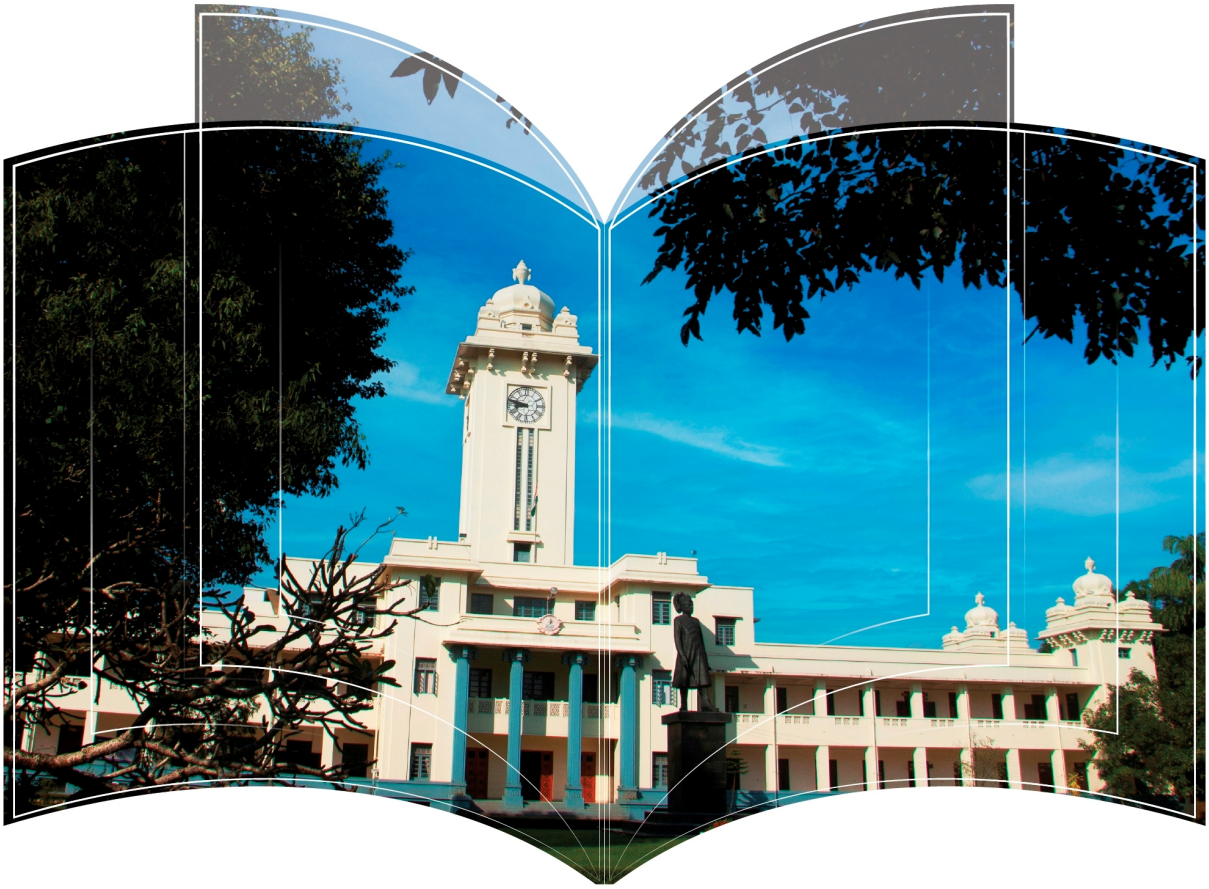
UNIVERSITY OF KERALA



Research Policy

RESEARCH POLICY

UNIVERSITY OF KERALA

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Disclaimer

This is a helpful documentation of information and motivational reading that may be use to students newly admitted to the University of Kerala. While effort has been taken to provide accurate and authentic information, it may be noted that this is not a document which should be relied on as legally undertaken by the University of Kerala. Remarks made are not that of the University of Kerala. The University's stances on all matters are as duly debated and adopted by the University authorities (the Senate, the Academic Council and the Syndicate). For any final confirmation, a formal communication from the University of Kerala may only be relied on.

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RESEARCH POLICY OF THE UNIVERSITY OF KERALA

As a leading multi-disciplinary University, University of Kerala upholds academic excellence and world-class research aimed at addressing real-world problems. University of Kerala (hereafter referred University) is well-positioned to make major contributions in use of knowledge to transform human lives so as to make it more simple and joyful. Research reinforces conception of knowledge that brings in charisma towards solving pressing issues of society and provides platform for generation of novel forms of knowledge, innovations in arts, literature, humanities, commerce, education, law, management, media, science and technology. The University wishes that research should able to kindle disruptive thinking across and beyond our University to transform knowledge and understanding and to enable society to survive to the ages to come. Fruits of research should reach out to the society and be supportive to mankind. This Policy helps in creating a congenial eco system that promotes knowledge creation which is fair, just and can be meaningfully blended with societal concerns.

1. Purpose

This research policy provides a vision on the kind and nature of University's research over the next ten years as well as on the ways and means to strengthen research so as to make it more knowledge oriented, societal and transformative. This document tries to build upon the sweeping tradition of innovation, accessibility and significance established by our founders and personified by successive administrators and academics. To establish a vibrant milieu and ambience for research in University in order to transform itself as a centre of excellence for intellectual creativity, to respond to social demands from time to time, and to contribute to the creation of knowledge societies and sustainable world.

2. Scope

This overarching policy is applicable to any research carried out in the University departments, its affiliated colleges and other research centres. University of Kerala has now 44 research and teaching Departments with a host of Multidisciplinary research Centers in the disciplines of Physical Sciences, natural sciences, Social Sciences, Technology, Arts, humanities and Languages including foreign languages along with Commerce Industry and Management. Promoting research on Trans disciplinary issues which does have a holist impact is thus possible. The Physical and social infra-structure for research can be optimally used

internally as well as in the collaborative mode linking research issues with societal concerns.

Promoting Research Culture where all the processes are outcome based and purposive will promote Quality and integrity in its processes.

3. Objectives

- Make research more focused in terms of applications and developmental praxis.
- To create an enabling environment within the University in order to foster a research culture as well as provide necessary framework and action plans to support research from time to time.
- To develop world class infrastructure and ambience for research such that we have a congenial research eco-system where seeking inputs for research and creation of intellectual property is made possible through creative thinking and wise use of Knowledge.
- To ensure publication of research findings in high quality peer reviewed, indexed and impact factor journals, books and other relevant quality publications.
- To strengthen the Directorate of Research, Research portal and online transactions.
- To strengthen and upscale the Central Laboratory for Instrumentation and Facilitation (CLIF) as one of the world class laboratories with all state-of-the-art equipment and computation facilities.
- To promote interdisciplinary collaborations and partnerships with national and international institutions to foster high quality research with global outcomes.
- To encourage faculty and students to embark on mutually beneficial international exchange programmes in research with internationally acclaimed universities.
- To collaborate with entities and agencies forming part of the University Research Council on mutually beneficial research projects and research themes.
- To promote socially relevant research keeping human needs and human values at the core of knowledge creation and dissemination.
- To help in achieving Human Sustainability Goals.
- To support the ambitions of individual scholars, both empowering them to pursue their own research agenda and enabling them to realise their ambitions through collaborations.
- Encourage Inter disciplinary research leveraging from research centres under different Schools of the University

- Improve the quality of doctoral work (Ph.D.) and Post-Doctoral work (PDF) so as to make it more focussed and relevant rather than a mere degree.

4. Custodian of the Policy

The implementation and updating of Research Policy shall be carried out by Directorate of Research, in consultation with University Syndicate. The research directorate will be headed by the Research Director. There will also be a research council chaired by the Hon'ble Vice Chancellor, which will function as an advisory body. For the Syndicate of University of Kerala, Standing Committee of the Syndicate on Academics and Research will act as the supervising body. The research council will have members also from Industries and scientific institution. The research policy will be updated from time to time, with the consultation of the Internal Quality Assurance Cell (IQAC).

5. Policy and Guidelines

5.1 Definitions

- *Research Scholar:* All registered for Ph.D. under the University of Kerala, both in University Departments and Kerala University Research Centres.
- *Research Supervisor:* All approved Research Guides under the University of Kerala.
- *Research Centres:* University Departments and all research Centres approved by University of Kerala.
- *Research Council:* A common Body where University research Centres associate with reputed research institutions located in the jurisdiction of the University with the objective of collaboration, sharing of resources and research ideas as well as supporting creation of a research eco system.
- *Research Directorate:* The Administrative System to support all research processes of University of Kerala.
- *Plagairism:* As decided by the University.

