RESEARCH AND DEVELOPMENT POLICY2022

BANNARI AMMAN INSTITUTE OF TECHNOLOGY
(Autonomous Institution Affiliated to Anna University Chennai
Approved by AICTE-Accredited by NAAC with 'A+' Grade)
SATHYAMANGALAM - 638 401, ERODE DISTRICT, TAMIL NADU

Contents

1		**Vision & Mission of IQAC – R&D**
		Vision • To be a centre of excellence, providing world-class education that transforms individuals into intellectual, empathetic and responsible citizens **Mission** • To indulge in extensive core and multi-disciplinary research activities • To integrate research and education • To develop core group of faculty members with high research potential
2		**Objectives**
		Objectives of the IQAC - R&D policy have a focus on addressing social, industrial and environment challenges through extensive core and multi-disciplinary research activities. The specific objectives include • Effective utilization of existing facilities and to establish new facilities • Enable faculty members and students to translate the knowledge and research into new products to improve the lifestyle of the people • Ensure timely disclosure of all potential Inventions / Innovations and results of research activities by faculty members/students through patents or proper mode of publications with relevant property rights
3		**Scope**
		The research activities shall include supervision, execution of new research (both basic and applied), inter-disciplinary and multi-disciplinary research, academic and research collaborations with national and international institutions/Universities, Government / private industry, consultancy assignments, Government Funded / Private Funded projects that might result in development of new or existing products, processes or theories thereby publications, out-right sale of technology , intellectual property rights and Transfer of technology.
4		**Roles and Responsibilities**
		IQAC - R & D shall have the responsibility of regulating the research activities of facultymembers, scholars and students of the institution and its responsibilities include • Introduction of research components in the curriculum of UG and PG appropriately

		• Promotion of research in emerging and futuristic areas • Inculcating inter-disciplinary research activities across departments • Support to all faculty members to pursue research in their respective areas of expertise • Development and enhancement of research capabilities based on research facilities and faculty resources • Providing adequate training to faculty and students to enhance their research performance • Development of research infrastructure • Disbursement of funds from institute to faculty for research activities • Monitoring the progress of Ph.D. supervisors and scholars • Monitoring the effective utilization of research facilities • Monitoring the quality and quantity of research activities • Monitoring the quality of publications and other research outcomes • Forging research collaborations with national/international laboratories/organizations, academic universities/ institutions and industries • Organizing national and international events related to R&D • Protection and commercialization of the intellectual property • Promotion of consultancy activities • Administrating the adherence to Code of Research Ethics • Disseminating the information on funding schemes from Government/Private funding agencies and providing support in enhancing the quality of proposals
5		**Planning the Research Activities** Planning the research activities, in a research work, shall include:
	(a)	Clear documentation of the rationale for the study and any subsequent modifications, either in 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.
	(b)	Assessment of the resources needed to ensure the study is viable within the available means.
	(c)	Economy in use of resources - for example, not purchases excess consumables than that are needed for the planned sample size and regular review for determining when to stop the experiments.
	(d)	Adherence to the current safety practices and ethical standards.
	(e)	Securing all necessary ethical and regulatory approvals.

	(f)	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
6		**Conducting the Research**
	(a)	The legal and ethical requirements relating to human participants, animals and personal information should be familiar to each person involved in the study and they should know to whom to turn for advice. Men, material and subjects used for the research as prescribed by respective regulatory.
	(b)	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.
	(c)	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.
	(d)	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.
	(e)	There should be clarity at the outset of the research programme to the ownership and use of, wherever relevant effect on the society.
	(f)	Data and samples used or created in the course of research
	(g)	The results of the research are recorded
7		**Professional guidance and legislation**
	(a)	Where available, the institute expects all researchers including students and trainees to observe the standards of research practice set out in guidelines published by scientific societies, and other relevant professional bodies.
	(b)	All researchers should be aware of the legal requirements which regulate their work besides health and safety legislation and data protection.
8		**Leadership and Cooperation**
	(a)	Head of the Institute and senior colleagues shall ensure that a research atmosphere of mutual cooperation is created, which all members of a research team are encouraged to utilize, with the encouragement for open exchange of ideas.
9		**Supervision**
	(a)	The Institute provides an appropriate direction for research activities and looks into the fact that research leaders are trained in supervisory skills. Research supervisors, guiding research scholars and funded projectsshall supervise all stages of the research process carried out by the Laboratory Technicians, Research Scholars and Research Fellows, in addition to outlining or drawing up a hypothesis, preparing applications for grant and aid, protocol design, data recording and data analysis.

