



Estd. 1893

J. Robert Victor Edward
P R I N C I P A L

SCOTT CHRISTIAN COLLEGE

(A U T O N O M O U S)

Nagercoil - 629003, Kanniyakumari District, Tamil Nadu, India.

Research Policy (Adopted from 05/05/2021)

Vision

Scott Christian College (Autonomous) under the direction of the Governing Board establishes the Office of Dean of Research as an exclusive entity to create a research aura, and to promote cutting-edge research, and inculcate the value of research in staff and students.

Mission

The College encompasses all research activities and personnel under its auspices including aided and management staff, students, research scholars and post-doctoral fellows whether they are regular, part-time or external to carry out research in their respective field by providing laboratory space, library, instruments, chemicals etc. It also encourages the staff to prepare research proposals in order to procure financial assistance from funding agencies and helps to disburse the funds to the Principal Investigators without any hassle once received.

Scope

1. To identify the thrust areas in research and to specify research topics of academic, social and economic relevance.
2. To organize seminars/conferences/workshops on the cutting-edge research topics and training programmes in advanced research methodology.
3. To ensure ethics in research.
4. To publish research material in appropriate media thereby making the information available to the ultimate users.
5. To identify staff and students par excellence and to offer them financial assistance(Seed Money) to pursue research, make paper presentations and/or to serve as resource persons.

Principles Concerning Research

Conduct of scholarly inquiry and dissemination of knowledge are the prime concern of Scott Christian College and can be executed effectively only if the research scholars are assured of certain privileges and accept corresponding responsibilities.

- Scholars must have the freedom to select the subject matter of their research to his/her interest and should be permitted to seek support from any source for their work, to compile their own findings and arrive at conclusions of their own which should be made available for scrutiny and criticism as required by the institution on 'Openness in Research'.
- Research techniques should not violate established professional ethics pertaining to health, safety, privacy, and other personal rights of humans or to cause injury or impose pain on animals/organisms.
- The institution should foster an environment conducive to research. Where, because of limited resources, the institution will not be able to support all research demands; however, it should allocate space, facilities, funds, and other resources for research programs based on the scholarly and educational merits of the proposed research.

Rights and Responsibilities in the conduct of Research

Rights of Faculty Members

To execute the research mission effectively, the faculty and scholars are assured of certain privileges such as to have the right to disseminate the results and findings of his or her research without suppression or modification from external sponsors. However, along with these freedoms come corresponding responsibilities:


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Responsibilities of Faculty to Staff and Students/Sponsors

Faculty members must be aware of their obligations to staff and students working as part of the research team. It is particularly important that at least annually, each faculty member should review intellectual and perceptible property rights and responsibilities (for management of data, for proper authorship attribution, etc.), with all members of the group under his or her direction, including staff, students, research scholars, post-doctoral fellows, and visiting scholars. Each member has the right to know who is sponsoring the research and supporting his or her salary or stipend. On an individual level, the best interests of each staff member and student should be of particular concern. The institution is committed to demonstrate support and appreciation for its staff.

Health and Safety

Each faculty member is responsible for training members of his or her team in appropriate health and safety procedures for that particular research area, and for management of those procedures in his or her laboratory or other workplaces.

Fiscal Obligations

Although the legal agreement funding of a sponsored project is between the sponsor and the institution, the overall responsibility for management of a sponsored project within funding limitations rests with the Principal Investigator (PI). Funds must be expended within the restrictions of the contract or grant, and if any overdraft should occur, it is the responsibility of the PI to clear the overdraft by transferring charges to an appropriate account. The Institution also offers Seed Money to encourage researchers 'par excellence' within the campus community. The Supervisors/Students are expected to apply to the Principal using the prescribed format which will be scrutinized by a committee comprising the Principal, Deans of Research, Science and Arts.

Budget Allocation for Seed Money

| Item | Amount |
|---|---|
| Financial Assistance to Faculty | |
| Selected research project in Science | A sum of Rs. 10,000/- every year under specific heads in instalments for 1 person |
| Selected research project in Arts | A sum of Rs. 5000/- every year under specific heads in instalments for 1 person |
| Travel grant | A maximum of Rs. 5000/- per person per year |
| Financial assistance to Students | |
| Selected student projects in Science | A total of Rs. 5000/- per year |
| Selected student projects in Arts | A total of Rs. 3000/- per year |
| * Budget is subject to revision as and when required | |

Equipment Control

Principal Investigators are responsible for securing necessary approvals for the purchase of the equipment, proper tagging, inventory, utilization of equipment and maintenance.