5.2. Requirement to Undertake Research

Faculty members and research scholars of University of Kerala, research departments and affiliated research centres are expected to undertake research, leading to patents, products, quality publications, presentations in National/ International conferences of repute, generation of intellectual property, innovative technologies, socially useful art forms and expressions, and other research activities

for knowledge creation. Nothing in this policy is to be construed so as to prevent the head of the departments or centres from allocating teaching and other responsibilities in the light of the Research record of academic staff.

5.3. Obligations of researchers

Research guides must be aware of their obligations to students working as part of the research team and vice-versa. Each scholar is responsible to know about the research problem, appropriate health and safety procedures for that particular research area, and for management of those procedures in his or her laboratory or other work place. Faculty members and researchers also need to know and comply the approved research protocols, financial and ethical guidelines of the university. Research output of the faculty, research students and post-graduates will be considered one of the criteria for faculty recruitment and promotion along with other academic credentials. The quality of research output, especially research publications, may be assessed on the established yardsticks such as Impact Factor (IF) and other quality criteria, which will be revised from time-to-time as appropriate.

5.4. Research Management

Overall management of research activities may be coordinated by the Research Directorate. Research Directorate shall be responsible for overall functioning of research activities of the University. In each department or research centres, the activities will be coordinated by the head of the department/institution, with annual assessments. The research directorate will provide a high-quality and fulfilling environment for our research students. The university will support our research-based education and will also work with Library Services to further strengthen its provision of digital resources. The research council will be the advisory body and will be chaired by the Vice Chancellor.

5.5. Integrity and Ethical Obligations

The practice of research will require adherence to principles of ethics and integrity that may vary in their details according to the type of research undertaken. All individuals involved in research at University are expected to observe the highest standards of integrity, honesty and professionalism in respect of their own actions in research and in their responses to the actions of others. This applies to the whole range of research work including, but not limited to: designing studies and experiments; generating, recording, archiving, analysing and interpreting data; sharing data and materials; applying for funding; presenting and publishing results; training new researchers, staff and students; and peer reviewing the work of other researchers. The direct and indirect contributions of colleagues, collaborators and

others should be acknowledged. Researchers should declare and manage any real or potential conflicts of interest, both financial and professional.

Academic staff and students are required to carry out their Research in compliance with all the University's obligations under legislation and any ethical and contractual obligations. In addition to the overarching policy, specific policy guidelines will be developed by the University.

The basic responsibility of ethics committees in areas such as animal research, human research and misconduct in research including plagiarism. These committees will ensure a competent review of all ethical aspects of research, the project proposals received and execute the same free from any bias and influence that could affect their objectivity. Researchers should work to ensure that, throughout the lifecycle of their investigations, ethical issues relating to their research projects are identified and managed, and all permissions and approvals are in place before the start of the research.

Any allegation on misconduct of research will be seriously addressed by the University. University will constitute Departmental Academic Integrity Panel (DAIP), and the Institutional Academic Integrity Panel (IAIP) as suggested in the UGC to address issues related to misconduct in research.

5.6. Research Ethics

Research Facilities, experiments, observational tools and use of resources should be in conformity with ethical standards prescribed by regulatory bodies, professional bodies as well as research standards laid down in this regard. Where consent for such specific ethical compliance is involved the same should be obtained from the agencies concerned. Research processes and outcome should not conflict with the interests of the University or the General wellbeing of the Society Where the interest of the University or wider social implications that might contradict with common wellbeing are involved, prior approval of the Directorate is mandated. Intellectual Property from research in the University need to be acknowledged with University of Kerala as a party to the process. Parties involved in collaborative research with outside agencies should ensure that there is no conflict of Interest with University of Kerala and their partners

All regulations of UGC as well as the regulations and orders framed by the Academic Council, University of Kerala will be applicable for all research activities.

University would have the right to amend and review its policy as and when required.

5.7. Resources in Support of Research

The general principle governing the allocation of all research funding in the University is that it is an investment intended to maximise the range of outcomes that the University expects to result from staff and student Research. Allocations in this regard will be delivered based on the track record of the researcher concerned, and based on pure merit.

The University will also provide Junior Research fellowships (JRF), Senior Research fellowships (SRF), Post-Doctoral Fellowships (PDF) to all the research students to promote quality research. Major highlight is that the research fellowship will be awarded to students of the University teaching departments and also other research centres. The progress of research will be assessed annually by the department based on various indicators including research papers and further extension of fellowship will be granted.

Seed research grant will be given to early career teaching staff at the level of Assistant Professors who are in their first five years at University who have not previously received external Research funding support.

Publication grant will be provided to students and faculty in the University departments to promote publication in high impact journals.

Travel grant will be provided to students and faculty in the University departments to their travel abroad for the presentation of papers in international conferences.

Academic staffs are eligible to apply for duty leave in support of their Research including Research and Study, Conference, and exchange programmes, based on the recommendations of the research committee.

5.8. Research Planning and Strategy

University, through the research departments and centres, is required to prepare University Research Strategy and Action Plan from time to time, taking into account the demands of the society and inputs from various stakeholder agencies, including Ministry of Human Resources Development, University Grants Commission and State Department of Higher Education. Each Faculty, and its constituent departments and research centres, is required to develop and implement its own Research plan that is consistent University-level strategy.

5.9. Quality of publications

To ensure quality of publications and to standardise the research output, University will collaborate with leading publishes in the world and research data bases with indexing agencies, including Scopus (Elsevier) and Thomson Reuters (Web of Science). University is also giving publication grant to research students to ensure quality of publications.

5.10. Recognising good research

To encourage researchers in the University who publish in good quality journals, and those who bring out land mark books towards knowledge creation, University will constitute awards every year. Similar awards will also be given to those who bring in highest research grant to the University and those who win patents for their innovative findings. Fellows selected for various research associations based on the quality of their research will also be honoured from time to time.

Staffs are required to supply full and accurate details of their Research outputs as required. This shall be done at least annually, and the information will be supplied to the IQAC.

5.11. Publication and database

The University expects all Research outputs will be publicly available. All thesis and dissertations will be digitised and made available to public and researchers, though various systems of UGC. University library department will maintain a database of all research degrees awarded so far and made it available to the public.

5.12. Consultancy

As an effective way to disseminate knowledge and make an early and direct impact on society, University will promote consultancy research. The research policy provides provisions for conducting consultancy to ensure that consultancies undertaken by staff are consistent with the vision, mission and interests of the University and its research plan. There is a separate consultancy cell and a centre for industrial collaboration in the university.

5.13. Research Centres and Institutions

The University establishes Research centres/institutes to raise the Research profile of the University, focus strengths in areas where there is (or the University wishes to develop) a concentration of Research excellence (including areas of applied

Research) and to maximise external Research funding. Research centres help position and promote the University's areas of Research excellence and build the University's Research reputation. They also serve as vehicles for engaging with other Research institutions and industry and facilitate interdisciplinary and multidisciplinary relationships.

5.14. Multi/Trans-disciplinary Research and Extension

A suite of multidisciplinary themes will be identified by the University from time to time to define the academic emphasis of the University. These themes will be based on United Nations Development Goal and also that of the local society's needs. They promote an outlook that goes beyond disciplinary, school, faculty and other traditional boundaries, and frame and develop University's distinctive teaching, Research and public engagement endeavours.

The extension centre of research will coordinate the extension and outreach activities of the University. It is a channel for development and transmission of knowledge and skills developed in the University through research, besides organising training workshops for the stakeholders.

5.15. Twinning Programmes and Collaboration

University will promote twinning programs for Ph.D. for the Indian and overseas students, which may offer exchange of students with its partner universities across the globe.

Research is increasingly collaborative, involving individuals from different disciplines and from institutions within and beyond India. For promoting collaborative research University will also offer co-guideship to leading researchers in India and abroad to promote exchange of researchers and development of research in international quality. In establishing research collaborations researchers should be mindful of the University's policies and guidelines, as well as funder, legal and regulatory requirements, and ensure that research partners and their employing institutions are able to meet the required standards of research conduct. There needs to be clear agreement on and articulation of the standards and frameworks that will apply to collaborative work.

5.16. Training

The University will offer short-term courses on research methodology, instrumentation, lab safely, data analyses, research paper writing, presentation of research, and intellectual property rights and patents to enable students and new

researchers to understand and adopt best practice in research. It is also proposed to conduct a two months pre-doctoral training/orientation course to all research students as soon as they join the university as a research scholar. This will be conducted in the Central Laboratory for Instrumentation and Facilitation (CLIF), University of Kerala.

5.17. Legislative Compliance

The University is required to manage its policy documentation within a legislative framework. This policy will be reviewed every three years unless earlier revision is required due to a major change in the legislation, regulations and guidance that govern good research practice.