10		**Training**
	(a)	The IQAC – R&D shall plan periodic courses to enable students and researchers to understand and adopt the best practices in research.
	(b)	Supervisors shall encourage students, Research Scholars, Research Fellows and colleagues to attend relevant courses whenever and wherever offered as part of their overall career development. Some of the indicative courses are: i. Research Design ii. Regulatory and Ethics Approvals and Consents iii. Equipment Usage iv. Data Analysis v. Data Protection vi. Management of Intellectual Property vii. Use of Materials Requiring Statutory Registration (radioisotopes, pathogenic and GMOs) viii. Data management ix. Using Animals for Experiments x. Regulations Involving Human Subjects
11		**Primary Data/Samples/Equipment**
		Data generated in the course of research shall be kept securely in written or printed or electronic format, appropriately. Backup records shall always be kept for data stored on a computer or equipment interfaced with the computers. Researchers should report any changes in the direction of sponsored research to the Sponsoring Agency or any other relevant body. It is expected to discuss any change(s) in the direction of the research with the Sponsoring Agency prior to its implementation.
12		**Intellectual Property Rights**
		Intellectual property refers to creations of the mind: inventions; literary and artistic works; and symbols, names and images used in commerce. **Patent** A patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem **Copyrights** Copyright is a legal term used to describe the rights that creators have over their literary and artistic works. **Trademark** A trademark is a sign capable of distinguishing the goods or services of one enterprise from those of other enterprises. **Industrial Designs** An industrial design constitutes the ornamental or aesthetic aspect of an article.

		Inventor The inventor is the creator of the invention. Researchers shall inform the Intellectual Property Cell (Coordinator of the program) regarding any developments related to intellectual property rights that may arise from the research work / consultancy assignments.
	a.	**Filing a Patent application in India** Intellectual Property Office of India gives an online tool to "eFile Patent Applications" easily and effectively with following details to be furnished. • Application for grant of patent • Provisional Specifications • Abstract of the Invention • Declaration of Inventorship • Power of Attorney. If your patent is filed by a Patent Agent then this form is necessary, otherwise not. • E-filing fees (Patent Statutory fee) (Electronic Payment) • Corresponding foreign patent application statement and undertakings • Illustrations / Drawings of the invention
	b.	**Ownership** BIT jointly shall own all the intellectual properties produced by the BIT employees with or the without the support of funding agencies. BIT reserves the right to apply for IP protection in India / throughout the world / specific countries for suitable protection of the IP generated, in case if it is financially supported by BIT.
	c.	**Disclosure** BIT encourages timely disclosure of all potential Inventions / Innovations generated (conceived or reduced to practice in whole or in part) by members of the faculty (including research staff, doctoral students, students and visiting scholars) in the course of their Institute related activities.
	d.	**Licensing and Agreements** BIT understands the commercial needs and the security required in the form of IP especially in the case of breakthrough technologies / products / processes or any other form of invention. The licensing is done by BIT through BIT IQAC – R&D and / or TBI, which handles the evaluation, marketing, negotiations and licensing of the BIT owned IP. In certain cases, BIT might use the services of a third party for licensing the technology developed, under mutually agreed terms and conditions.
	e.	**Technology License / Transfer Options** Technology License / Transfer Options would be as per the current policy and the revenues earned shall be shared with the inventor(s) and BIT in a 75:25(Inventor: BIT) ratio, as per the separate inventor'sagreement.
	f.	**Incubation through Technology Business Incubation (TBI) Centre of BIT** BIT inventors and community interested to incubate the technologies and business ideas developed can have an opportunity develop such ideas through BIT - TBI. Outcome(s)

