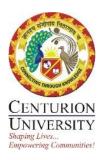# POLICY FOR PROMOTION OF RESEARCH

CENTURION UNIVERSITY OF TECHNOLOGY AND MANAGEMENT, ODISHA

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Policy for Promotion of Research

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1. Brief Statement

Centurion University of Technology and Management (CUTM) is committed to the pursuit of excellence in research and aiming to lead the national agenda across the spectrum of science and technology, management and humanities for social impact. We ensure that all the research we undertake is aligned with the United Nations Sustainable Development Goals. Our commitment to the range of interdisciplinary work is reflected in the sustenance of both basic and applied research, which may yield a long-term impact. CUTM ensures that all disciplines flourish in research by adopting the highest norms and standards of a scholarly undertaking. This document provides the information of research policy and promotional activity of CUTM. Further, this document outlines the principles that should be taken into account while planning and conducting research. The principles that should be followed strictly, while recording, reporting and applying the results produced are emphasized.

The Management encourages faculty to apply for external Grants, Grants from Government of India and its associated bodies, from Public Sector Units and from Industry bodies. It further encourages faculty to collaborate with other National and other institutions of eminence in the pursuit of excellence in disruptive and cutting edge research and product development. Faculty are also encouraged to publish patents and copyrights of the work undertaken. They are encouraged to publish their work in indexed and peer reviewed journals. The Provost of the University has announced a series of incentives for the same.

2. Operationalising the Research Agenda

In order to operationalize the Research Agenda of the University, 25 research centers have been established. Each faculty is expected to be member of one or the other research center and contribute to its development, seeking funding, collaborating in research with other centers and other institutions and publishing quality research outcomes.

- Computational Mathematics (high performance computing, quantum computing, computational fluid dynamics, optimization engineering)
- Communication Technologies (antennas)
- Center for Smart Infrastructure (green technologies, smart grid, smart dwellings, smart cities, renewable and bio-engineering)
- Center for Manufacturing (parts, transformers, wood, welding, apparel, composites)
- Center for Fintech (Block chain)
- Center for Drug Design and Delivery
- Center for Phyto Pharma (Plant based proteins, probiotics and spores, new phyto products)
- Center for Smart Agriculture and Allied Sector (precision agriculture, aqua based technologies, protected horticulture, IT application in agriculture, smart farm machinery)
- Center for Innovation and Entrepreneurship (startups)

- Center for Agriculture Production
- Center for Data Sciences
- Center for AI and Robotics (5G, ML. NLP, trajectory algorithms)
- Center for Bioelectronics (bio-sensors, bio-instrumentation)
- Center for Chip Making
- Center for e-mobility solutions
- Center for Space and Earth Sciences
- Center for New Material Applications
- Center for Lasers
- Center for Genetics and Genomics (tissue culture, bio-engineering, seed breeding and multiplication, genetics and genomics)
- Center for Governance and Sustainable Societies (social impact, sustainable livelihoods, natural resource management, equity and empowerment, climate change and resilience, development policy)
- Center for Medical Diagnostics
- Center for Waste to Wealth Management
- Center for Digital Manufacturing (data analytics- visualization and ML, AR VR asset creation, robotics and process automation, cyber security, NLP, cloud computing)
- Center for Ed-Tech and Skills Tech (digital publishing, digital painting, digital sound production, immersive learning solutions, LMS, assessment platform)
- Center for 3DS Applications (digital twin and simulation, digital manufacturing, product development, drug discovery, material development, enterprise change management)

3. Research Funding

The Centurion University of Technology and Management, Odisha in pursuance of fostering a research culture has determined to provide seed money to its faculty members every year. A separate policy exists for the same.