SCHOOLS

1.	**SCHOOL OF BUSINESS MANAGEMENT AND LEGAL STUDIES** I. Department of Commerce II. Department of Law III. Institute of Management in Kerala
2.	**SCHOOL OF COMMUNICATION AND LIBRARY SCIENCE** I. Department of Communication and Journalism II. Department of Library and Information Science
3.	**SCHOOL OF EARTH SYSTEM SCIENCES** I. Department of Geology II. Department of Environmental Sciences
4.	**SCHOOL OF ENGLISH AND FOREIGN LANGUAGES** I. Department of Arabic II. Department of Russian III. Institute of English IV. Department of German
5.	**SCHOOL OF FINE ARTS** I. Department of Music
6.	**SCHOOL OF INDIAN LANGUAGES** I. Oriental Research Institute and Manuscripts Library II. Department of Hindi III. Department of Linguistics IV. Department of Malayalam V. Department of Sanskrit IV. Department of Tamil
7.	**SCHOOL OF LIFE SCIENCES** I. Department of Aquatic Biology and Fisheries II. Department of Botany III. Department of Biotechnology IV. Department of Zoology V. Department of Biochemistry
8.	**SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES** I. Department of Demography II. Department of Physics III. Department of Mathematics IV. Department of Statistics V. Department of Chemistry
9.	**SCHOOL OF SOCIAL SCIENCES** I. Department of Archaeology II. Department of Economics III. Department of Psychology IV. Department of Sociology V. Department of History VI. Department of Islamic Studies VII. Department of Political Science VIII. Department of Philosophy IX. Department of Education
10.	**SCHOOL OF TECHNOLOGY** I. Department of Computer Science II. Department of Futures Studies III. Department of Opto Electronics IV. Department of Computational Biology and Bioinformatics V. Department of Nanoscience and Nanotechnology

SCHOOL OF BUSINESS MANAGEMENT AND LEGAL STUDIES

REGULATIONS ON THE CONDUCT OF RESEARCH IN THE DISCIPLINES OF COMMERCE, LAW, AND MANAGEMENT STUDIES

PREAMBLE

Universities are the epitome of knowledge creation. Such new knowledge is disseminated in the society through colleges and other institutions. Though some knowledge dissemination is also taking place at the university level, the primary thrust has always been on knowledge generation. Hence, the primary focus at the university level has always been on research. Such knowledge in turn contributes to the welfare of the society at large and the economic development of the country as a whole.

The School of Business Management and Legal Studies comprises the Departments of Commerce, Law, and Management Studies (IMK). Research in these disciplines would require a significant association with professional bodies and the industry like: Institute of Chartered Accountants of India, Institute of Cost Accountants of India, Institute of Company Secretaries of India, All India Management Association, AMFI, Indian Bar Council, Bar Associations, CII, FICCI, Assocham and so on. Such collaboration should be on a mutually beneficial basis where the outcomes from research would impart competencies in the creation of intellectual property and address social as well as professional issues in terms of resolution of problems faced. The services of professionals, with membership in these bodies, could be used for research, consultancy, and publications in the research centers. Collaboration with the industry would help in identification of research issues and creating linkages between academic knowledge updated from time to time and applications of the same in a given context.

Industry-Institute linkages would also help in creating a depository of researchable problems and issues which could act as a lead for Action Research and Live projects with a transformational approach to research. Book to Field and Theory to Application and resolution should be the key to such collaborative research.

Research can flourish only in a climate of academic freedom which includes freedom of inquiry and the right to disseminate the results obtained. It also

necessitates the freedom to challenge conventional thought and the freedom from institutional censorship. However, with academic freedom comes the responsibility to ensure that all research is governed by the principles of honesty, integrity, trust, and accountability. It should also meet high scientific and ethical standards and seek to increase knowledge in ways that benefit society. Hence, it is necessary to put in place a research policy that stimulates research and prescribes the boundaries of the do's and do not's in research. Special responsibility vests with researchers to remain aware of the consequences of their research and to balance the potential benefits against the possibility of harmful application.

APPLICABILITY

These provisions are applicable to all scholars engaged in research in the disciplines of Commerce, Law, and Management Studies.

RESPONSIBILITIES

The primary responsibility for the selection and conduct of research shall rest with the researcher. The researcher shall abide by all the rules framed in this regard by the University and also the sponsoring/funding agency. The researcher is also expected to maintain the highest standards of honesty, integrity and ethical behaviour in all research. It shall be the responsibility of the researcher to obtain all the necessary approvals/sanctions from both the university and the funding/sponsoring agency required at the different stages of research. It shall also be the responsibility of the researcher to use scholarly and scientific rigour and integrity in obtaining, recording and analyzing data, and in reporting and publishing results.

The following are the specific responsibilities of the researcher:

1. The researcher shall acknowledge his or her affiliation with the University in all publications resulting from research undertaken as a member of the University community.
2. The researcher who is no longer a member of the University community shall cease to indicate in publications, other than those resulting from research performed while being a member of the University community, his or her affiliation with the University.
3. The researcher shall ensure that publications do not misrepresent data or images and that the nature and purpose of any image manipulation is explained.
4. The researcher shall comply with the accepted practice of his or her discipline relating to the publication of research including those constraining the

submission of manuscripts to two or more journals and the duplicate publication of data or a manuscript.

5. The researcher shall not enter into or participate in any arrangement to suppress any findings of the research or withhold information that may have a bearing on the interpretation of the findings.
6. The researcher shall not use or publish data which he or she knows to be, or has reasonable grounds to believe are false.
7. The researcher shall organize the data in a manner that allows for its verification by third parties.
8. The researcher shall retain data in conformity with the best practice in his or her discipline and for the period specified by the Agency supporting the research. In the absence of an Agency specification, the data should be preserved for a period of five (5) years from publication of the data.
9. The researcher who ceases to be a member of the University shall deposit the data with the department or research unit where the data were generated unless alternative written arrangements are made.
10. In the event that data obtained from a limited access database or under a Research Related Agreement cannot be retained by a Principal Investigator, the Principal Investigator must provide the University in writing with the location of the data or the limited-access database.
11. The researcher shall respect the laws governing access to personal information and privacy in his or her collection and use of data.
12. Research collaborators, at the commencement of their collaboration, shall make all reasonable efforts to reach agreement, preferably in writing, that is consistent with the law and the Regulatory Framework relating to intellectual property, on their rights to, and future use of, data.
13. In the absence of an agreement between Research collaborators, their rights to and future use of the data shall be governed by the law and the Regulatory Framework relating to intellectual property.
14. The researcher shall not knowingly engage in plagiarism.
15. Upon the demonstration that a researcher has engaged in plagiarism it shall be presumed that the researcher did so knowingly and he or she shall bear the burden of rebutting the presumption by evidence satisfying the person or body investigating the matter that no such knowledge existed.
16. The researcher shall obtain the prior permission of another person before using, even with proper attribution, the unpublished work or data of the other person.

17. The researcher shall not enter into, or participate in, any arrangement whereby an Agency or other Person may have exclusive use of, or access to, the data of a Research collaborator, whether with or without proper attribution, without the Research collaborator's prior written informed consent.
18. The researcher shall use archival material in accordance with the rules of the archival source.
19. The researcher shall recognize in an appropriate form or manner in his or her publications the substantive contributions of all Research collaborators including students.
20. The researcher shall ensure that authorship of published work includes all those and only those who have made significant scholarly contributions to the work and who share responsibility and accountability for the results.
21. The researcher shall ensure that where a co-authored publication is based primarily on the work of a student, including a dissertation or thesis the student is granted due prominence in the list of co-authors in accordance with the established practices of the discipline.
22. A person who provides only administrative and/or managerial services to a collaborative Research endeavour shall not qualify for co-authorship.
23. The researcher shall ensure that all research funds administered by him or her are used with honesty, integrity and accountability.
24. The researcher shall acknowledge, in all published works resulting from his or her research, all Agencies and other public and private funding sources which supported the research.
25. The researcher shall not enter into any arrangement with any person to conduct any research under the auspices of the University, or on University premises or using students, academic, administrative or support staff, or University resources or facilities on the understanding that the conduct of the research is to be kept secret.
26. Without prejudice to the rights of a Researcher's collaborators or sponsors of research, a researcher shall not be obliged to seek commercial development of his or her invention, software or other discovery. The University shall respect the decision of a researcher not to commercialize his or her invention, software or other discovery.
27. A Researcher who elects not to seek the commercial development of an invention, software or other discovery may, in accordance with the Regulatory Framework governing intellectual property, permit its commercial development by his or her collaborators.

28. All Research Related Agreements must be approved and executed according to the relevant rules and orders of the University.
29. Any action that is in consistent with integrity, honesty or the rules framed by the University, including this Regulation, may constitute a disciplinary offence and, where appropriate, shall be investigated in accordance with the rules and orders of the University relating to the investigation of research misconduct.
30. This Regulation shall be reviewed at the end of the second full year of its operation by a Committee constituted by the University.