		of such ideas shall be governed by the rules and regulations of TBI, in such cases.
	g.	**Inventions Related IPR** • BIT shall be a co-owner of the IP generated from the research project(s) funded by Government, Private Agencies or Organization. • In the case of a collaborative based IP generation, the IP terms of agreement is to be considered along with the Policy. Collaborator's (Government, Private Agencies or Organization) terms and conditions shall be followed in case if there is any conflict(s). • BIT can assign the IP generated, to the funding agency based on the nature of the technology, funding and specific applications.
	h.	**Intellectual Property Originated from Students** BIT shall co-own intellectual property created by students where: • the student's supervisor or any other staff member has made a substantial contribution to the creation of the intellectual property • the intellectual property is, partly or fully, created using facilities / infrastructure available at BIT.
	i.	**Intellectual Property Originated by Faculty Members** Except as otherwise provided in this Policy or in a separate agreement, BIT owns all intellectual property originated by Faculty Members, staff or affiliates, • In the course of employment with the BIT • As part of a project or program supported by funds obtained or provided by / though the BIT.
	j.	**Thesis** • The student is the original creator of the thesis, fine-tuned with relevant contribution of the supervisor(s) and the Copyright authorship rests with the BIT. • The ownership is jointly held by the student and the supervisor(s) concerned. The supervisor(s) can waive off their joint ownership if desired. Relevant forms will be made available for such waivers (Annexure-I).
	k.	**Books, articles and related literary works** • BIT encourages its personnel to disseminate and assimilate the knowledge in the form of books, technical articles and reports. In this respect, BIT does not claim ownership of copyright on books authored by BIT personnel. • In cases of Institute designated works and other works like the content development programme, the ownership rests with BIT. Use of BIT logo on any personal publications by the faculty / staff / student is prohibited, unless and otherwise it is required by design.
13		**Consultancy**
		Industry / external agency can contact BIT to solve various engineering/technological problems, through a faculty member or a group of faculty members who could help them. Or, the Faculty Members of various Departments can visit the industries to seek consultancy assignments based on the problems encountered in the manufacturing or services or both. Possible Consultancy assignments that can be offered may include

		Types of Consultancy Services Provided i. Analytical studies ii. Calibration of Equipment and Instruments iii. Cause-and -Remedy Studies iv. Simulation/Modeling/ Optimization v. Design of Systems/Components/Processes vi. Development of Industrial Products/Systems vii. Development of Systems Software/Application Software For Offline/Online Applications viii. Development of Laboratories of Manufacturing and Quality Control ix. Human Resource Development Programs x. Testing of Industrial Products/Samples xi. Validation of Designs/Drawings xii. Advisory Roles in the Board xiii. Energy Audit xiv. Processing / Testing of Samples xv. Any other activities that possible using the facilities available with BIT
14		**Dissemination and publication of results**
		BIT encourages publications and dissemination of results of high-quality research but expects that researchers shall perform this responsibly, with awareness on the consequences of any such dissemination in the wider media, if carried out wrongly. BIT ensures that the sponsoring agency understands that researchers must have freedom and should not discourage publications or the dissemination of research or research findings. The Institute recommends that every effort should be made to inform the sponsors about potential publication(s) or dissemination of the research findings. The sponsoring agency should be notified in advance when the research might be published, publicized or disseminated. 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 conferences or in websites. Researchers should make every effort to ensure research is peer reviewed prior to it being published (among investigators), publicized or disseminated. If research is placed in the public domain before peer review has been undertaken, the researcher must make this clear in the publicity activities. i. All the papers submitted for publications shall subject to plagiarism check using the suitable software.

		ii. All funding sources must be acknowledged in any publication or publicity. iii. Results of research should be published in an appropriate form, usually as papers preferably in refereed journals. iv. Anyone listed as an author on a paper shall accept the 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. v. The contributions of formal collaborators and all others who directly assist or indirectly support the research should be both specified and properly acknowledged. vi. 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. vii. Undue acknowledgement / inclusion of co-authors without any contribution in the paper shall be discouraged. viii. Authors must not publish the same data in different journals. ix. If an error is found which degrades the worth of published findings, the principal author must take efforts to publish a correction as soon as possible x. Where the findings are found to be in serious doubt, a retraction should be published speedily.
15		**Prevention of Misconduct**
		1. Principles i. This policy is designed to support the research activity in BIT ii. BIT is committed to ensure that investigations are carried out as expeditiously as possible, at the same time ensuring the utmost degree of thoroughness. iii. Where time limits are indicated that will be considered as maximum limits and that all parties will work to ensure the prompt progression of the procedure. iv. BIT is committed to protect its employees from malicious accusations and will take action against any individual(s) responsible for such allegations. v. 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 Committee (which may be formed as and when required) / R&D Cell. **2. 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.

Misconduct shall also include failure to follow established protocols that would result in unreasonable risk(s) or harm to humans 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 and other forms, which are listed below.

i. Fabrication – reporting of experiments never conducted
ii. Falsification – Misrepresentation or suppression of data to project the desired result
iii. Plagiarism – reporting another's data as one's own
iv. Fraud – Deliberate and willful suppression of previous work in publications to claim originality or to avoid quoting previous publications contrary to present results.
v. 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.

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.

3. Reporting of Cases of Scientific Misconduct (cut it short)

i. All employees or individuals working within BITare required to report observed, suspected or apparent Scientific Misconduct to the Professor in-charge of R&D Cell.
ii. 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 Head of R&D.

BIT 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.

