RESEARCH AND DEVELOPMENT CELL



BHAGWAN MAHAVIR UNIVERSITY

VIP Road, Vesu, Surat-395007 Gujarat, India September, 2019



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1. Introduction

The National Education Policy (NEP) 2020 envisages the promotion of quality research within the Higher Education system. Research and innovation are important aspects to enhance quality education by the Higher Education Institutions (HEIs). Societal challenges of our country can only be addressed by having a strong and vibrant higher education ecosystem with an emphasis on research, innovation, and technology development. The integration of Research, Innovation and Technology Development is the foundation of Atma-Nirbhar Bharat (Self-reliant India). The establishment of Research and Development Cell (RDC) in HEIs will enable attainment of targets of Atma-Nirbhar Bharat and is expected to play a pivotal role in catalyzing multidisciplinary/ transdisciplinary and translational research culture mandated in NEP 2020.

1.1 Vision

To put in place a robust mechanism for developing and strengthening the research ecosystem within BMU, aligned with the provisions of NEP-2020.

1.2 Mission

- To create a conductive environment for enhanced research productivity.
- To encourage collaboration across industry, government, community-based organizations, and agencies at the local, national, and international levels.
- To facilitate greater access to research through mobilization of resources and funding.

1.3 Scope/ Applicability of the Policy

This document on BMU Research Policy Guidelines will be applicable to all BMU faculty, staff and students involved in any form of research activity.

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1.4 Policy Statement

Bhagwan Mahavir University (BMU) Surat is committed to the pursuit of excellence in research and aims to achieve international recognition through inter-departmental and interinstitutional collaborative research programmes in various streams like Engineering, Pharmacy, Life and Basic Sciences, Business and Management, Education, etc. BMU shall ensure that research in all domains grows exponentially, keeping the ethical norms and research standards intact. It is equally important to ensure that the products and outcomes of the research are appropriately disseminated to reach the widest possible audience at both national and global levels. This policy provides a set of guidelines for conduct of research at all levels and is applicable to all faculties and students of the University who may be involved in any form of research activity.

1.5 Rationale

- BMU considers transmission of knowledge and conduct of scholarly inquiry as the central functions of the University that is dedicated to research and innovation. These functions require that the faculty, scholars and students are guaranteed certain degree of freedoms and that they too accept certain obligations and responsibilities, correspondingly.
- At the outset, it could be broadly stated that BMU Research Policy is to ensure that individual scholars are free to select their broad and narrow disciplines, or inter-disciplinary perspectives to narrow down the subject matter of their research, and to seek support from other colleges in BMU or outside the University for their Work. They are also free to form their own opinion, theories, explanations, findings in their research report where they draw certain conclusions.
- It is important to emphasize that all research reports and publications arising out of BMU research Programme must carry the correct affiliation ('Bhagwan Mahavir

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University Surat') in the credit/address tag lines in the published versions as books, research papers, book chapters, articles, and on-line or off-line reports.

- However, these findings and conclusions must be open to both internal (through a
 Research Sub-Committee mechanism) and external scrutiny (by individuals and
 agencies that assess and evaluate innovations, proposed patents and research). All
 research reports are also open to criticism as required by the University's Policy on
 Openness in Research.
- At the same time, University Research Policy is not to allow use of a research or survey methodology or technique that is in violation of professional ethics pertaining to the health, safety, privacy, and other personal rights of human subjects or to the infliction of injury or pain on animals and living organisms.
- As an academic institution of distinction, BMU offers an environment that is conducive to research in all fields of knowledge cultivation. However, because of limitations on both infrastructure, funding and manpower requirements, the University cannot support all research demands. The BMU allocates laboratory, library, design table and drawing and sculpting board spaces and facilities, and other resources such as its own funds to match with that of the funding agencies for research Programmes depending on the merits of the research proposals.
- The University does not encourage any speculations or discussions on any kind of platform (including social media) concerning the political or moral impropriety or the uses which might be made of its results of research. The university would provide platform in the form of a 'University Research Committee' for discussions of this nature if need arises, and if there arise controversies in this respect.
- It is also mandatory to ensure that BMU research platforms are not used to argue against the widely acclaimed research positions or against the national policies of India, or against the universally accepted international laws and provisions.