4. Recognition

The University announces awards to honor and recognize the performance of faculty. This will be determined following the Provost's Annual Research Conclave to be held in the month of September each year (4th and 5th). The categories are as follows:

Abdul Kalam Chair Professor (for full professors)

- 3 Nos (1 Engineering, 1 Science, BioTech and Agriculture, 1 Management)
- Validity 5 years
- Rs.1000/- per month (honorarium) added to salary for a period of 5 years

- Rs.40,000/- pre-approved travel grant for attending conferences and STCs in 2 years

Distinguished Achiever Awards (for associate professors)

- 5 Nos (2 Engineering, 2 Science, BioTech and Agriculture, 1 Management)
- Rs.20,000/- cash award
- Rs. 20,000/- pre-approved travel grant for attending conferences and STCs in 1 year

Eminent Achiever Awards (for assistant professors)

- 7 Nos (3 Engineering, 3 Science, BioTech and Agriculture, 1 Management
- Rs.10,000/- cash award
- Rs. 20,000/- pre-approved travel grant for attending conferences and STCs in 1 year

5. Objective

Our core strategies are to tackle few of the pressing challenges of the 21st century in areas that are vital to the technological advances, human health, and environment through extensive core and multi-disciplinary research. CUTM has made strenuous efforts to line up its research focus with the national importance of achieving technological self-reliance.

Our specific objectives are

- ➢ Provide excellent research culture and infrastructure
- ➢ Create the culture for inter –disciplinary/ multi-disciplinary collaborations and a platform for knowledge sharing
- ➢ Publish papers in high-quality journals of international repute, file patents and transfer technologies to relevant industries
- ➢ Create quality human resources for scientific research
- ➢ Promote industrial collaborations involving active and mutually beneficial R&D projects
- ➢ Aim to stand among the top-notch Universities across the globe
- ➢ Promote research and education that is both locally and globally relevant.

6.   General Principles

Good Research Practice (GRP) is essentially an attitude of mind. It is about the way in which research is planned and executed, the results are recorded and reported, and the benefits are disseminated, applied and exploited.

GRP can only be achieved if researchers at all levels are trained and supervised properly in a research culture that encourages open discussions and debate. Research team leaders are

responsible for building a platform of academic freedom for young researchers and ensure that they gain enough skillset including appropriate training and experience to carry out their duties effectively.

Proper guidance and supervision structures the integral framework for quality research practice. Steps for GRP include monitoring of training and supervision of new researchers and of continuing professional development, regular checks on recorded data and notebooks, and occasional checks on the day-to-day conduct of experiments.

7. Planning the research

All research projects should be conceived, designed and implemented according to the highest standards.

➢ Clear documentation of the rationale for the study and any subsequent modifications, either in laboratory notebooks or in the project files. Each key document and any changes should be signed with date by the researcher responsible to establish the provenance of the study and protect intellectual property rights.

➢ Adherence to the current safety practices and ethical standards.

➢ Securing all necessary ethical and regulatory approvals.

➢ Assessment of the resources needed to ensure the study is viable within the available means.

➢ Economy in use of resources: for example, not purchasing excess consumables than that are needed for the planned sample size and regular review for determining when to stop the experiments.

➢ Regular review of the research progress is essential to identify new findings that can be taken into account and the project plan shall be modified accordingly.

8. Conducting the research

• The legal and ethical requirements relating to human participants and personal information should be familiar to each person involved in the study and they should know to whom to turn for advice.

• Equipment used to generate data should be suitable for the purpose, of appropriate design and of adequate capacity. It should be calibrated and serviced regularly by trained staff so that the performance is optimal and the results can be trusted.

• A standard operating procedure (SOP) should be maintained for each piece of equipment. There should be easily accessible instructions for the safe shutdown of equipment in case of emergency.

• SOP should be documented for all routine methods to ensure that data are collected

consistently. It should be written in simple language, readily accessible and ideally in a standardized format.