4.Reporting and evaluation of the complaints

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.

i. Reports of alleged misconduct are to be made directly to the office of theHead of R&D.

ii. If a complainant makes an allegation to Head of R&D informally, Professor in-charge of R&D may ask them to put such allegation in writing.

iii. Misconduct may be reported by either a staff of the BIT or anyone who comes across such incidents. The identity of the complainant shall not be revealed.

iv. Head of R&D shall, either himself or through an officer delegated the responsibility, shall investigate (a) 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 (b) oversee enquiries and investigation.

v. A preliminary evaluation of the complaint will be made by Head of R&D, 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.

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

vii. 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

5. Investigation

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

ii. The Head of R&D will appoint a committee to conduct a full investigation into the allegations of misconduct.

iii. The committee will comprise of a Chairman, and 2 members, at least one 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.

The scope of the committee shall be:

- To investigate the accuracy of charge of misconduct.
- To assess the extent and nature of alleged misconduct.
- The relevance of any other material or information revealed during the course of

		the investigation into the alleged instance of misconduct. **6. 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 30 days. **7. Outcome of the investigation** i. The committee will submit its report with a recommended course of action to the Head of R&D 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. ii. 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 7 days. The written comments will be attached as annexure to the original report. iii. The Head of R&D will discuss the report with Head of the Institution. If the faculty against whom the complaint was lodged has been proved to have engaged him / her in research misconduct, the Professor in- charge of R&D will take appropriate action, with the approval of the Apex Committee, which will be communicated to the Individual and will be entered in the service book. iv. The individual may appeal to the Apex Committee against the decision and the Apex Committee's decision will be final and binding on the individual. **8. Safeguard against false allegations** Efforts should be made to safeguard the interests of the complainant. If it is established that the complaint itself was false and was done with malaise intentions, the Head of R&D Cell will formulate an appropriate action against the individual who lodged a false complaint. The person who has been charged with wrong allegations may appeal against the decision to the Apex Committee. The decision of the Apex Committee is final and binding on the individual.
16		**Promotion for Research**
		i. Funding pilot projects of the Faculty members of BIT under Selective Special Interest Group(s). ii. Funding innovative projects of the students of BIT under Selective Special

		Interest Group(s). iii. Seed money is given to the faculty members to set up their own research laboratories for carrying out research. iv. Financial assistance is given to the faculty members to carry out Proof of Concepts in the lab. With the proof of concepts, they can apply for funded projects from Government Funding agencies. v. Performance Incentives are given to the faculty members as stated in the HR Policy. vi. Every year Research Day is celebrated on 28th of February. The faculty members and the students present their research papers separately and the best papers are awarded suitably. vii. Financial assistance is given to the faculty members and students to get patents for their innovative ideas/products. viii. Students are encouraged to participate in competitions in India or abroad with their innovations. ix. The faculty members and students are sent to International and National conferences /seminars/workshops for participation and presenting their papers in line with the HR Policy.
17		**Outcome of Research**
		Outcomes are normally broken into the following categories: ✓ Books (authored research, critical editions, edited, major revisions) ✓ Book chapters ✓ Journal articles (refereed, scholarly journal, other contributions to scholarly reviewed journal, non - refereed articles, letters or notes) ✓ Reviews ✓ Conference Proceedings (refereed, non-refereed, extracts of paper) ✓ Edited Volumes of Conference Proceedings ✓ Audio-Visual Recordings ✓ Computer Software, Database ✓ Technical Drawings, Designs or Working Models ✓ Design (major works in production or exhibition and/or award-winning) ✓ Patents ✓ Art (major works -exhibitions, performances, broadcasts, screened or published) ✓ Research Reports -commissioned by government, industry or other ✓ Technical Reports ✓ Legal Cases ✓ Entries in a Dictionary/Encyclopedia ✓ Maps ✓ Translations and editing of major works

		✓ Case studies ✓ Proposal of New Theories ✓ Artefacts
18		**Scope for Future Development & Facility Creation** - Automated provision for utilizing research instrumentation and machinery for use by anyone across the globe - Establishment of research hotspots in the next ten years in the field of machine learning - Enhancement of the research among cross-disciplinary teams - Improvement of the research input in terms of both human and physical resources - Availability of better ambience for research by providing greater flexibility to encourage performance of faculty members and scholars while continually improving research infrastructure - Publication in top journals and presentation at venues where the world's leading researchers are present - More focus on the problems identified from the industry - Encouragement of summer research / postdoctoral fellowships - High-impact initiatives such as the creation of special research zones or world-class research facilities - Collaborative research activities by leading scientists from all over the world

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