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1.6 Objectives of RDC

BMU also encourages its faculty to serve its research goals through their primary commitment to engaging in teaching, research, industry connect, and other support activities that are consonant with the values of the University. In addition to research, it also is appropriate and often desirable for faculty members to participate in both government-funded and private activities beyond this campus by engaging in academic and professional activities. In fact, all BMU faculty members are expected to undertake research activities in addition to their teaching and administrative responsibilities. All research activities should be undertaken in compliance with the BMU Research Policy. The BMU research objectives are:

- To affirm research as an integral activity at the University.
- To maintain and enhance the quality of research undertaken.
- To maximize funding support for research through external and internal sources.
- To create transparent, effective and efficient systems for maximizing research outputs.
- To integrate research activities undertaken by the students with the research focus of the University.
- To create, maintain and enhance infrastructure to enable conduct of state-of the-art research.
- To provide a framework for conduct of research in a transparent, socially responsible and ethical manner.
- To ensure a facilitating environment for conduct of high-quality original research by students/faculties affiliated with the University and provide continued and effective support for pursuit of research activities.
- To protect Intellectual Property (IP) generated as a result of research conducted at BMU.
- To create a rational, transparent and efficient system for management of all research processes.



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- To encourage and facilitate research collaborations within different colleges of the BMU and with reputed other Institutes, Universities and Research Organizations.
- To ensure effective broadcasting of research activities and achievements of the University both internally and externally.
- To enhance the research profile of the University by effective broadcasting of research activities and achievements of the University at all levels to maximize the impact and recognition of research done at BMU at national and international levels.

2. Responsible Office(s)

BMU

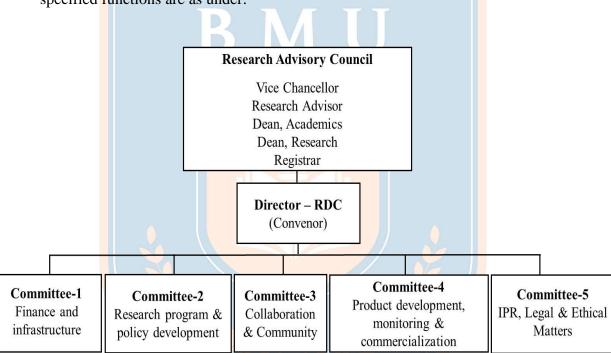
- An efficient governance mechanism, which ensures functional autonomy, transparency, accountability, adaptability by strengthening interlinkages to create a conducive research environment, is established according to the provisions of NEP-2020. The BMU can foster the human elements (faculty, staff, scholars, and students), logistics (land, buildings, and facilities), knowledge resources (research equipment, project utilities, and consumables), fund flow, etc. through a steady, proficient, effective governance (Rules, Norms, and Policies) and financial (Grants and Funds) management. Dedicated leadership and administrative structure for research, led by experienced researchers, are essential for establishing an effective and robust Research Governance in RDC at BMU.
- To create an efficient governance mechanism to strengthen the research ecosystem within BMU, the Research and Development Cell (RDC) is established according to the provisions of NEP-2020. The RDC would help creating a research ecosystem for reliable, impactful, and sustained research output. The essential elements of such an ecosystem, viz., generation of knowledge and facilitation of research, innovation and technology development for industrial & societal benefits, are addressed by human resource (researcher & faculty), intellectual capital (knowledge & skills), governance (regulation & policies) and financial resources (funding & grants).

