BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

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POLICY DOCUMENT ON RESEARCH INTEGRITY AND ETHICS

1.0. Preamble

Bharat Institute of Engineering and Technology is committed to promote and preserve a climate of research which promotes creativity, innovation and productivity with high ethical standards. The Institute is committed to nurture scholars and researchers to carry out research strictly by adhering to the highest norms of professional standards, while fully respecting academic freedom and individual uniqueness. Every member of the research community is called upon to design research, collect data, analyze and report their findings avoiding both intentional and negligent behavior which may result in the violation of law, plagiarism, dishonesty, fabrication or misrepresentation of data.

Bharat Institute of Engineering and Technology subscribes to robust ethical principles in our research to protect the rights, dignity, health, safety and privacy of research subjects, the welfare of animals and the integrity of the environment. We are further committed to protecting the health, safety, rights and academic freedom of researchers and the reputation of the Institute as a centre for properly conducted, high quality research.

1.1. Objective

The purpose of this document is to lay down a positively oriented set of policy statements and guidelines for maintaining integrity and ensuring ethical practices in research. Not only does the ethical conduct of scientific research satisfy a scientific moral code; it also leads to better scientific results because the adherence to ethical research practices leads to more attention to the details of scientific research, including qualitative analysis and quantitative and statistical techniques, and to more thoughtful collaboration among investigators. Also, the credibility of science with the general public depends on the maintenance of the highest ethical standards in research. Adherence to this policy will help an investigator to avoid departure from accepted ethical research practice and prevent serious deviations that constitute research misconduct.

2.0. Matters of Ethical Concern in Research

2.1 PLAGIARISM

Plagiarism is the practice of taking someone else's work or ideas and passing them off as one's own. It is an act of copying or reproducing it without acknowledging the source and as such it is a form of academic misconduct that undermines public trust in the quality and integrity of academic and/or research output. Plagiarism, whether deliberate or through negligence or ignorance, is a serious violation of conduct in any environment that values integrity, respect and fairness.

- Authors who present the words, data, or ideas of others with the implication that they are their own, without attribution in a form appropriate for the medium of presentation, are committing theft of intellectual property and may be guilty of plagiarism and thus of research misconduct. This applies to reviews and to methodological and background/historical sections of research papers as well as to original research results or interpretations.
- An author should cite the work of others even if he or she had been a co-author or editor of the work to be cited or had been an advisor or student of the author of such work.
- The work of others should be cited or credited, whether published or unpublished and whether it had been written work, an oral presentation, or material on a website. Each journal or publisher may specify the particular form of appropriate citation.

- Not only does plagiarism violate the standard code of conduct governing all researchers, but in many cases it could constitute an infraction of the law by infringing on a copyright held by the original author or publisher.

2.1.1. Intellectual Property Rights

Intellectual property (IP) means knowledge and creations arising from intellectual activity and Intellectual property rights (IPR) means the exclusive rights for a prescribed time and within a prescribed region to control how the IP may be used and what others may do with it. Intellectual property includes copyright, patents, designs, trademarks, etc.

Issues of intellectual property may arise in research in different ways:

- An input to research - IP may take the form of others' ideas, creations, teaching materials, proprietary business practices and indigenous or other cultural knowledge;
- An object of research – IP may take the form of others' ideas, creations, teaching materials, proprietary business practices and indigenous or other cultural knowledge;
- An output of research- Types of IP that occur as research outputs are likely to include authorship, compositions, models, copyright, inventions, patents and other pieces of professional work.

To respect intellectual property in research the following steps are necessary:

- Appropriate referencing and acknowledging sources of IP inputs.
- To the greatest extent possible, parties to the research should document consent regarding how IP may be used, how it will be safeguarded and who owns it. This applies in particular to IP as research objects including:
- Proprietary knowledge, which is knowledge which has potential for commercial advantage.
- Confidential knowledge, which is valuable or sensitive information which a reasonable person would regard as confidential.
- Cultural knowledge, which is "insider" knowledge that is known only by people within a particular culture or by people who have learned about the culture through some kind of interaction with it.
- Appropriate recognition of contributions to the research output such as publications, artifacts or commercially valuable items. Ownership rights to research outputs should be agreed before the research begins. It is recommended that a written agreement be developed, particularly in cases between students and their supervisor(s).