- There should be clarity at the outset of the research programme to the ownership and use of, wherever relevant:

  ✓ Data and samples used or created in the course of research
  ✓ The results of the research

The responsibility and procedures for the storage and disposal of data and samples should be made clear at the commencement of any project. Any research collaboration agreement relating to the research should contain some clauses describing necessary arrangements. Researchers should keep clear, accurate records of the procedures followed, and the approvals granted during the research process, including records of the interim results obtained as well as the final research outcomes. This is necessary not only as a means of demonstrating proper research practice but also in case questions are subsequently asked about either about the conduct of research or the results obtained. Properly maintained notebooks may be used in evidence when establishing ownership of inventions.

Retention of accurately recorded and retrievable results is essential for research. Primary research data must be retained in their original form within the University. Researchers who are leaving the University and would like to retain data for personal use must get permission from their team leader or head of the department. Publication of data does not negate the need to retain source data.

All raw data should be recorded and retained in indexed laboratory notebooks with permanent binding and numbered pages or in an electronic dedicated notebook. Machine printouts, questionnaires, chart recordings, autoradiographs etc. that cannot be attached to the main record should be retained in a separate ring-binder/folder that is cross-indexed with the main record. Records in notebooks should be entered as soon as possible after the data are collected. Recorded data should be identified by the date of the record and/or date of collection. Supervisors should regularly review and 'sign-off' notebooks of researchers to certify that records are complete and accurate. Computer generated data should be backed-up regularly; duplicate copies should be held on a disc in a secure but readily accessible archive. Wherever feasible, a hard copy of important data should be retained. Copies of relevant software, particularly the version used to process electronic data, must be retained along with the raw data to ensure future access.

9. Openness

Whilst recognizing the need for researchers to protect their own academic and where appropriate their intellectual property rights (IPR), the University encourages researchers to be as open as possible in discussing their work with other researchers and to the public. The aim of

disseminating research is to increase knowledge and understanding: its purpose should not be primarily to seek publicity for the researcher, the University, or the sponsor.

Once the results have been published, the University expects the researchers to make the relevant data and the materials available to other researchers, on request. However, it should be reliable with any ethical approvals and consents, which cover the data and materials, and any intellectual property rights associated with those publications. Procedures for managing the transfer of material in and out of the University are outlined separately. It is recognized that publication of the results of research may need to be delayed for a reasonable period in order to protect the intellectual property arising from the research. Any such periods of delay in publication should be kept to a minimum and this should normally be no more than 3 months.

Researchers should be careful when discussing work that is not complete or has not been published, particularly if it has not undergone peer review. Exchange of confidential information by e-mail is not recommended, especially if patent applications are anticipated.

10. Professional guidance and legislation

Where available, the University expects all researchers including students, trainees etc. to observe the standards of research practice set out in guidelines published by scientific and learned societies, and other relevant professional bodies. All researchers should be aware of the legal requirements, which regulate their work noting particularly health and safety legislation and data protection.

11.   Leadership and cooperation

Head of the University and senior colleagues should ensure that a research atmosphere of mutual cooperation is created which all members of a research team are encouraged to develop their skills and in which the open exchange of ideas is fostered.

12.   Supervision

The University provides an appropriate direction of research and looks into the fact that research leaders are trained in supervisory skills. Research supervisors supervise all stages of the research process, including outlining or drawing up a hypothesis, preparing applications for grant in aid, protocol design, data recording and data analysis.

13.   Training

The University will plan periodic courses to enable students and researchers to understand and adopt best practices in research as quickly as possible. Supervisors should encourage students

and colleagues to attend relevant courses whenever offered as a part of their overall career development. Some of the indicative courses are:

- ✓ Research design
- ✓ Regulatory and ethics approvals and consents
- ✓ Equipment use
- ✓ Record keeping
- ✓ Data protection
- ✓ Management of intellectual property, including confidential information
- ✓ Use of materials requiring statutory registration such as radioisotopes, pathogenic and GM organisms
- ✓ Data management
- ✓ Using animals for experiments
- ✓ Regulations involving human subjects

14.   Primary data/ samples/ equipment

Data generated in the course of research should be kept securely in paper or electronic format, as appropriate. Backup records should always be kept for data stored on a computer.