SCHOOL OF COMMUNICATION AND INFORMATION SCIENCE

Research Policy

School Profile

School of Communication and Information Science consists of two departments namely Department of Communication and Journalism and Department of Library and Information Science. Each department offers Ph.D programmes and PG Dissertation research works. The works are more related to societal practices as these disciplines demand both theory as well as practice.

Vision

The basic thrust of the school is focused on methodologies- traditional and innovative. The programmes are set with an objective that both quantitative and qualitative exercises get prominence in the current scenario of Communication and Journalism researches. So it is recommended that even though there are attempts based on conventional theoretical grounds, it should support and welcome research initiatives from Practice oriented topics than mere critical evaluations. Analytical and critical thinking capacities are to be strengthened in research from Master's research projects.

The Doctor of Philosophy in Library and Information Science, enables students to acquire the research skills necessary for careers at Libraries of universities, teaching institutions, and Public Libraries. The Ph.D. program covers various facets of education, training, experience, and expertise that would include: Information Landscape: Changing of Information Societies, Libraries and Information centres, Knowledge Society, Information Policy and Access, Professional Ethics, Intellectual Property Right; New Dimensions of LIS Education; Information Literacy; Information Management and Administration of Libraries; Information Organization and Access: Data science, data curation, metadata, knowledge discovery, semantic web, ontologies, information retrieval, new forms of digitally-enabled organization, e-governance, technology-driven innovation and change. Bibliometrics, Scientometrics, Informetrics, Webometrics, Altmetrics; Information Systems; Information and Communication Technologies; Digital Initiatives.

Mission

Both departments engage the Masters students in effective learning of research methodology. Dissertation topics can be shared for effective discussions between departments. It is recommended that Journalism research surveys and Library

Science data collections may be evaluated by a joint committee of the select faculty members of the school for more fruitful results. The findings hence obtained are to be extended to the community benefits. The initiative suggested in this regard is to create internship with NGO research groups as well as an extension of their dissertations. Thus other than routine internship pattern, it is recommended that such attempts are to be approved as internship course.

PhD research opportunities are less in Kerala in these areas. The school has a potential to be an effective resource of references. A joint doctoral evaluation committee of both departments are suggested so that, from the beginning of the research itself departments can share the common resources and concerns.

Aim

a) Communicative strategies and Media Consultancies are newly evolving avenues. Surveys, Exit Polls are the existing trends. Students can be equipped to attain these targets.
b) A joint research publication of Master students are recommended.

Inter disciplinary research areas

Indigenous Language – Folk Media, Political Movements – Digital Media, Archiving – Historiography and Media, Behavioral studies – Communication, Communication and Philosophy, Political Economy and Industry, Development and Communication, Law, Constitution and Mediation, Empowerment and Media Hegemony are recommended by the Dept of Communication and Journalism.

Conservation and Preservation of cultural heritage and indigenous information Sources; Information and Individuals: human-computer interaction, information-seeking behavior, medical informatics are suggested by Dept of Library and Information Sciences.

Industrial level research

It is expected that the researches if able to conduct in a more effective manner have the potential to be an authentic hub from where related industrial groups can avail assistance and association. Communication and Information Science school can provide student collaborations with other libraries and News organizations for poll surveys and likely ventures.

SCHOOL OF EARTH SYSTEM SCIENCES

Research Policy

Preamble

School of Earth System Sciences, University of Kerala, comprises two departments, Department of Environmental Sciences and Department of Geology. The research policy of SESS is committed to enhance the existing interaction and cooperation between researchers of the departments for interdisciplinary and multi-disciplinary research leading to understanding of the Earth's environment focusing on the Sustainable development Goals (SDGs).

Objectives are to:

1. Advance the existing knowledge of Earth's resources such as water, energy, minerals and biological diversity.
2. Foster academic and research collaborations with national and international universities, institutions, government agencies and industries (List provided as Annexure-I).
3. Nurture an environment of undertaking socially useful research with immediate relevance to the society (Village adoption programs) with potential for commercialization (patentable research work).
4. Forge interdisciplinary collaborations and partnerships within departments by conduct of exposure visit of students and researchers between the departments (Intra-University) of the school.
5. Promote entrepreneurship among the students by encouraging start ups relating to environmental problems faced by the society and provide innovative solutions.
6. Ensure the safety of researchers in laboratory and work environment by organizing laboratory induction programs.

Goals

Short term goals (2 to 3 years)

- Submission of Joint research project proposals and joint publications.
- Extension activities – natural resource inventory, participatory research activity.
- Academics to be a part of development programs and policy making in local self-governments.

Long term goals (more than 10 years)

- Inventory of natural resources and management in Kerala.
- Water sustainability programs in Kerala.
- Climate change: monitoring and adaptation in Kerala.
- Establish research centers with potential for excellence.
- University of Kerala, Kariavattom campus made self-sustainable in terms of water and waste management.

ANNEXURE-I

List of potential collaborating institutions/ Universities globally and nationally (Faculty and student exchange programmes, MoU's)

- Centre for Tropical Marine Research, Bremen, Germany
- Hartford University, USA
- University of Newcastle, Australia
- Kerala State Pollution Control Board
- National Centre for Earth Science Studies, India
- Wadia Institute of Himalayan Geology, India
- National Geophysical

List of collaborating Industries (start-up projects/ internships)

- Hindustan Latex Pvt Limited
- Indian Rare Earths Limited

SCHOOL OF ENGLISH AND FOREIGN LANGUAGES

Research Policy

Enhancement of the cultural quality of life is the benchmark of a vibrant society. This is the foundation of research in the teaching departments in the school. We live in a multilingual society and the research policy of the School of English and Foreign Languages recognizes this as the corner stone of its research vision. The research undertaken in the different teaching departments in the school will be aimed at developing our understanding of languages and cultures from across the world. Research in the foreign language departments has the potential to influence societies' capacities for transformation. The school affirms that the research it promotes plays an important role in shaping critical thinking in our communities. It therefore seeks to emphasize the need to examine how research in language and culture contribute and act as key determinants to enhance quality of life. Research in other languages and cultures provide an understanding of other societies even as it firms up our insights into our society and culture. This can have direct implications for policymaking and governance.

Specific goals

- Generate and inculcate an ethics of research to help maintain quality in the scholar and the knowledge created.
- Creation of a knowledge ecosystem that will benefit the individual and is critical to improve quality of life.
- Challenge current paradigms, help identify new approaches, concepts and principles.
- Promote critical and independent thinking.
- Promote comparative studies across language and culture.
- Promote tradition of academic dialogue and debate among the scholars.
- Inculcate the spirit of life-long learning.
- Reach across disciplines for a better understanding of the kind of knowledge produced.
- Encourage quality publication in journals of national/international repute.

SCHOOL OF FINE ARTS (DEPARTMENT OF MUSIC)

Research Policy

The Department of Music offers Post Graduate Programme, M Phil Programme and PhD Programme in Music. Research Programmes in the Department of Music are designed at highlighting the areas that involve special measures for the progress in academic improvement. Being a Performing Art Form, the Music embraces the innumerable prospective for doing research by preserving its own legacy and hereditary. Efforts are taken to coordinate research activities and encourage programmes from inter-disciplinary perspectives. Special care is given to promote publication and to provide support in publishing journals and books. Much importance has been given for the topic selection and its social implications, while directing the research scholars to pursue the research programme.

Aim

1. To expose to various research methods.
2. To impart skills which are essential in modern research process, with special reference to Fine Arts.
3. To impart value based education.
4. To be socially responsible and committed.
5. To develop analytical skills in students for understanding the practical aspects of music.

Objectives

1. To expose to basic terminologies and philosophies of research.
2. To impart data collection and analysis skills.
3. To enhance critical and creative thinking skills.
4. To ensure documenting methods and outcomes.
5. To promote creative writing in music for peer-reviewed publishing of international standards.
6. To promote interdisciplinary and collaborative research projects with national and international institutions.
7. To encourage associations with potential researchers and research organizations worldwide and support of funding options available to the teachers and students.
8. To ensure academic and learning culture and broadening the scope of research by facilitating to give and take parallel branches of music in different countries.

SCHOOL OF INDIAN LANGUAGES

Research Policy

1. OBJECTIVES

- To create an excellent research ambiance and infrastructure.
- To facilitate inter, multi and trans-disciplinary research.
- To publish papers in journals of international repute, file patents and Collaborate with national and international funding agencies.
- To continuously monitor the research outputs for ensuring quality by School Council.
- To create quality human resources for academic research.
- To recognize both faculty and students on their research output by a Certificate of Appreciation.
- To promote the globalization of research to achieve Global visibility in the field of Academia.