2.1.2 Misuse of privileged information

A specially serious form of plagiarism is the misuse of privileged information taken from a grant application or manuscript received from a funding agency or journal editor for peer review. This form of plagiarism is a serious matter of theft of intellectual property because it not only deprives the original author of appropriate credit by citation but could also pre-empt priority of first publication or use of the original idea to which the source author is entitled. One who breaches confidentiality by showing a privileged unpublished document to an unauthorized person may be held to a shared responsibility for any subsequent plagiarism of the document committed by that unauthorized person.

2.2 RESEARCH DATA

2.2.1 Integrity of Data

Fabrication and falsification of research results are serious forms of misconduct. It is a primary responsibility of a researcher to avoid either a false statement or an omission that distorts the research record. A researcher must not report anticipated research results that had not yet been observed at the time of submission of the report. In order to preserve accurate documentation of observed facts with which later reports or conclusions can be compared, every researcher has an obligation to maintain a clear and complete record of data acquired. The intentional destruction of

research records or the failure to maintain and produce research records supporting a questioned research publication or report may be considered to be circumstantial evidence of research misconduct.

To prevent this, all data should be recorded contemporaneously with the production or observation of the data. If some data are obtained as printouts from instruments or computers, these printouts should be stored securely and the storage location properly referenced. If unique critical materials, such as cell lines, archaeological artifacts, or synthetic chemical intermediates, are prepared or discovered, they should be preserved and appropriately labeled, and explicit instructions recorded as to where they are stored. Extensive data sets may be stored electronically.

Researchers shall establish processes to organize, store and protect electronic data that is generated in the process of research. It is essential to ensure that such data are formatted in such a manner that they cannot be modified or overwritten.

While conducting research in social sciences and in some clinical biomedical fields the protection of human subjects requires that data be used, stored, and disclosed in a way that ensures the privacy of individual research subjects. However, to ensure accuracy of data, the primary data - clinical or laboratory records, questionnaires, tapes of interviews, and field notes - should be coded and archived so that they are available for review if required.

2.2.2. Use and Misuse of Data

Researchers should acquaint themselves with the relevant quantitative methods available for processing data, including graphical and tabular methods of presentation, error analysis, and tests for reliability.

Research integrity requires not only that reported conclusions are based on accurately recorded data or observations but that all relevant observations are reported. It is considered a breach of research integrity to fail to report data that contradict or fail to support the reported conclusions, including the purposeful withholding of information about confounding factors. If some data are disregarded for a stated reason, the reason should be stated in the published accounts. A large background of negative results, if any, must be reported.

Special care must be taken in the use of photo-images not to misrepresent the underlying data. When using imaging-processing software, like Adobe Photoshop, for example, in preparing a blot for viewing, it is improper to add or delete a band, to differentially adjust the intensity of one or more bands, to label an image from one experiment as representing a different experiment, to splice lanes without using a line indicating the deletion, or to juxtapose pieces from different gels onto a single image.

2.2.3. Ownership of and Access to Data

Research data obtained in studies performed at the Bharat Institute of Engineering and Technology and/or by the employees of the Institute are not the property of the researcher who generated or observed them or even of the principal investigator of the research group. They belong to the Bharat Institute of Engineering and Technology, which can be held accountable for the integrity of the data even if the researchers have left the Institution. Reasonable access to data, however, shall not be denied to any member of the research group in which the data were collected. If there is any possibility that a copyright or patent application might emerge from the group project, a written agreement within the group should specify the rights, if any, of each member of the group to the intellectual property. A researcher who has made a finding which may be patentable should file an Invention Disclosure with the Office of the Director of Research.

A principal investigator who leaves the Institution is entitled to make a copy of data to take to another institution so as to be able to continue the research or, in some cases, to take the original data, with a written agreement to make them available to the Institution on request within a stated time period. A formal Agreement on Disposition of Research Data should be made in such cases through the Office of Research. Each student, postdoctoral fellow, or other investigator in a group project should come to an understanding with the research director or principal investigator, preferably in writing, about which parts of the project he or she might continue to explore after leaving the research group. Such an understanding should specify the extent to which a copy of research data may be taken. Co-investigators at another institution are entitled to access the data which they helped to obtain.

In the interest of advancement of knowledge, very investigator has an obligation to the general academic community share data. Sharing data also facilitates independent confirmation or refutation of reported outcomes. It is generally accepted that the data underlying a research publication should be made available to other responsible investigators upon request after the research results have been published or accepted for publication. A researcher who has access to a unique set of experimental or observational data, e.g., from a satellite or from an archaeological or paleontological site, has an obligation either to publish research results within a reasonable time or to make the data available to others who will be able to do so.