Researchers should report any changes in the direction of sponsored research to the sponsoring agency or any other relevant body. Best practice would be to discuss any change in direction of the research with the sponsoring agency prior to its implementation.

15.   Intellectual Property

Researchers must inform the Intellectual Property Cell (Coordinator of the program or the Director) of any intellectual property rights that may arise from an externally funded research. Researchers must also inform to the sponsoring agency if they have been recommended to do so. University's policies for managing the intellectual property are under preparation.

The University's research as well as the funding from government agencies is done for public benefit and not for direct commercial or private gain. However, industrially sponsored research programs with definite objectives of finding solutions may have commercial gains. The public benefit may arise from education, i.e., gain of knowledge that is placed in the public domain, or the case of biomedical research, improvement in the treatment or care of patients or in the prevention or cure of diseases. Government funding or charities cannot be solely for the purpose of a commercial gain although commercial benefit from the exploitation of the results of the research may accrue to their inventors, the University and by agreement to any sponsor of the research.

16.   Dissemination and publication of results

The Universsity encourages publication of and dissemination of results of high-quality research but believes that researchers must do this responsibly and with an awareness of the consequences of any such dissemination in the wider media.

The University tries to ensure that sponsors understand that researchers must have academic freedom and sponsors should not discourage publication or the dissemination of research or research findings. The University recommends that every effort should be made to inform the sponsors of any potential publication or dissemination of the research findings. This will enable the sponsor in question to have adequate time and accurate information to protect any arising intellectual property or plan their own public relations, in conjunction with the University. Publicity may be important to industrial sponsors and to fund-raising agencies and is increasingly important to the University itself.

Researchers should take into account the following guidelines when publishing or disseminate their research or research findings including any plans they may have to publish or publicize research in a conference or in websites.

a) The sponsoring agency should be notified in advance when the research might be published, publicized or disseminated.

b) Researchers should make every effort to make sure research is peer reviewed prior to it being published, publicized or disseminated. If research is placed in the public domain before peer review has been undertaken, the researcher must make this clear in any publicity.

c) All funding sources must be acknowledged in any publication or publicity.

d) Results of research should be published in an appropriate form, usually as papers in refereed journals.

e) Anyone listed as an author on a paper should accept responsibility for ensuring that he or she is familiar with the contents of the paper and can identify his or her contribution to it. The practice of honorary authorship is unacceptable.

f) The contributions of formal collaborators and all others who directly assist or indirectly support the research should be both specified and properly acknowledged.

g) Work should normally be published as a coherent entity rather than a series of small parts unless there is a legitimate need to demonstrate first discovery by publishing preliminary data.

h) Quality rather than quantity is paramount; the proliferation of multi-author papers to increase quantity should be discouraged.

i) Authors must not publish the same data in different journals.

j) If an error is found that degrades the worth of published findings, the principal author must take efforts to publish a correction as soon as possible

k) Where the findings are found to be in serious doubt, a retraction should be published speedily.

l) Where fraud is suspected, it should be dealt with the procedure dealing with "Misconduct in research".

17. Integrity

CUTM provides an adequate structure to promote and promulgate good research practice, emphasizing integrity and rigor in research and expects that the researchers adhere to the highest standards of integrity. Researchers should be ethical and honest to their own course of actions while pursuing research and their responses to the actions of other researchers. This applies to the whole range of research activities including designing of experiments, generating and analyzing data, publishing results, reviewing the work of other researchers and applying for grants. The direct and indirect contributions of colleagues, collaborators and others contributors should be appropriately acknowledged. Researchers are accountable to the society, their profession, the institutions where the research is taking place, the staff and students involved and in particular, the sponsoring bodies. Jeopardizing research integrity can collapse the advancement of knowledge, society and human health. Hence, researchers are expected to understand and apply the following principles:

Plagiarism, deception, fabrication or falsification of results is regarded as a serious disciplinary offense. Researchers are encouraged to report cases of suspected misconduct and to do so in a responsible and appropriate manner.