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• The Research Governance will have a Research Advisory Council (RAC) chaired by the Vice-Chancellor and his/her nominee as the apex body of RDC. The Director, nominated by Vice-Chancellor among the distinguished researchers from the university, will head various committees to drive the governance and monitor all research activities. RDC may form multiple committees to smoothen its functioning with respective committee members nominated by the Director-RDC and approved by RAC. The organisational structure of RDC comprising of various committees and their specified functions are as under:



Committee 1: Finance and infrastructure

• The Finance and Infrastructure Committee provides an assurance to board of members of RDC on the development and delivery of key elements to facilitate research. It is responsible for overseeing the development and implementation of the financial, estates and digital infrastructure objectives of the RDC. Its aim is to ensure that the RDC is operating in line with strategic objectives of the University.

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Committee 2: Research Program & Policy Development

• This committee provides impetus to the research and development activities and to provide guidance, directions to the research community within the University. It has representation from all departments. The committee is a vibrant entity to discuss and propose R&D policy issues. The members highlight shortcomings in procedural matters and thus sharpen the performance of the RDC.

Committee 3: Collaboration & Community

• The main responsibility of this committee is to establish collaboration with other universities, public and private sectors and identify R&D projects including consultancy services which could be undertaken at the institution. This committee will foster collaborations for mutual benefits and to maximize industrial connectivity.

Committee 4: Product Development, Monitoring & Commercialization

• The committee is a hub for strategic partnerships/ collaborations, industry-institute interface, sponsored or contract research, new knowledge generation, technology transfer, and commercialization of research to facilitate innovation, incubation, entrepreneurship and start-up ventures.

Committee 5: IPR, Legal & Ethical Matters

• This committee will function with the prime focus of enabling researchers to identify, generate and protect their intellectual property (IP) through filing procedures for rights like patents, copyrights, trademarks, designs, etc. This committee envision creating an environment for acquiring new knowledge through innovation, developing an attitude of prudent IP management practices and promoting an IPR culture compatible with the educational mission of the academic institution. This committee also provide advice

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and guidance to the academic community on all matters pertaining to academic research ethics.

Details of RAC and RDC members:

Research Advisory Council (RAC)

Sr. No.	Name	Designation	Contact Details
1.	Dr. Nirmal Sharma	Provost	provost@bmusurat.ac.in +91 9 <mark>8</mark> 25145905
2.	Dr. Piyush Desai	Research Advisor	dean.bmcbas@bmusurat.ac.in +91 9427785942
3.	Dr. Vineet C. Jain	Dean Research	director.bmcp@bmusurat.ac.in +91 9428139472
4.	Dr. Vineet Goel	Dean Academic	dean.academic@bmusurat.ac.in +91 9416170979
5.	Dr <mark>.</mark> Vijay Matawal <mark>a</mark>	Registrar	registrar@ <mark>b</mark> musurat.ac.in +91 9 <mark>4</mark> 28873979

Research & Development Cell (RDC)

Sr. No.	Head	Name	Contact Details
1.	Convener	Dr. Haritha H	ha <mark>rith</mark> a@bmusurat.ac.in +91 9446494794
2.	Finance & Infrastructure	Dr. Janki Vashi	janki.vashi@bmusurat.ac.in +91 9712488967
3.	Research Program & Policy Development	Dr. Zarna Dedania	zarna.dedania@bmusurat.ac.in +91 9427239022
4.	Collaboration & Community	Dr. Ankit Shah	ankit.shah@bmusurat.ac.in +91 9990875167
5.	Product Development, Monitoring and Commercialization	Dr. Vinod Ramani	vinod.ramani@bmusurat.ac.in +91 9913792913

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6	IPR, Legal & Ethical	Dr. Ronak	ronak.dedania@bmusurat.ac.in
0.	Matters	Dedania	+91 9426981481

A separate policy exists for each core committees for the smooth functioning of the RDC.