2.2.4 Storage and Retention of Data

Data should be stored securely for at least five years after completion of the project, submission of the final report to a sponsoring agency, or publication of the research, whichever comes last. Some agencies that sponsor research may specify a longer period for which data must be retained. In the absence of a specific agency regulation, a conservative rule is to retain data for as long as there is still scientific interest in the details of the research.

2.3. AUTHORSHIP AND OTHER PUBLICATION ISSUES

Publication of research results is important as a means of communicating to the scholarly world so that readers may be informed of research results and other researchers may build on the reported findings. In fact, it is an ethical obligation for an investigator at the Institution to make research findings accessible, in a manner consistent with the relevant standards of publication. The reported data and methods should be sufficiently detailed so that other researchers could attempt to replicate the results. Publication should be timely but should not be hastened unduly if premature publication involves a risk of not subjecting all results to adequate internal confirmation or of not considering adequately all possible interpretations.

2.3.1. Criteria for Authorship

Publication must give appropriate credit to all authors for their roles in the research. If more than one person contributes significantly, the decision of which names are to be listed as co-authors should reflect the relative contributions of various participants in the research. It is necessary that each author should have participated in formulating the research problem, interpreting the results, and writing the research paper, and should be prepared to defend the publication against criticisms. A person's name should not be listed as author without his or her knowledge, permission, and review of the final version of the manuscript that includes the names of all co-authors.

A person whose contribution merits co-authorship should be named even in oral presentations, especially when abstracts or transactions of the proceedings of a conference at which a paper is presented will be published. The entitlement to authorship should be the same whether or not a person is still at the original location of the research when a paper is submitted for publication.

To avoid misunderstandings and recriminations, the inclusion and exclusion of names of research participants as co-authors should be made clear to all participants in the research project prior to submission of the manuscript.

2.3.2 Order of Authors

It is important that all co-authors understand the basis for assigning an order of names and agree in advance to the assignments. A corresponding, or senior author (usually the first or last of the listed names in a multi-authored manuscript) should be designated for every paper, who will be responsible for communicating with the publisher or editor, for informing all co-authors of the status of review and publication, and for ensuring that all listed authors have approved the submitted version of the manuscript.

2.3.3. Self-citations

In citing one's own unpublished work, an author must be careful not to imply an unwarranted status of a manuscript. A paper should not be listed as submitted, in anticipation of expected submission. A paper should not be listed as accepted for publication or in press unless the author has received galley proof or page proof or has received a letter from an editor or publisher stating that publication has been approved.

2.3.4. Duplicate Publication

Researchers should not publish the same article in two different places without very good reason to do so, unless appropriate citation is made in the later publication to the earlier one, and unless the editor is explicitly informed. The same rule applies to abstracts. If there is unexplained duplication of publication without citation, sometimes referred to as self-plagiarism, a reader may be deceived as to the amount of original research data.

An author should not divide a research paper that is a self-contained integral whole into a number of smaller papers merely for the sake of expanding the number of items in the author's bibliography.

Publication of two papers representing different interpretations of the same data by different participants in the research is confusing to readers. The participants with differing interpretations of the same data should attempt to reconcile their differences in a single publication or present their alternative interpretations in the same paper.

2.3.5. Early Release of Information about to be Published

It is unethical to release to the media scientific information contained in an accepted manuscript prior to the publication. An exception may be made if a public health issue is involved and the editor agrees to an advance release.

2.4. INTERFERENCE

Not only withholding of data but intentional removal of, interference with, or damage to any research related property, including instruments and other equipment, is improper and could be classified as research misconduct.

2.5. OBLIGATION TO REPORT RESEARCH MISCONDUCT

2.5.1. Reporting Suspected Misconduct

Reporting suspected research misconduct is a shared and serious responsibility of all members of the academic community. Any person who suspects research misconduct has an obligation to report the allegation to the head of the unit in which the suspected misconduct occurred or to the Research Integrity and Ethics Review Board. All reports shall be treated confidentially to the extent possible, and no adverse action shall be taken, either directly or indirectly, against a person who makes such an allegation in good faith.

2.5.2. Correction of Errors

If a finding of error, either intentional or inadvertent, or of plagiarism should be made subsequent to publication, the investigator has an obligation to submit a correction or retraction in a form specified by the editor or publisher and, in the case of research misconduct, in a form specified by the Institute and the sponsoring agency, if any.

2.6. CURRICULUM VITAE

A biographical sketch incorporated into a grant proposal or a curriculum vitae used in an application for a fellowship or any other position must follow the same standards of accuracy as a research publication. Inflated or otherwise inaccurate listings of educational background or academic status with intent to deceive, including degrees, employment history, and professional accomplishments, are reprehensible as ARE irresponsible entries in a list of publications. This is considered as falsification may be categorized as misconduct.