18. Conflict of Interest

A conflict arises when a person's judgment concerning a primary interest, such as scientific knowledge could be unduly influenced by financial gain or personal advancement. Researchers must pay as much attention to perceived and potential conflicts of interest as to actual conflicts. How one is perceived to act influences the attitude and action of others, and the credibility of scientific research to larger extent. Researchers should declare and manage any real or potential conflicts of interest, both financial and professional. Areas of potential conflict include:

➢ Where researchers have an existing or potential financial interest in the outcome of the research.

➢ Where there is a personal or private practice benefit, significantly dependent upon the outcome of research.

➢ Where the researcher's professional and personal gain arising from the research may be more than usual for research.

19.   About Misconduct

I.   Principles

a) This policy is designed to support the research activity of Centurion University of Technology and Management (CUTM).

b) The University is committed to ensuring that investigations are carried out as expeditiously as possible, at the same time ensuring the utmost degree of thoroughness.

c) Where time limits are indicated these will be regarded as maximum limits and that all parties will work to ensure the prompt progression of the procedure.

d) Employees accused of Scientific Misconduct ("Respondents") will be provided with a copy of this procedure and will be informed in writing of the detail of the allegation.

e) Where a Respondent resigns from or otherwise leaves the University, the complaint is nevertheless investigated as far as possible according to this procedure.

f) The University will take disciplinary action against any individual who attempts to influence, victimize or intimidate the individual making the allegation of Scientific Misconduct (the "Complainant") or witnesses.

g) The University is committed to protecting its employees from malicious accusations and will take action against any individual(s) responsible for such allegations.

h) Individuals shall cooperate in the review of allegations and the conduct of assessments and investigations. They have an obligation to provide relevant evidence to the Vice Chancellor or Research Coordinator, in the Director's absence, is designated to receive and enquire on behalf of the University into allegations of Scientific Misconduct.

i) Proven misconduct in research is considered as a serious or gross misconduct and normally merit dismissal.

II.   What constitutes misconduct?

Research misconduct or fraud in science refers to the fabrication, falsification, plagiarism and deception in proposing, carrying out or reporting results of research and deliberate, dangerous or negligent deviations from accepted practice in carrying out research. It includes failure to follow established protocols if this failure results in unreasonable risk or harm to humans, other vertebrates or the environment. It shall also include facilitating of misconduct in research by collusion in or concealment of, such actions by others, and any plan or conspiracy or attempt to do any of these things.

Misconduct does not include honest error or honest differences in interpretation or judgment in evaluating research methods or results, or misconduct unrelated to the research process.

a) Fabrication – reporting of experiments never conducted

b) Falsification – Misrepresentation or suppression of data to project the desired result

c) Plagiarism – reporting another's data as one's own

d) Fraud – Deliberate and willful suppression of previous work in publications to claim originality or to avoid quoting previous publications contrary to present results.

e) Breach of confidentiality, i.e., presenting as one's own ideas or data obtained from privileged access to original grants, manuscripts etc. is also considered a misdemeanor in the same category.

III. Reporting of cases of scientific misconduct

a. All employees or individuals working within CUTM are required to report observed, suspected or apparent Scientific Misconduct to the Director in accordance with this policy.
b. If an individual is unsure whether a suspected incident of misconduct falls within the definition of scientific misconduct, he or she should discuss this with the Director informally.
c. CUTM will endeavor to organize seminars and workshops at regular intervals to create awareness among the research workers on issues related to integrity in the conduct of research. The website will provide access to articles, debates and examples of such misconduct to sensitize research workers about nature of questionable research practice.

IV. Reporting and evaluation of the complaint

The charge of misconduct has serious implications for all concerned. Therefore, investigation related to the review of alleged misconduct will be kept confidential to the maximum extent possible. While investigating an allegation of misconduct, caution will have to be exercised to distinguish between differences in interpretation or unintended errors from the misrepresentation of information. Thus, the procedure adopted to address the issue of misconduct will perforce have to be flexible and determined on a case-to-case basis.