2. RESEARCH PROMOTION @ School Level

- The School plans recognize the research carried out by its faculty members and research students by granting Certificate of Appreciation for publishing papers in quality journals and getting funded projects.
- To encourage research scholars to publish in reputed journals.
- To promote interdisciplinary research at school level and also to enhance the research further by attracting young talented scholars with a diverse background to work on challenging and frontier areas, thus provide a platform for the development of future leaders in the areas of language and literature.

Thrust areas of the School (Department wise)

Hindi

1. Modern, Contemporary Literature and Discourses.
2. Comparative Literature and Translation.
3. Language Technology & Media studies.

Linguistics

Promotes advanced research in all areas of Linguistics, all languages in general and Malayalam language in particular. Areas of Research Historical & Comparative linguistics, Socio Linguistics, Translation Studies, Discourse Analysis and Stylistics, Forensic Linguistics, Language Technology, Instrumental Phonetics, Language laboratory techniques, Computational Linguistics, Neuro – Linguistics, Clinical Linguistics, Psycholinguistics, Regional, Social and Tribal Dialects, Language Teaching, Educational Linguistics, Genetical Linguistics, Language and Media, Documentation Linguistics, Diaspora Studies.

Malayalam

1. Malayalam Language – Grammar Studies
2. Study of Malayalam Literature
3. Folklore Study
4. Literary Aesthetics
5. Cultural Studies
6. Film Studies
7. Translation Studies
8. Kerala Cultural Studies
9. Study of Differentially abled
10. Kerala Arts and their Literature

Consultancy Possibilities:

1. Consultancy required to make reforms in Malayalam language and literature in collaboration with the Department of Public Instruction.
2. To provide mother tongue experience to the officers and people's representatives for development programmes awareness programmes in collaboration with the Local Self Government Department.
   (Both can be trained by Malayalam teachers and researchers).

ORI & MSL

Four ancient scripts are identified under this our thrust area which connects ancient culture with this present generation. And as a part of the curriculum we teach the scripts Brahmi, Nadinagari, Grantha and Vattezhuttu while classes on Research methodology are given. Critical Edition, Ancient Scripts, Manuscriptology, Language and Literature Studies in Malayalam, Tamil and Sanskrit.

SANSKRIT

Sanskrit Language and Literature

- Sanskrit Grammar
- Sanskrit Poetics
- Drama and Dramaturgy
- Sanskrit Logic
- Indian Metaphysics
- Indian Philosophy- Astika and Nastika
- Classical Sanskrit Literature
- Astronomy
- Astrology
- Comparative Literature
- Manuscriptology
- Technical Literature
- Indological Research and Sanskrit Linguistics

TAMIL

Aspects of classical literature, Sangham literature, grammatical studies, comparative literature, folklore, cultural studies, textual criticism (literary criticism), Linguistics are the thrust areas of the department and also in applied areas like Lexicography, Folklore, Translation, Language Technology, Language Teaching, Comparative Literature, Manuscriptology, Epigraphy women empowerment, philosophical study, Tamil Malayalam comparative literacy and grammatical studies.

SCHOOL OF LIFE SCIENCE

Research Policy

PREAMBLE

Exponential growth in scientific knowledge is an indication of voyage for discovery and has an impact on economic and societal development. Research underpins creation of knowledge that brings in charisma towards solving pressing issues of society and nation, provides platform for sustainability and development, developments in science, technology and innovation and assists creation of new and novel forms of knowledge and expressions. The betterment in quality of research manifests in teaching and learning process, expression of independent and impartial scholarly outlooks, contributing to the development of knowledge societies and innovative policies and programmes for governance. Research hence needs to have a holistic approach for an individual as he needs to consider the society in which the contribution is being made. With the advancement of technologies and processing big data, Life Sciences have shown impressive progress in the past few decades, and as a result it contributes a better share to understanding life, system biology and ecosystems, solving issues related to health and well-being, and to develop a series of products for ensuring global health and sustainable development. Moreover, all the recent technological developments have led to a better understanding of living systems, and made research and learning in Life Sciences rather interdisciplinary, and as such this discipline between various disciplines of life sciences. A new trend in Life science incorporates biological research involving a merger of diverse disciplines besides the basic subjects like Botany and Zoology, and include medical/health sciences, Microbiology, Biotechnology, Bioinformatics, Molecular biology, Systems biology, Biochemistry, agriculture, and Fisheries. Taking this into account, the research policy of School of Life Sciences, University of Kerala (hereafter School) is framed.

1. Purpose

To establish a vibrant milieu and ambience for Life science research in Kerala University in order to transform itself as a centre of excellence for intellectual creativity, to respond to social demands from time to time, and to contribute to the creation of knowledge societies and sustainable world. The policy shall serve as an overall framework within which research activities may be carried out.

2. Scope

This overarching policy is applicable to any research (both academic and commercial) carried out in various departments and centers in the University.

3. Objectives

- To create an enabling environment within the School in order to foster a research culture as well as provide necessary framework and action plans to support life science research from time to time.
- To provide a platform for multidisciplinary research, both within the University and in collaboration with other institutions in India and outside.
- To collaborate with other organizations to implement the research outcomes in the field and promote lab to field programmes and adopt villages to better the living standards of the citizens
- To provide better infrastructure and ambience to the faculty and students to execute their innovative ideas and research plans in Life Sciences
- To promote innovative and socially relevant research and promote collaborations within and outside the country, which contribute towards creation of new knowledge, process and products.
- To collaborate with the industry to develop better products for the benefit of the humanity, and promote filing of patents.
- To provide suggestions for the future of humanity for achieving sustainability in every walk of life and that of our planet, based on high-level academic foundations and vision
- To ensure publication of interdisciplinary research findings in high quality peer reviewed, indexed and impact factor journals, books and other relevant quality publications.
- To provide a knowledge platform for the younger students to learn and understand nature, life systems and systems biology through organizing inhouse programmes.

4. Strategies:

The school will have both short-term and long-term strategies to accomplish the objectives proposed.

- The first priority will be to create an inter-disciplinary working environment which will result in collaborative research, critical thinking, innovation, development of new technology, processes and products.

- By identifying the priority areas of collaboration and interdisciplinary research, in discussion with the existing departments and other organisations in India and abroad, research projects and grants will be applied for national international funding agencies.
- The University may also sign Memorandum of Understanding (MoU) with prominent Universities and Research Institutions, for conducting joint research in the areas of common interest.
- Training will be arranged for the research scholars to involve in interdisciplinary research, learning, publication of papers in high impact journals, and apply for patents.
- By analysing the demands from the society after conducting social surveys, few villages will be identified for adoption, with an emphasis on better environment and better health by giving recommendation to the Government. The ultimate aim of the programme will be to better the living standards of the society with the application of science and technology, and imparting the culture of sustainable living.
- Conduct research and consultancy on the socially relevant subject to support the society for their utmost need in managing the situation like pandemic or environmental disasters.
- Industrial collaboration, translational research.

5. Consultancy

- To inculcate the research culture in young minds, and to expose them to the emerging areas of life sciences, specific programmes, including familiarising the DNA based technologies and system biology, will be organised in association with state and national bodies.
- To link with the common man the school will organise training programmes for the citizen scientists and civil society organisations in order to document biodiversity, traditional knowledge and to promote rural and locally relevant technologies and applications.
- The long-term strategy will be to establish an international centre for excellence in Life Sciences.

SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES

Research Policy

Background

Departments of the School of Physical and Mathematical Sciences include Department of Chemistry, Department of Demography, Department of Mathematics, Department of Physics and Department of Statistics. All these Departments are vibrant research centres and pursue research in diverse areas of respective disciplines and also in interdisciplinary areas. Further, all these Departments are the nodal points of research activities of respective areas in the University context. Doctoral committee meetings, yearly evaluation of progress of research scholars, Pre-submission seminars and Open Defence examinations of research scholars registered for Ph.D program in University of Kerala on respective subjects in all centres are conducted in these Departments. Over the years each of these Departments have evolved into well recognised, reputed and most sought after research centres in respective areas. Each of these departments is still growing so as to meet the challenges of the 21st Century where the world has evolved into a knowledge society.

Type of Research

Research work pursued in these Departments fall under both **basic and applied categories**. Being centres associated with basic science subjects directly or indirectly and also being teaching Departments where PG level teaching – learning process is pursued, it is imperative that these research centres have been continuously contributing to the knowledge base of basic science respective disciplines through basic research. Further, as the present era demands, all Departments pursue research in areas of expertise where the research activities have direct or indirect applications. The policy of the school is to promote both basic research and applied research so as to contribute both to the knowledge base of the disciplines as well as to the society directly or indirectly. Each Department shall strive to build-up on their strength as well as try to identify and start new relevant areas of research of both basic and applied nature. Interdisciplinary approach to research shall be promoted by all Departments.