2.1 The roles and responsibilities of the RDC

- To formulate University Research Policy and identifying thrust areas of research.
- To create enabling provisions in Research Policies for recruitment of research personnel, procurement of equipment, and financial management with adequate autonomy to the Principal Investigator (PI) and disseminate research outcomes to stakeholders and the public at large
- To make recommendations to the academic council on matters related to research promotion and infrastructure
- To have better coordination among other cells/centers dealing with University-Industry Inter Linkage, Incubation, Innovation and Entrepreneurship Development and Intellectual Property Rights (IPR).
- To develop an Institutional Research Information System for sharing the status of ongoing/completed research projects/programmes, expertise & resources, etc., making effective use of Information & Communication Technology for preparing the database of in-house experts to provide industrial consultancy and services.
- To engage & utilize the services of superannuated active faculty/scientists in research capacity building of talented young minds and promote mobility of researchers across institutions and R&D Labs.
- To serve as nodal center for ideation and conceptualization of research topics/themes by
 organizing workshops and training programs and ensuring the integrity and ethical
 practices in research activities including clearance of bioethical committee wherever
 required.
- While it is expected that the researchers will generate their funds for undertaking the research activities, the University may also support the research activities. The extent of

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support will be decided based on the potential of research outcome on peer review. It is expected from the researcher to ensure potential benefits to the University. RDC will also facilitate designing of custom-made faculty development programmes in advanced areas to improve upon the skills of BMU faculty and researchers.

3. Responsibilities of Researchers

3.1. Responsibilities of Faculty to Both Staff and Students

- Faculty members must be aware of their obligations to staff and students working as part of the research team. It is particularly important that at least annually, each faculty member should review intellectual and tangible property rights and responsibilities (for management of data in all media, for proper authorship attribution, etc.), with all members of the group under his or her direction, including staff, students, postdocs, and visiting scholars.
- Each member has the right to know who is sponsoring the research and supporting his or her salary or stipend because BMU believes in academic transparency. The University is committed to demonstrate support and appreciation for its research staff. To that end, faculty members are encouraged to provide staff development opportunities (such as FDPs and special Training Courses or Workshops) and, if possible, a mentor relationship for those in their research group

3.2. Health and Safety

- Each faculty member is responsible for advising and helping members of his or her team in appropriate health, insurance and safety procedures that must be taken to work in a particular area of research, and for management of those procedures in his or her office or laboratory, studio or other workplaces.
- PIs are directly responsible to assure the periodic inspection of lab facilities, take corrective measures, if required, and to cooperate in any inspections by safety personnel

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or by external agencies. Faculty members also need to ensure that approved research protocols for the use of human and animal subjects in research are obtained and followed.

3.3. PI's Responsibilities to Sponsors

• Although the legal agreement funding a sponsored project is between the sponsor or sponsoring/funding agency and the BMU, the overall responsibility for management of a particular project within funding limitations rests with the PI. Funds must be spent judicially to remain within the restrictions of the contract or grant. If any overdraft should occur, or change of head is needed, it is the responsibility of the PI to get it approved both by within the administration and also by the sponsoring agencies.

3.4. PI's Responsibility for Research Equipment

• The control, upkeep and record-keeping of both BMU-funded and Government-owned equipment is mandatory under the university rules as well as under the externally funded contracts and grants. PIs are responsible for securing necessary approvals for the purchase of the equipment, proper tagging, and maintaining inventory, utilization of equipment and peripherals, and disposal once the equipment becomes either obsolete or dysfunctional and irreparable.

3.5. Preparation of Proposals and Application for Extensions or Continuation

• The cost of proposal preparation activities in support of new directions in research or for continuation of the projects could be charged to existing or sponsored projects. Department Head or Faculty Dean (college-wise) must ensure that some research related funds could be made available to create new proposals. It could perhaps come from the earlier project overheads deducted by the University. The cost of proposal preparation efforts for continuing research is appropriately charged to current projects.

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4. Administration

- The established organizational structure (Bodies, Authorities, and Committees) will
 facilitate planning, implementation, and monitoring of research activities in BMU,
 formulate rules, regulations, and policy frameworks for utilization of facilities and
 resources at BMU.
- A strategy adopted to integrate multiple functional units can support institutional research under a single-window operational system for effective administration. The activities of RDC will be mentored and monitored by various committees for devising research models, technology, appraisal, foresight & review functions, mediating sectoral R&D progress, and IPR protection. The RDC will keep a close contact with Ministry Innovation Cell to make use of various innovative plans for facilitating the researchers.

