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1 INTRODUCTION

The conduct of research requires a Research Ethics Policy to provide the guiding principles and standards for research in the University. Research ethics are the set of ethical guidelines that regulates the conduct and dissemination of research. Ethical standards in research are indispensable as they maintain the integrity and transparency of the research process, and for safeguarding intellectual property.

1 PURPOSE OF THE POLICY

The purpose of this policy is to establish a framework to guide and direct the conduct, dissemination and use of research output in the University. The document lays down broad guidelines and norms to be followed to ensure ethical research practices in BTU. The specific objectives of the policy are to:

- i. provide the framework of the ethical review process of the University.
- ii. promote exemplary ethical standards in research and scholarship.
- iii. direct researchers to adhere to best practices relating to ethical standards, implementation and dissemination of research output in the University.
- iv. create awareness on responsible conduct of research for thesis, dissertations/project work and articles.
- v. promote academic integrity and the prevention of misconduct in academic research and writing among students and staff.
- vi. establish institutional mechanism and training for responsible conduct of research.

2 SCOPE

This Policy applies to all staff and students of the University engaged in research, and any individual who is not a staff or student of the University but is undertaking research in the interest of the University.

3 ETHICAL PRINCIPLES AND CODES

The University affirms the following principles to ensure quality, avoid research misconduct and uphold high standards of responsible practices for the conduct and dissemination of research.

Honesty	All scientific communications should be done with honesty at all times. <ul style="list-style-type: none"> i. Report data, results and findings, methods and procedures honestly. ii. No fabrication, falsification, or misrepresentation of data. iii. Deception of colleagues, research sponsors, or the public is prohibited.
Objectivity	This is required in research design, data collection, analysis and interpretation of results. This also includes peer reviews of research outputs.
Integrity	Act with sincerity; strive for consistency of thought and action.
Openness	<ul style="list-style-type: none"> i. Share data, results, ideas, tools, resources. ii. Accept criticism and new ideas.
Transparency	Full disclosure of methods, materials, assumptions, data, analyses and other information in research projects in timely manner.
Accountability	Staff, students, researchers and supervisors are responsible for their roles in research projects and should be prepared to give an account (i.e. an explanation or justification) when the need arises.
Intellectual Property	Honour patents, copyrights, and other forms of intellectual property. <ul style="list-style-type: none"> i. Unpublished data, methods, or results should not be used without permission. ii. Contributors to research should be duly acknowledged or credited.
Confidentiality	Protecting confidential information and communication of research projects/participants.
Social Responsibility	Endeavour to promote societal good and prevent public harm in research, public education, and advocacy.
Non-Discrimination	Avoid discrimination against staff and/or students on the basis of sex, race, ethnicity, and religion.
Animal Care	Animals for research purposes should be properly and carefully handled to avoid harm.

<p>Human Subjects Protection</p>	<p>Research on human subjects should minimize harm and risks, and maximise benefits.</p> <ul style="list-style-type: none"> i. Respect human dignity, privacy, and autonomy; ii. Take special precaution with vulnerable populations.
<p>Informed Consent</p>	<p>This allows human subjects access to enough information in order to make an informed decision for voluntary participation in a research. It also ensures that people are not coerced or manipulated in any way to participate and must consent to participate in a research project as a subject. Total disclosure of information to research participants, comprehension (making information easy to be understood by every participant taking into account of individual differences) and voluntariness are necessary ingredients for an informed consent. Research procedure, risks and anticipated benefits, alternative procedures and the opportunity to withdraw at any time from the research should be made known to participants before the start of a research project.</p>
<p>Authorship</p>	<p>Authorship is the process of deciding whose name(s) should be included on a research paper or manuscript. Authorship also implies responsibility and accountability for published work and all listed authors must be ready to take full responsibility for the content of the research article. In addition, authors should have confidence in the integrity of the contributions of their co-authors.</p> <p>Conditions for Authorship</p> <p>Authorship credit should be based only on:</p> <ul style="list-style-type: none"> i. Substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; ii. Drafting the article or revising it critically for important intellectual content; iii. Final approval of the version to be published;