2.7. CONFLICT OF INTEREST

a) There are some circumstances in which conflicts of interest could compromise the integrity of a researcher and even lead to research misconduct. The Institute shall lay down a clear Conflict of Interest Policy and require researchers to make annual disclosures of outside interests and ensure that these disclosures are reviewed by designated academic administrators to avoid the escalation of conflicts into improper behavior or misconduct and to avoid even the perception of improper behavior.
b) The principal investigator of a commercially sponsored study report must have access to all the data underlying a publication and must have full control over the decision to publish. In the case of a multi-site study, the principal investigator of the overall project must have access to data from all sites.

3.0. RELATIONS WITH AND RESPONSIBILITIES TOWARDS STAKEHOLDERS OF RESEARCH

3.1. Institute Approval

Research protocols involving human subjects must be approved in advance by the Institute Research Integrity and Ethics Review Board, which determines whether risks posed to subjects, are acceptable and whether information describing risks and benefits of subject participation is conveyed to subjects in an accurate and intelligible manner. The Board review also ensures that all relevant Institution and state regulations and policies are being followed.

3.2 Relations with and Responsibilities towards Research Participants

Researchers may enter into close contact with the researched in the process of collecting data. This often lengthy association with people among whom they carry out research entails personal and moral responsibility, trust and reciprocity. Researchers have the ethical responsibility to respect the trust and use the data only for the stated research purposes. The responsibilities of researchers towards three important categories of people are mentioned below. When handling groups of people not mentioned below, researchers shall contact the Research Integrity and Ethics Review Board to draw a comprehensive research plan.

3.2.1. Research with indigenous communities

Research procedures must never harm indigenous communities, their identity or the social fabric of their society. Information obtained through research from indigenous communities shall be judiciously used. Researchers shall not disclose personal information or the identity of participants in written or oral reports and discussions.

3.3 Relations With and Responsibilities towards Sponsors, Funders and Statutory Bodies

a) When agreements with commercial sponsors of research are negotiated by the Institution researchers shall familiarize themselves with the special terms of such agreements, such as those, for example, concerning reporting of results, disclosure of inventions, and confidentiality. Failure to comply with these provisions may sometimes constitute a breach of contract or compromise the Institution claims to intellectual property.
b) Researchers shall carefully clarify, preferably in advance of signing contracts or starting their research, matters relating to their professional domain and requirements concerning control over the research project and its products.
c) Researchers are entitled to full disclosure of the sources of funds, personnel, aims of the research project and the disposition of research results.
d) Researchers shall pay particular attention to matters such as their ability to protect the rights and interests of research participants, their ability to make all ethical decisions in their research and their rights regarding data collected, publications, copyrights and royalties.

3.4 Relations with, and Responsibilities towards Colleagues and the Discipline

a) Researchers enjoy certain privileges of access to research participants and to data not only by virtue of their personal standing but also by virtue of their professional association. Hence they must exercise personal responsibility with regard to the method, procedure, content and reporting of enquiries, behavior in the field and relations with research participants and field assistants. Researchers shall ensure that their activities will not jeopardize future research or bring bad name to the institution.
b) In case of conflict of interest between two or more researchers or between a researcher and a participant the advice of the Research Integrity and Ethics Review Board shall be sought, and the Board shall be apprised of further developments.

3.5. Responsibilities towards Research

Equipment/labs Researchers shall make every attempt to

- Avoid, eliminate or minimize hazards of which they are aware;
- Comply with all occupational health and safety instructions,
- Make proper use of all safety devices and personal protective equipment;
- Not willfully place at risk the health and safety of themselves or any other person;
- Wear protective clothing and footwear, as prescribed or required;
- Be familiar with emergency and evacuation procedures, including the location and use of emergency equipment such as safety showers and eyewash facilities;
- Report any medical conditions or allergies that could put them at risk during the conduct of their research to their supervisor;
- Report and record all accidents and near miss incidents to the concerned supervisor

3.6. Responsibilities towards Research Objects/Animals

Bharat Institute of Engineering and Technology fully subscribes to the view that every effort shall be made to find alternatives to the use of animals in research. In cases where research is conducted using animals, birds or vertebrates, researchers shall adhere to the rules and procedures laid by the statutory authorities.