A. Reports of alleged misconduct are to be made directly to the office of the Research and Development Cell, Centurion University of Technology and Management.
B. If a complainant makes an allegation to a Vice Chancellor informally, the Vice Chancellor may ask them to put such allegation in writing.
C. Misconduct may be reported by either a staff of the CUTM anyone else. The identity of the complainant will not be revealed at this time.
D. The Vice Chancellor shall, either himself or through an officer delegated the responsibility, shall cause to investigate **(i)** assess the allegations of research misconduct to determine if they fall within the definition of research misconduct and warrant an

inquiry on the basis that the allegation is sufficiently credible and specific so that potential evidence of research misconduct may be identified, and **(ii)** oversee enquiries and investigation.

E. A preliminary evaluation of the complaint will be made by the Vice Chancellor which may include consultation with other colleagues either independently or through the constitution of a committee and if the findings indicate that there are no reasonable grounds for the allegation, the complaint will be dismissed.

F. Written report stating the reasons for the dismissal shall be policy documented and maintained in the office of the R&D Cell, but will not enter the subject's confidential file. The complainant will also be informed of the decision to dismiss the complaint.

G. If the preliminary evaluation indicates that the allegation of misconduct warrants a full investigation, the following processes will be initiated with the appropriate records of procedures.

V.   Investigation

[1.] The person against whom the complaint is being made (respondent) will be informed of the allegation.

[2.] The Vice Chancellor will appoint a committee to conduct a full investigation into the allegations of misconduct.

[3.] The committee will comprise of a chairperson, and two members, at least two of which will be experts from outside. The committee will be invested with complete confidentiality and will not be permitted to interact with Press or other faculty members individually during the course of the investigation. The committee is expected to function within the full cognizance of the rights of the respondent as well as the complainant.

[4.] The scope of the committee shall be:

[5.] To investigate the accuracy of charge of misconduct.

[6.] To assess the extent and nature of alleged misconduct.

[7.] The relevance of any other material or information revealed during the course of the investigation into the alleged instance of misconduct.

VI.   Process of enquiry

The committee will be given access to material that is required to complete the investigation with due diligence and accuracy which will include grant approvals, reports, primary data, electronic records, manuscripts and any other material requested and considered relevant to the investigation. The committee will be given access to laboratory and will be permitted to interview the complainant, the respondent and any other laboratory staff, which the committee considers necessary to gather information. The committee is expected to complete the investigations and report submission within a period of 60 (sixty) days.

VII.   Outcome of the investigation

A. The committee will submit its report with a recommended course of action to the Vice Chancellor within a week of completing the inquiry, explaining the modalities of the investigation, the source and method of obtaining information relevant to the investigation, the conclusions reached and the basis on which the conclusions are reached.

B. A copy of the report will be provided to the respondent and an opportunity given to him to comment in writing on the report and its findings within 15 days. The written comments will be attached as annexure to the original report.

C. The Vice Chancellor will discuss the report with Head of the Group. If the faculty against whom the complaint was lodged has been proved to have engaged him in research misconduct, the Vice Chancellor will take appropriate action, with the approval of the Board of Governors, which will be communicated to the Individual and will be entered in the personal file and service book.

D. The individual may appeal to the Board of Governors against the decision of the Vice Chancellor and the Board's decision will be final and binding on the individual.

20. Promotion for Research

a) Funding pilot projects of the Faculty members of CUTM under Selective Excellence Initiative Program.

b) Seed money is given to the faculty members to undertake small scale research (separate policy).

c) Performance Incentives are given to the faculty members for journal publications and funded projects (Separate policy).

d) Financial assistance is given to the faculty members and students to get patents for their innovative ideas/ products (notification).

e) The faculty members and students are sent to International and National conferences/ seminars/ workshops for participation and presenting their papers (separate policy).