Proposal Preparation

The cost of proposal preparation activities in support of new directions in research may not be charged to sponsored projects. However, the Principal and the Dean of research must ensure that non-sponsored project funds are available to offset the portion of the investigator's and his or her staff's salaries for the effort spent in preparing proposals to support new directions in research.

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Certification of Salaries and Expenses to Sponsored Projects

Sponsored project and cost sharing accounts must be reviewed and certified by the Principal, the Dean of Research and Principal Investigator quarterly or annually depending on the periodicity of the project and Utilization Certificates must be submitted to the respective sponsors/Institution within the stipulated time with the approval of the Principal.

Technical and Invention Reports

Principal Investigators are responsible for submitting sponsor-required reports through the Office of Sponsored Research or the Research Management Group (OSR or RMG) on a timely basis. The reports must be sent directly to the Dean of Research with a copy to OSR or RMG at the same time so that contract and grant files are complete.

Patents and Copyrights

All participating researchers, including postdoctoral fellows, students, and visiting scholars, must sign the institution's Patent and Copyright Agreement before the commencement of any research.

Conflict of Interest

The key to the institution's policy pertaining to conflict of interest is the trust in the integrity of the individual faculty member to disclose any situation that could lead to real or apparent conflict of interest. The institution's policy requires an annual certification of compliance and disclosure of potentially conflicting relationships.

Research Protocols

Faculty members must ensure that approved research protocols for the use of animal subjects in research are obtained and followed for which the Institution would constitute an Ethical Committee to solve issues if any.

Academic Freedom

Scott Christian College's central functions of teaching, learning, research, and scholarship depend upon an atmosphere in which freedom of inquiry, thought, expression, publication and peaceable assembly are given the fullest protection. Expression of the widest range of viewpoints should be encouraged.

Openness in Research

The principle of freedom of access to the underlying data, processes and to the final results of the research for all interested persons is one of overriding importance. No program of research that requires secrecy be conducted at Scott Christian College. However, research projects involving defense and atomic energy studies should be exempted as per Government norms.

However, if there is a reasonable basis for expectation that any document to be generated in the course of the research project will be subjected by an outside sponsor to restrictions on publication for a period in excess of that reasonably required (more than 90 days) so that the sponsor can ascertain whether information he or she is entitled to have treated as confidential would be disclosed by publication. If access is required in the course of the project to confidential data so significantly related to the research that a member of the research group who was not privy to the confidential data will not be able to participate fully in all of the intellectually significant portions of the project.

On Academic Authorship

Periodic surveys shall be conducted to determine if academic authorship problems emerge.

Research Misconduct: Policy on Allegations, Investigations, Compilations and Reporting

"Research misconduct" is defined as fabrication, falsification, or plagiarism in proposing, performing or reviewing research or in reporting research results.


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Each member of the Campus community has a responsibility to foster an environment which promotes intellectual honesty and integrity, and which does not tolerate misconduct in any aspect of research or scholarly endeavour.

Research misconduct is extremely troubling because when it occurs, it is very destructive of the standards the institution attempts to instill in its students, and of the financial support of the government and other sponsors for academic research. In cases where research misconduct is found, the Dean of Arts, the Dean of Science and/or the Dean of Research may take all appropriate actions with the consent of the Principal as deemed necessary and advisable to address the consequences of the research misconduct.

Nondiscrimination in Research Agreements

Scott Christian College does not discriminate on the basis of race, religious creed, color, national origin, ancestry, physical, marital status, sex, age, gender identity or any other in its research agreements.

In addition, and in accordance with its policy on Openness in Research, the Institution does not limit participation in research activities on the basis of citizenship. This commitment to an open research environment supports the principle of freedom of access by all interested persons to the underlying data, to the processes, and to the final results of research, and preserves the ability of the faculty to select the best qualified individuals to participate in research, including student participants.

Therefore, as a general proposition, Scott Christian College does not enter into research agreements which permit discrimination on the basis of citizenship against individuals engaged in research activities proposed or conducted under its auspices.

Retention of and Access to Research Data

Establishes University policy to assure that research data is appropriately recorded, archived for a reasonable period of time, and available for review under appropriate circumstances.

Long-term and Short-term research projects in the campus

Botany

Long-term research

Taxonomy and diversity of Bryophytes: a full-fledged laboratory recognized by the Index Herbariorum, New York Botanical Garden, has been established containing 15,000 specimens. Survey on the Bryophytes of the Western and Eastern Ghats is continuing since 1995. Today, the laboratory serves as a Reference Centre for Bryophyte Study offering all basic and advanced amenities.

Tissue Culture: a full-fledged tissue culture laboratory is functional in the department and micropropagation of endemic, endangered and economically important angiosperms is being done. Micropropagation of *Bacopa monnieri*, an important medicinal plant has been accomplished. Currently, propagation of two endemic species of *Begonia* and *Hydrocera triflora* is going on.