Thrust Areas

Each Department shall identify one or more thrust areas of activity. While identifying thrust areas, together with expertise available, infrastructure and international relevance, wherever possible, the importance in the context of our state and country should also be taken into account.

Collaborations

Departments of the school should try to find areas where collaboration among themselves and resource sharing either in the form of expertise or equipments is possible.

Departments of the school should try to find areas where collaboration with Departments outside the school and resource sharing either in the form of expertise or equipments is possible.

Wherever relevant, each Department shall try to link research activities of the Department to industrial needs. This should be given utmost importance as the industry linkage of research activities will improve the quality of research activities and will certainly contribute to more job opportunities to Ph.D scholars.

Collaboration with National Institutes and other state owned reputes research institutes should be promoted. This could even be through collaboration of individual research guides in chosen research programs. However preference must be given to translate such collaborations into officially documented ones through MOUs. All such collaborations should be directly or indirectly mutually beneficial.

Collaborations with Foreign Institutes and Foreign Universities should be promoted. This could even be through collaboration of individual research guides in chosen research programs. However preference must be given to translate such collaborations into officially documented ones through MOUs. All such collaborations should be directly or indirectly mutually beneficial.

Environment for Research

Each department shall ensure an environment that is conducive for quality research for faculty and research scholars in terms of infrastructure, academic/administrative support and professional relations.

Quality of Research

Together with proliferation of research activities, utmost importance must be given by each Department for ensuring that the quality of work done in every respect is on par with the best in the country. Imparting quality to research work is the most important step in ensuring that respective Departments and our University are identified on a global scale as a reputed research institute.

Chairs may be institutes in Departments so as to ensure involvement of eminent experts in respective research areas in the research activities of the Departments.

Externally Funded Projects

Each Department shall try to bring in funding for research from external funding agencies. This will also ensure that the research work pursued is relevant and important.

Publication and Dissemination of Results

Publication of results of Research programs in reputed peer reviewed International/National journals should be given utmost importance.

Departments should encourage faculty and research scholars for presenting their research findings in International/National/State/Regional seminars/ Conferences/ Workshops.

Departments should conduct seminars/conferences/workshops regularly and should act as a hub for exchange of ideas among research scholar and experts.

Efforts should be on to interact with general public and school/college students so as attract the interest of general public and future generations to the activities of the Department.

Patents

Wherever translation of the research findings to industrial procedures of commercial importance is feasible and relevant, Departments should try to file patents. This must be given high priority as this will improve the quality of research work.

Self Evaluation and Peer Evaluation

Departments shall evaluate the research activities periodically through self evaluation or peer evaluation processes. Areas that need improvement should be identified and act upon.

Research Ethics

Each Department should abide by the internationally recognised research ethics in all aspects including plagiarism. Each faculty, research scholar and other students should be made aware of the importance of ethical practices in research and its legal and moral implications.

Review of Research Policy

Review of research policy should be done periodically and amendments/additions should be incorporated.

SCHOOL OF SOCIAL SCIENCES

Research Policy

The School of Social Sciences of the University of Kerala comprises nine major Teaching and Research Departments of the University. They are:

1) Department of Archaeology.
2) Department of Economics
3) Department of Education.
4) Department of History.
5) Department of Islamic Studies.
6) Department of Philosophy.
7) Department of Political Science.
8) Department of Psychology.
9) Department of Sociology.

The constituent Departments of the Schools offer Post Graduate Programmes, M. Phil Programmes and Ph D. Programmes in various disciplines.

VISION

- To impart value based quality education.
- To be socially responsible.
- To be publicly accountable and socially committed.
- To develop analytical and interpersonal skills in students so as to mould them into effective manpower par excellence in a borderless world.

MISSION

- To search for suitable alternative methods of knowledge on the basis of the heterogeneity of societies.
- To emerge as a centre of academic excellence through holistic education and development of right skills.
- To be recognized as the centre of original research and innovative thinking that caters to the needs of the Industry and Policy Makers.

OBJECTIVES

- To ensure fundamentals of research work such as: upholding rigour aligned to accepted disciplinary norms and standards, maintaining professional standards; documenting methods and outcomes; questioning one's own findings; attributing and acknowledging honestly the contribution of others.
- To encourage the research with the highest standards of ethical practice and research integrity.

- To promote sourcing, using, managing, storing and archiving data for research effectively and in compliance with relevant standards and policies.
- Encouraging sharing research outputs and data effectively and in line with the University's policies on Open Access.
- To promote interdisciplinary and collaborative research projects with national and international institutions.
- To enhance scientific and systematic academic and learning culture.
- To promote publication of research output in quality journals.
- To identify and establish linkages for long term relationships with national and international research organizations for widening the scope of research opportunities and funding options available to the teachers and students.

SCHOOL OF TECHNOLOGY

Research Policy

I. DEPARTMENT OF NANOSCIENCE AND NANOTECHNOLOGY

ABOUT THE DEPARTMENT

The Department for Nanoscience and Nanotechnology was started as a Centre that was inaugurated on 12th December 2006 by the Hon'ble Minister for Sports and Youth Welfare, Sri. M. Vijayakumar, Prof. (Dr.) M. Abdul Khadar was appointed the Honorary Director of the centre. The first academic programme, M.Phil course in Nanoscience and Nanotechnology, was started on 12th December 2007. The Centre was upgraded as Department of Nanoscience and Nanotechnology as per U.O.No.Ac.D/029901/2012 dtd 30.09.2016 with Dr. S. Sankararaman, Reader, Department of Optoelectronics, as Head-in-charge.

VISION

- To offer academic programmes - M.Sc, M. Phil and Ph. D - in Nanoscience and Nanotechnology.
- To carry out research in the area of Nanoscience and Nanotechnology relevant to the society.
- To undertake collaborative research with leading institutes in India and abroad.
- To assist student start-ups and to train them in the emerging areas of Nanotechnology.
- The thrust areas identified are
  - (i) Development of nanomaterials.
  - (ii) Nano-biology
  - (iii) Biological application of nanomaterials.
  - (iv) Solar photovoltaics
  - (v) Fractal, Wavelet and Time Series Analysis
  - (vi) Carbides and Ceramics
  - (vii) Thermoelectric materials

SHORT TERM GOAL

1. Effective utilization of hazardous soot for light emitting applications.
2. Application of soot for agricultural activities.
3. Low-temperature green synthesis of boron carbide for wear and tear protection of machineries.

4. Tunable fluorescence from natural carbon source for photonic applications.
5. Extension activities – Adoption of a Govt. School.
6. Science Popularization.
7. Three day National seminar and one week workshop.

LONG TERM GOAL

1. Development of ink and paint from soot.
2. Development of phase pure Boron carbides at low temperature.
3. Development of BCN compounds and applications.
4. Soot for super capacitor applications.
5. Perovskite solar cell.
6. Natural dye based DSSC.
7. International collaboration.

2. DEPARTMENT OF COMPUTER SCIENCE

ABOUT THE DEPARTMENT

The Department of Computer Science, University of Kerala, was established in 1985. It offers M.Sc. in Computer Science, M.Tech. in Computer Science (with specialization in Digital Image Computing), M.Phil., and Ph.D. in Computer Science. The Department gives at most importance on Research and Development besides regular teaching. Over the past few years the department has acquired national and international importance. The department has a track record of producing highly skilled professionals in the field of Computer Science. Many of the alumni are well placed in Institutes of National Importance, Central/State Universities, R&D Organizations like ISRO, CDAC, DRDO, Educational Institutions like NIT and different MNCs. The department has produced more than 35 Ph.D.s so far. The students and faculty members have published a good number of research papers in reputed International Journals/Conference Proceedings published by IEEE, Springer, Elsevier, Wiley etc. Many of our students and faculty members have received national and international recognitions. Department of Computer Science is the only department in Kerala to bag the National Award for Best M. Tech. Thesis three times from Indian National Academy of Engineering (INAE), New Delhi. The faculty members of the department have received prestigious awards such as AICTE Career Award for Young Teachers, IEI Young Engineer Award, SSI Young System Scientist Award etc. to name a few.

VISION

To become an internationally famed Centre of excellence empowered with teaching and research that can quickly respond to the challenges in the areas of Machine Intelligence, Digital Image Processing, Data Mining, Information Security and other recent technologies in Computer Science.

MISSION STATEMENTS

- Offer a world-class instructive environment where our students are guaranteed of a fruitful post graduate education in computing technologies giving more emphasis on the latest developments in the field of Intelligent Systems, Image processing, Data Mining and Information Security etc.
- Build strong academic linkages with competing institutions and organizations that will give a catalyst towards the excellence in teaching–learning- research activities.
- Build an academic culture where the academic and industry people around the world can work together for the support of the society by participating in and encouraging technology transfer.