4.0 COLLABORATIVE RESEARCH

Researchers should be open to collaborative work with investigators having different but complementary skills, whether at the Bharat Institute of Engineering and Technology or elsewhere. Early understandings should be reached in any collaboration about sharing of research resources and materials, authorship credit and responsibilities, and entitlement to any revenue from marketing of intellectual property through patents, copyrights, or licensing agreements.

4.1 Responsibilities of the Principal Investigator

An investigator who leads a research group has leadership and supervisory responsibilities with respect to the research performed by members of the group. A principal investigator must not only put together the research group but also arrange for the assembly of an adequate financial and administrative structure to support the research. A supervisor not only provides guidance and advice to individual members of the group in the responsible conduct of the research but also has ultimate responsibility for the scientific integrity of the whole research project. He or she shall thus take all reasonable steps to check the details of experimental procedures and the validity of the data or observations reported by members of the group, including periodic reviews of primary data in addition to summary tables, graphs, and oral reports prepared by members of the group.

5.0. INSTITUTE SUPPORTING RESEARCH

5.1 Board of Research Studies

The Board of Research Studies is a statutory Board of the Institute, established by the Board of Management of the Institute, with the function of co-coordinating and promoting the research activities of the Institute. It is also the responsibility of the Board of Research Studies to review the progress of research and report on it at regular intervals to the Academic Council of the Institution.

5.2. Institute Office of Research

The Office of Research is the authorized Institute office charged with reviewing, submitting, and endorsing research proposals and budgets for grants and contracts to sponsoring agencies, whether governmental or private. Material transfer agreements, data use agreements, and nondisclosure agreements are also processed through this office. The Director of Research must approve and sign all such documents as the authorized Institute signatory. The functional areas supported by Office of Research include information services, project and proposal development assistance, and grants and contracts administration for pre-award and selected post-award tasks.

5.3. Research Integrity and Ethics Review Board

5.3.1. The Research Integrity and Ethics Review Board of the Institute, established by the Board of Management of the Institute is entrusted with the task of maintaining the highest standards of rigour and integrity in all aspects of research. The Board shall

- Ensure that research is conducted according to appropriate ethical, legal and professional frameworks, obligations and standards.
- Use transparent, robust and fair processes to deal with allegations of research misconduct.
- Work together with the researchers to strengthen the integrity of research and to review progress of research regularly in a transparent manner and with a sense of commitment.

5.3.2. The Research Integrity and Ethics Review Board shall work in close collaboration with the Board of Research Studies and the Institute Office of Research to ensure that the Research Integrity and Ethics Policies of the Institute are adhered to in all research activities of the Institute. The Board shall also review the policy from time to time and propose changes and modifications to the policy as necessary.

6.0 CASES OF RESEARCH MISCONDUCT

The Research Integrity and Ethics Review Board of the Institute may consider cases which are brought to its notice in writing and shall submit its recommendations to the Board of Research Studies the Board may also take cognizance of cases which are available in public domain where name of the Institute is under threat of disrepute.

6.1 Plagiarism Register

The Research Integrity and Ethics Review Board shall maintain a Research Misconduct Register to ensure the monitoring of offenders and consistent application of actions. It is a database, maintained by the Board where the records of investigations of allegations of research misconduct are stored. All cases of plagiarism that a scholar admits to or of which he/she has been found guilty by the Research Integrity and Ethics Review Board shall be recorded in the Register. The Register also enables a review of the extent of research misconduct within the Institute.

6.2 Disciplinary Measures

Depending on the nature and seriousness of the misconduct, the Board may recommend any or all of the following actions:

- Fine or warning
- Rustication for a limited period of time or permanently from the Institute
- Withdrawal of Degree if any has been awarded based on findings which indicate proven research misconduct.

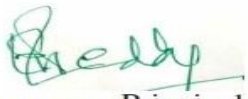
6.3 Research Misconduct Declaration

The Research Misconduct Declaration is a declaration to be included by researchers as part of the research report or thesis submitted for assessment or examination. The specific content of this declaration will require the scholars to affirm that the Scholar's has read the Institute Policies on research misconduct, and any other guidelines on research provided in the Institute and that none of these policies has been violated in the report or thesis;

7.0. CONCLUSION

The Policy Document on Research and Integrity is an attempt to ensure quality and rigour in research while eliminating misconduct. While this document provides certain wider guidelines in conducting ethical research and the dissemination of knowledge, it does not spell out every detail. The purpose is to ensure that all research conducted by the community of Bharat Institute of Engineering and Technology is carried out in order enhance "life in its fullness".

Dr. E. VENKAT REDDY



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