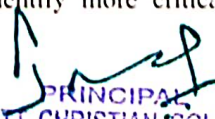
Phytochemistry and anti-microbial studies are continuing and more economically important plants will be taken into account in future.

Short-term research

Mushroom Cultivation: is frequently done in a laboratory. However, in future spawn production will be undertaken.

Future prospects

The department proposes to widen the study of bryophytes and include micropropagation and DNA related studies such as DNA barcoding. It also proposes to identify more critically endangered plant species and develop protocols for micropropagation.


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Chemistry

Long-term research

Photo-Chemistry, Phyto-Chemistry, Environmental Chemistry and Polymer Chemistry

Synthesis and characterization of various polymers using different techniques have been achieved. Nanocomposites have been prepared and the kinetics have been studied with different solvents. Photo-induced electron transfer reactions of selected metal complexes and Photo-catalytic degradation of pollutants using different catalyst have also been studied. Synthesis, spectral characterization and biochemical studies of metal complexes of bioactive ligands have been made. Identification of Physico-chemical behaviour of selected drugs have been achieved. Phytochemical and pharmacological studies on different medicinal plants have been made.

Short-term research

Radiation Chemistry and Nano-Chemistry

Environmental issues such as radioactivity and fluorosis were measured at different hotspots. Water quality parameter and soil analysis were done when needed.

Mathematics

Long-term research

The long-term research are (i) Graph Theory and (ii) Operator Theory.

In Graph theory, the main area of research in the Centre is Domination Theory. Domination numbers, Domination polynomials and Domination functions are the active research topics. In addition to Domination, research on colouring and labelling of graphs are also being pursued.

In Operator Theory, studies on unbounded operators, relative boundedness of operators, spectral approximations and gaps between operators are being studied. In addition to these, studies on normed semivector spaces and mininormed spaces are also going on.

Short-term research

The areas of short-term research may be Stochastic process and Time series analysis.

Future prospects

In Graph Theory, new ideas in Domination Theory and studies on Unbounded Operators in Operation Theory will be undertaken.

Physics

Long-term research

Since functional transition metal oxide nanostructures offer wide-ranging and highly tunable multi-functionalities, the Physics Research Centre focuses on preparation and property analyses that lead to production of industrial grade materials suitable for device fabrications. We have established proper evidences with high impact research publications as it has been and would prolong to be imperious towards path-breaking research against novel scientific applications for the societal benefits.

The centre addresses these research topics:

- ❖ Exploration of semiconductor nanostructures for gas sensors, photovoltaic and energy storing devices
- ❖ Processing optoelectronic photoconductive materials for visible light active fuel cells.
- ❖ Search of new nanomaterials for photo-degradation of organic pollutants and for selective luminescence emission.

Short-term research

- ❖ Molecular structure elucidation of organic antiviral drug molecules by quantum chemical computations.

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- ❖ Growth and characterization of transparent crystal exhibiting optical nonlinearities.
- ❖ Molecular interaction study on binary liquid mixtures.

Future Prospects

Research strategy is essential to formulate goals and at the same time tactics and policies are needed to attain those goals. With the formulated goals, we proceed steadfast in preparing 1D nano structures for improving gas sensing and photovoltaic energy conversion devices. Likewise, fabrication of super capacitors with high cycle life and good stability are under research for upgrading electrode materials. Also, research advances are proceeding on the right track in using nano heterogeneous photocatalysts for effective waste-water treatment. Further, vigorous research on solid phosphors containing rare earth ions for efficient fluorescent lighting will be pursued. Even though the completed and planned future investigations are practically relevant and scientifically rigorous, making a great societal impact with industrial tie-up is a continuous challenge and the researchers are on the pursue.

Zoology

Long-term research

Radio ecological studies:

Fully equipped research laboratory under the guidelines of Department of Atomic Energy, Bhabha Atomic Research Centre and Indra Gandhi Centre for Atomic Research has been established and is working since 2003. The Department has signed an MoU with Mac Master University, Canada, RCC Trivandrum, BARC Mumbai and IGCAR Kalpakkam. The Department has done intensive preoperational studies on the radio ecology around Kudankulam nuclear power project. Recently, studies have been carried out on gamma monitoring as well. Present study is initialized on air quality monitoring with special reference to Rn²²² on the coastal belt of Tamil Nadu.

Short-term research

Studies on taxonomy, biological control with special reference to Aedes mosquitoes, bioremediation of effluents, toxicology and pollution monitoring, limnology, extraction of biologically active components and microbiology.

The Policy is subject to revision every three years


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