	<ul style="list-style-type: none"> iv. Agreement to be accountable for all aspects of the work in terms of accuracy or integrity. v. Acquisition of funding and/or collection of data only do not justify authorship.
<p>Conflict of Interest</p>	<p>Conflict of interest arises when a person’s (or an organization’s) obligations to a particular research project conflict with their personal interests or obligations. Conflict of interest is important because of its possible harmful effects on the objectivity and the integrity of research results. Hence, a researcher should endeavour to identify probable conflict of interest situations and confront it head-on before they negatively affect the research results/findings.</p> <p>In essence, it is suggested that researchers should:</p> <ul style="list-style-type: none"> i. Disclose to Bolgatanga Technical University (BTU) any major or significant financial conflicts of interest that might interfere with their ability to conduct a research project objectively. ii. Disclose any such financial conflicts of interest of their spouses or dependent children. <p>Recommendation to minimize conflicts of interest in the University:</p> <ul style="list-style-type: none"> i. Public disclosure of significant financial interests; ii. Monitoring of research by independent reviewers; iii. Modification of the research plan; iv. Disqualification from participation in all or a portion of the research funded by BTU or her partners; v. Divestiture of significant financial interests

4 RESEARCH MISCONDUCT

Non-compliance with the Research Ethics Policy, whether due to ignorance, deliberate, reckless or negligent acts, constitutes research misconduct. Key acts of research misconduct include:

<p>Plagiarism</p>	<p>This is the practice of taking someone else's work or ideas and passing them off as one's own constitutes plagiarism. It Includes:</p>
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	<ul style="list-style-type: none"> i. Paraphrasing, or putting into one’s own words, the text of a source without providing proper acknowledgment of the source or providing a proper citation. Paraphrasing extensive portions of another source, even with citation. ii. Presenting any work or part of a work or assignment that has been prepared by someone else as one’s own. iii. Reproducing, without proper citation, any other form of work of another person such as a graph, experimental data or results, laboratory reports, a proof, or a problem solution, in full or in part. iv. Using ones previous work without proper referencing is self-plagiarism and also constitutes research misconduct.
Fabrication	This may include presenting falsified data in a paper, manuscript, or presentation and making up a source for a citation.
Obstruction of Research Process	This includes tampering with, damaging, denying access to academic resources.
Misrepresentation	This is the wilful, dishonest, accidental, partisan, political, ignorant, biased, and careless or any combinations of these acts with an intend to alter the research outcome.
Facilitation	Facilitation occurs when one knowingly or intentionally assists another person in committing a violation of any section of this policy.
False Accusation	Deliberately making false accusations is highly unethical in research.

5 CONDUCT OF RESEARCH

This policy provides the following guidelines for the conduct of research by staff and students of the University:

Ethical Responsibilities	<p>There shall be an ethical clearance for every research conducted in the University that involve the use of animals and human subjects which shall be granted by the Ethics Committee.</p> <p>In research projects, lead Researchers should specially ensure the supervision and appropriate mentoring of researchers. Research</p>
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	<p>supervisors should display the highest ethical standards when dealing with researchers and students. Potentially troublesome issues should be identified and dealt with as soon as possible with fairness and clarity.</p> <ul style="list-style-type: none"> • Despite the above, all individuals participating in a research project are responsible for their own actions and should make sure these are consistent with, and uphold, high ethical standards. • Unethical behavior on their part cannot be justified by the claim that they were following a mentor’s instructions.
<p>Data Management</p>	<p>This describes the organisation, storage, preservation, and sharing of data collected and used in a research project. It involves the everyday management of research data during the lifetime of a research project. It also concerns the careful handling and organization of research data throughout the entire research lifecycle with the aim to carry out research activities efficiently and allow collaboration with others</p> <p>Steps should be taken to retain all research materials gathered (including physical and visual data), in a safe and confidential space. Particularly with experimental work, defending the publication requires properly recorded raw data to be produced. Its absence will typically be treated as suspicious.</p> <ul style="list-style-type: none"> • A well-maintained data set provides not only a permanent record of results and protocols for future publications, but also serves as critical evidence for a claim of priority in the case of patent applications and as proof of adherence to appropriate ethical standards. • Tampering with or manipulating records is unacceptable. Through the informed consent process, participants should be informed about how study data should be managed and how long it will be retained.
<p>Ownership</p>	<p>Physical research materials arising out of research performed at BTU, will remain the property of the University unless explicitly decided otherwise. The same holds for software and processes having commercial value.</p>