SHORT TERM GOAL

- Restructure the present programme in tuned with the developments in the area of Machine Intelligence, Data Mining, Digital Image Processing and Information Security etc.
- Design new and innovative programme taking the inputs form the industry/institutions that are expertise in the concerned domain.
- Establishment of Start Ups In our department.
- Increase the number of research publications in WoS journals.
- Applying for funded research projects in the UGC, FIST, SAP, KSCSTE, AICTE.

LONG TERM GOAL

- Starting of MS and MS-PhD integrated programme.
- Collaboration with foreign universities and institutions of national importance.
- Achieve at least five Patents in AI related areas or Medical Image Processing.
- Explore the possibilities to maximize the linking between the reputed organizations and academic institutions working in Artificial Intelligence and its allied areas.
- Explore the possibilities and developments in the field of Intelligent Data Mining.

- Explore the possibilities in the areas of Digital Image Processing especially in areas like Medical Image processing.
- Design and develop various algorithms and applications to improve information security and network security.
- Increase the number of research projects and hence maximize the research funding.
- Increase the number of collaborative works with different institutions.
- Explore the possibilities of faculty/student exchange programme with foreign and national institutions.

M.S. Ph.D. (Integrated)

M.S.-Ph.D. programme gives immense advantage of a head-start in the research career of student. Students have ample opportunities to conduct leading-edge research in a friendly, collegial atmosphere.

Academic programme proposed:

- M.S. Programme in AI and Computer Vision.
- M.S. Ph.D. (Integrated).

RESEARCH LINKAGES AND COLLABORATION of the Institution(s) with the University and other national and international agencies:

Please list any informal collaboration without MoU

a. Regional Cancer Centre, Thiruvananthapuram
b. Indian Institute of Science and Technology
c. University of Antwerp Belgium
d. Sree Chithra Tirunal Institute of Medical Science and Technology
e. College of Engineering Thiruvananthapuram
f. NIT Suratkal
g. PMS College of Dental Science and Research, Thiruvananthapuram
h. Tata Elxsi
i. TKM College of Engineering
j. Quest Global
k. NIT Calicut

The informal foreign collaborations with the following institutions can be made formal through some knowledge exchange programme.

- Vision Lab, University of Anderwp, Belgium.
- Centre for Signal and Information Processing [CSIP], Georgia Institute of Technology, United States.

- Centre for Image Processing and Analysis [CIPA], Dublin City University, Ireland.
- Centre for Image Analysis [CBA], Uppasasala University, Sweden.
- Centre for Remote Imaging, Sensing and Processing [CRISP], National University of Singapore.
- Centre for Research in Computer Vision [CRCV], University of Central Florida, United States.
- Centre for Processing Speech and Images [PSI], University of Leuven, Netherlands.

3. DEPARTMENT OF COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

ABOUT THE DEPARTMENT

The Centre for Bioinformatics, established in 2005 and upgraded as the Department of Computational Biology and Bioinformatics in 2011, is a new generation inter-disciplinary as well as multidisciplinary teaching & research department of University of Kerala, India. The Dept offers a two-year innovative MSc (Computational Biology) programme with assistance from University Grants Commission and also two MPhil (one-year) programmes in (i) Bioinformatics and (ii) Computer Aided Drug Design. Research is the top priority activity of the Department and the PhD programme of the Department focuses on both computational and life science problems. The Dept as a knowledge generation community of researchers, teachers and students, with an aim to produce new knowledge in the field of computational biology, bioinformatics and allied areas to further scientific advancement and also to address problems of possible local social relevance. The Department has researchers with vivid backgrounds (*Electrical Engineers, Mathematicians, Physicists, Biotechnologists, Botanists, Bio-chemists, Computer scientists etc*). The Department has state of the art informatics laboratory and also a molecular biology and bio-electronics zoologists which provide a balanced training to multidisciplinary talents that the centre attracts. The Department library has a stock of close to 3000.

The Department is led from its inception by Dr. Achuthsankar S. Nair and presently has 4 lecturers, two Emeritus Professors (Dr. P.R. Sudhakaran and Dr. Oommen V. Oommen), three Post Doctoral Fellows, half a dozen Project Fellows, 18 full-time research scholars and 15-20 MSc/MPhil students. The Department also has 2 Adjunct Professors, in addition to visiting faculty and Erudite visitors [Prof. Dr. Johann Deisenhofer (Nobel Laureate - 1988) visited the Department on Dec

1-3, 2010, Prof. Martin Chalfie (Nobel Laureate-2008) visited on Jan 5-7, 2011, followed by Prof. Anders Liljas (Nobel Prize Committee Member) on Jan 20-26, 2011].

VISION AND MISSION

- The Department has established a successful human resource management system which encourages people-centered activities in every sphere.
- The Department organizes a wide variety of seminars, symposia and workshops. "BioinformaticaIndica", an international bi-annual event is its flagship event in this regard.
- The Department also arranges programmes to promote creative and scientific temper in younger generation. The "One/Fun day" programme is one such.
- The Department has been successful in creating a research ambiance which moulds most of its Masters students to turn to research.
- The first batch of MPhil students of the Department created local history in 2006, launching the first University Start-up, Sooryakiran Bioinformatics Pvt. Ltd., which functioned successfully for 2 years from the University Campus. The Department is presently incubating a start-up, 'MaD Analytics'.
- Research at the Department has resulted in one patent (pending grant) and a modest number of good impact factor publications. (Some of the publications of this Department have citations over 100.) The Department has produced a small number of bioinformatics tools which are available online and widely used.
- The Department has been attracting a number of students from all over India as a few countries abroad, for internships and projects.

GOALS

- Research interests include big data management and bio-sequence compression using parallel computing techniques
- Bio-Sequence (DNA, miRNA, AA) Studies using Digital Signal Processing
- Protein-Protein Interaction Networks
- Evolution of Hub Proteins
- Protein Sub-cellular Localization Prediction
- Protein Structure Analysis
- Immunoinformatics of Cancer
- Programming Languages for Synthetic Biology
- Small Gene Identification
- Insilico Study of Extremophiles
- Molecular evolution of RNA Viruses

- Computer Aided Drug Design based on Natural Products
- Investigations into non-coding DNA
- Microbial desalination
- Bio-sequence Compression
- Scoring matrices for Sequence Alignment
- Genome insights into eusocial insects
- Allosteric proteins & Knot proteins
- Protein disorderliness
- Bid Data Analysis in NGS Data Analysis
- Ayurinformatics approach to targeting Helicobacter pylori
- Investigations on electronic biosensors for diagnostics
- Identification of Biomakers of Ovarian Cancer using NGS Data
- Plant-pathogen Interaction Studies
- RNA-seq Data Analysis of p.capsici

RESEARCH LINKAGES AND COLLABORATION

The Department is supported by a variety of fundings from Information Technology Department, Govt. of Kerala, Higher Education Department, Govt. of Kerala; Department of IT, Govt. of India; Department of Biotechnology, Govt. of India, Kerala State Council for Science, Technology & Environment, Govt. of Kerala and University Grants Commission, Govt. of India. In 2009, the status of State Inter-university Center of Excellence in Bioinformatics was conferred by the Government of Kerala. In 2010, a Centre for Systems and Synthetic Biology was established under the leadership of eminent scientist Dr. Pawan K. Dhar, formerly scientist in RIKEN Advanced Sciences Institute, Tokyo. A Centre for Venom Informatics was also subsequently established with Dr. Oommen V. Oommen as the Hon. Director. In 2013, the department was awarded major funding by MHRD, Government of India and titled as Centre of Excellence in Ayur-informatics and Computer Aided Drug Discovery (Ai-CADD).

4. DEPARTMENT OF OPTOELECTRONICS

ABOUT THE DEPARTMENT

In this age of information Technology the discipline 'Optoelectronics' has its significance and relevance. Making an impact through Research, Training, Technology Innovation and Service to Society is the vision of the Department. Department of Optoelectronics is established in 1995 under Faculty of Applied Sciences with Prof. V.

Unnikrishnan Nayar as Head. In 1998 M.Tech course in Optoelectronics & Optical Communication was started and got approval from AICTE in 2003. In 2002 M.Phil course in Photonics was started.

VISION

- Emphasising career oriented studies
- Day to day life oriented research
- Collaboration with International/National Universities and Institutions for data sharing, utilizing facilities and interdisciplinary research in the coming years.

SHORT TERM GOALS

- To make the Department a QIP centre (Quality improvement Programme) under AICTE for teachers of Engineers colleges for Ph.D research programs.
- To make the Department a centre of excellence for teaching and research in Optoelectronics
- To enter into tie-ups with industry for joint projects for technology development and transfer
- An M.Tech programme in Nanophotonics
- In service programme for in information technology for teachers, engineers and scientists
- Development of laser plasma breakdown spectroscopy facility.