<p>Responsible Use of Funds</p>	<p>Efforts should be made to ensure reasonable and efficient use of resources following transparent and fair processes. Researchers must not use funding for purposes other than that specified in the grant award.</p>
<p>Sharing of Facilities</p>	<p>Equipment installed at BTU are expected to be shared in a collegial spirit with colleagues who may require access for their own research, as long as such access does not impede the original purpose for which the equipment was procured.</p>
<p>Experiments Involving Animals</p>	<p>Experiments that involve the use of animals and human subjects require ethical permission and approval. To ensure that research with animals is conducted ethically and responsibly, the Ethics Committee must evaluate and grant approval for the conduct of the research.</p>
<p>Safety and Environment</p>	<p>Research activity must not endanger other people or the environment in any way. All staff and students of the University are expected to incorporate safety and environmental concerns into their research practices. Environmental guidelines, regulations and laws must be followed and appropriate licenses/permits and clearances obtained for the handling, storage or disposal of hazardous materials.</p>
<p>Publication of Research Findings</p>	<p>Researchers must share all research findings with appropriate parties, unless major confidentiality issues arise and subject to the guidelines mentioned above or contractual provisions. When publishing research all reasonable steps must be taken to ensure that published reports, statistics and public statements about research activities and performance are complete, accurate and unambiguous; and that:</p> <ul style="list-style-type: none"> i. Researchers are responsible and accountable for the accuracy and completeness of their reports. ii. The nature of financial support must be acknowledged in all reports of research outcomes. iii. The University is committed to adhering to the expectations of regulatory bodies relating to open access data of publicly funded research, and expects all researchers to duly comply.

	iv. All researchers who have contributed to the research output and its dissemination should be appropriately acknowledged in accordance with that particular publication’s definition of authorship.
Levels of Plagiarism	The University’s maximum acceptable similarity index is 20%.

6 REGULATORY NORMS, IMPLEMENTATION AND HANDLING POLICY VIOLATION

i. Regulatory Norms

The University shall provide and implement technology-based mechanism using appropriate software so as to ensure that documents such as thesis, dissertation, publications or any other such documents meet the plagiarism requirements of this policy. Thus,

- a) The mechanism as defined in (i) above shall be made accessible to all engaged in research work including students, researchers and staff.
- b) Every staff or student submitting a thesis, dissertation, or any other documents shall submit an undertaking indicating that the document has been prepared by him or her and that the document is his/her original work and free of any plagiarism.
- c) The undertaking shall include the fact that the document has been duly checked through an approved Plagiarism detection tool (name provided).

ii. Implementation

It is essential to prevent unethical practices through ethical training that promotes a culture of professionalism. To this end, direct ethical training should be done through lectures and interactive workshops on regular basis.

Ethical violations must be addressed urgently. For this purpose, the University’s Ethics committee shall ensure timely and impartial redress of all grievances that arise out of policy violations.

iii. Handling Policy Violations

The University will employ formal mechanisms and procedures for dealing with allegations of research misconduct, as well as any other kind of misconduct as described in this Policy on the following fundamental principles:

a) **Corrective Action:** If a publication is found to contain plagiarism or manipulated data, the institution must ensure that a correction or retraction is published in the same place as the original paper. On the administrative side, if a decision is found to have been made based on a bias or conflict of interest, then it should be overturned and the process repeated if necessary.

In general, every effort must be made to ensure that an unethical action does not succeed in propagating false knowledge or incorrect decisions.

b) **Punitive Action:** This covers not just misconduct involving data and publication, but also harassment, discrimination and other issues covered in the policy. Punitive action should not just be communicated to the violator, but also to society at large, that unethical behavior is unacceptable.

- The degree of punishment should be carefully calibrated in proportion to the offence.
- First-time offenders, particularly if the offence is minor or unintentional and the offender is inexperienced, such an offender may be warned.
- Large-scale ethical violations should be met with severe disciplinary action and, if appropriate, dismissal.

7 DETECTION/REPORTING/HANDLING OF PLAGIARISM

If any member of the BTU community suspects with appropriate proof that a case of plagiarism has occurred in any published document, he or she shall report it to the Directorate of Research. Upon receipt of such a complaint or allegation the Director of Research shall investigate the matter and submit recommendations to the Vice Chancellor.

8 AMENDMENT

The University shall review this policy from time to time as recommended by the Academic Board.

9 PUBLICATION OF THE RESEARCH ETHICS POLICY

The University shall publicise this Policy by circulating it among staff, registered research candidates of the University as well as published in the University Website in a prominent manner to attract the attention of the interested persons.

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