LONG TERM GOALS

- Setup for modelling, simulation and fabrication of photonic crystal fibers
- Molecular beam epitaxy (MBE) for fabricating low dimensional structures for device applications.
- Lithography techniques for IC fabrication (Using 13.2 nm X-ray laser)
- Setup for design and fabrication of fiber amplifiers and fiber lasers.
- Implementation of optical tweezers for Bio-medical application
- Setup for design and fabrication of photonic integrated circuits.
- Clean room facility.
- Pico/Femto second lasers for ultra-fast processes.
- Development of ink and paint from soot.
- Development of phase pure Boron carbides at low temperature.
- Development of BCN compounds and applications.
- Soot for supercapacitor applications
- Perovskite solar cell
- Natural dye based DSSC.

COLLABORATING INTERNATIONAL & NATIONAL INSTITUTIONS

1. Karlsruhe University of Applied Sciences, Germany
2. Robert Gordon University, Aberdeen, UK
3. Nanyang Technological University, Singapore
4. Kyushu University, Japan
5. Bhabha Atomic Research Centre(BARC), Mumbai
6. Indian Institute of Science (IISc), Bangalore
7. Raman Research Institute (RRI), Bangalore
8. National Institute for Interdisciplinary Science & Technology (NIIST),Trivandrum
9. Sree Chithra Thirunal Institute of Medical Science & Technology (SCTIMST),Trivandrum
10. C-DIT, Trivandrum
11. Vikram Sarabhai Space Centre, Trivandrum
12. Raja Ramanna Centre for Advanced Technology, Indore
13. National Atomic Research Laboratory(NARL), Gadanki, AP
14. Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam
15. Indian Institute of Technology, Madras

5. DEPARTMENT OF FUTURES STUDIES

ABOUT THE DEPARTMENT

For over a couple of decades, Department of Futures Studies at the University of Kerala has been playing a significant role in imparting Futures Studies education, research and consultancy services. The department was established by the UGC in 1990 acknowledging the growing importance of Futures Studies as an academic discipline. Ever since its inception, the department has recognized and maintained the interdisciplinary, also the multidisciplinary, character of the field such as Futures Studies. Currently, the department is offering academic programmes, interdisciplinary M. Phil. in Futures Studies, M.Tech. (Technology Management), UGC innovative programme Post Graduate Diploma in Knowledge Management, M. Sc. (Data Science) apart from Ph.D. programme. As well as its faculty with international exposure and diverse backgrounds, the department draws academics and expertise from other research institutes as well as industry offering students an excellent choice. Many of the alumni are currently occupying the middle and top level positions in various multinational companies, state and central government departments and organizations and many are employed abroad.

The department is carrying out interdisciplinary research in various fields including Technology Management and Forecasting, System Dynamics, Mathematical Modeling and Simulation, Knowledge Management and Discrete Mathematics, etc. The research contributions of the department in the area of Discrete Mathematics have attracted international attention. The Department has been partnering with University of Maribor, Slovenia and Erasmus University, Netherlands and is having exchange programs for the last seven years.

The department is also actively engaged in consultancy services. In order to facilitate the service, a consultancy centre named Consultancy Group for Research And Forecasting (C-GRAF) was established in 1992. The prime objective of the centre is to undertake socially relevant consultancy works catering to the needs of the central and state governments and other organizations. Right from its inception, C-GRAF has successfully completed several interdisciplinary projects for various agencies.

VISION AND MISSION

1. Advance the existing knowledge of foresight and futures studies.
2. Foster academic and research collaborations with national and international universities, institutions, government agencies and industries
3. Undertake socially relevant consultancy works catering to the needs of the central and state governments and other organizations.
4. Undertake and facilitates interdisciplinary research related to science, technology, and social science.
5. Forge interdisciplinary collaborations and partnerships within departments by the conduct of exposure visit of students and researchers between the departments (Intra-University) of the school.
6. Promote entrepreneurship among the students by encouraging startups relating to information technology and data analytics.

SHORT TERM GOALS

1. Encourage faculty and researcher to develop interdisciplinary research proposals.
2. Provide exposure to master students for inculcating interest in academic research.
3. Encourage research and masters students to participate in national and international academic events.
4. Promote translational research.

LONG TERM GOALS

1. To develop as a noted international centre of interdisciplinary and multidisciplinary research.

2. To develop as a support centre for administrators on policy design based foresight and futures research.

3. Centre of consultancy services administration and industry involving faculty as well as students.

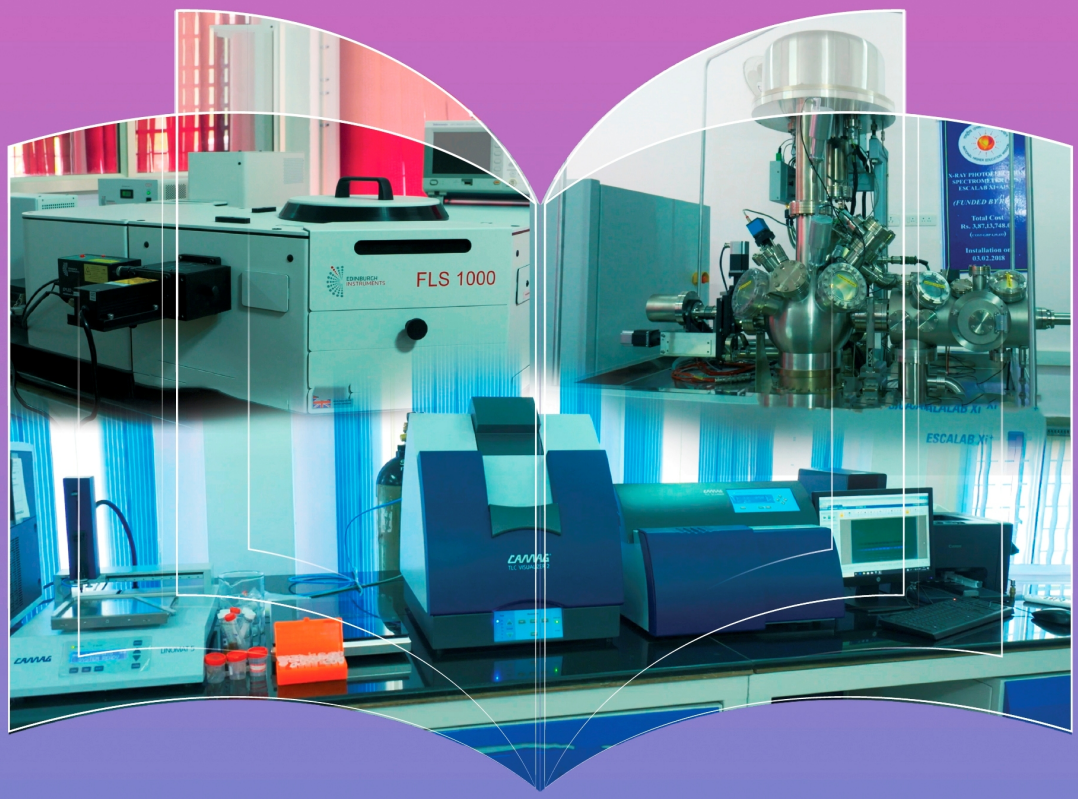
4. An international learning centre of futures studies.

RESEARCH COLLABORATION

- To undertake different projects, consultancy works and advanced research activities in interdisciplinary areas, a consultancy centre named Consultancy Group for research and Forecasting (C-GRAF) was established in the department in 1992. The Consultancy Group for Research and Forecasting (C-Graf) has been formulated as a consultancy centre of the University of Kerala under the chairmanship of the Vice-Chancellor. The Head of the Department of Futures Studies is the Director of the consultancy centre. The C-Graf is a major consultancy centre in Kerala undertaking project/consultancy works of government and International agencies like World Bank, DFID, JBIC etc.
- The consultancy centre undertakes time bound projects.
- From its inception that is now more than a decade ago, C-Graf has successfully completed lot of interdisciplinary projects for various international funding agencies like World Bank, ADB, JBIC, FHI apart from other state and central government bodies. To get a clear idea about the projects done till now, a partial list of socially relevant projects that have been done until now is listed below.
- Dr. V. Nanda Mohan is providing consultancy services to the Government of Kerala on Modernization of traditional industries in Kerala focusing on Coir Industry in Kerala, by holding the Honorary post of Convener of Coir Commission, Government of Kerala.

Compiled by
Internal Quality Assurance Cell (IQAC)
University of Kerala, Thiruvananthapuram, India - 695034

Printed at Kerala University Press, Thiruvananthapuram
2020



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