5. Research Ecosystem/Collaboration

A vibrant research ecosystem in BMU aims to provide meaningful thrust for sustainable research and innovation and promote collaboration between government, universities, research institutes and industries.

BMU need to build a sustainable research ecosystem that leads to consistent quality research outcomes and enhanced productivity. In order to make RDC functionality viable:

- A) BMU need to establish college/ institute-wise research forum headed by a research coordinator. All senior faculties and Ph.D./PG supervisors will be the members of the constituted Research Forum. The Forum's mission, aims, objectives and planned activities should support the BMU's research and knowledge transfer strategy in that it seeks to support and extend the research environment by:
- Ensuring that its members undertake and disseminate excellent research and knowledge transfer

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- Promoting an environment within which staff and students are able, encouraged and
 facilitated to translate their research and entrepreneurial activities into effective
 technology, knowledge transfer and exchange services to business, industry and other
 potential users and apply research within the community
- Sustaining and developing the quality of the college's research environment to ensure the continued support of the University's academic staff and research students
- Supporting the BMU's data-monitoring and management activities related to the research

Briefly, the Forum will create a persistent research culture which inspires and enables innovative research, in which academic staff expect to undertake and disseminate excellent research and knowledge transfer and receive due recognition from peers, the University and the wider community for achievements in their research areas'.

- BMU need to set up an idea lab for encouraging students for application of science, technology, engineering and mathematics fundamentals towards enhanced hands-on experience, learning by doing and even product visualization. IDEA Lab can serve as a common facility to the students and faculty members to "engage, explore, experience, express and excel", addressing the need of new age learning. IDEA Lab would serve as an infrastructure for faculty to take up and promote multidisciplinary education and research. Accordingly, faculty would be encouraged to get trained in these Labs and strive for creating problems/ projects/ internships in their own subjects/ disciplines and mentor the students.
- BMU should develop a connection with RDCs of already well-known/established HEIs for their research. RDC can act as a facilitator for networking and collaborative research with other national and international institutions working in interdisciplinary, transdisciplinary, and multidisciplinary research areas.
- BMU need to establish collaborations, teams/consortia, partnerships, and combined ventures for joint research activities through clustering institutions and organizations to

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facilitate the exchange of students, scholars, and faculty. There is a need to strengthen resource sharing in content and infrastructure both within the university and among universities, funding agencies, industries, corporate and government.

6. Information Management System

- BMU play a key role in the advancement of research and innovation as two distinct entitiesthrough Research Information Management System (RIMS) for the benefit of faculty, students, industry and other stakeholders. BMU will put in place a RIMS to collect and manage research-oriented information, databases, publications, research projects, fellowships, collaborations, patents, thrust areas, innovations etc. aligned with the institution's research policies. RIMS would also provide a platform for accessing resource-centric information pertaining to human capital (Expertise), physical capital (State- of-Art Research Laboratories and Sophisticated Instrumentation Facility), and knowledge capital (Digital Library & Information, Intellectual Property Facilitation, Quantitative Methods & Data Analysis, Analytical and Consultancy Services). As per the requirements of various regulatory agencies, researchers can submit, modify, or update their research compliances such as protocol approval, training records, equipment lists, etc. RIMS can provide a centralized and integrated database to manage issues related to and radioactive-safety approval clearances for use and disposal of biological, chemical and radioactive hazardous materials, protective equipment measures, surveillance of staff, appropriate trainings/workshops, etc.
- BMU needs to create a blog or portal for Institutional Research Information and Institutional Repository and sign MoU with UGC- INFLIBNET to access and upload the research information through Shodh Ganga, Shodh Gangotri, Shodh Sindhu, Shodh Shuddhi, and Shodh Chakra. The Innovation Management (ISO 56002:2019) can be implemented as a common framework to develop and deploy innovation capabilities, evaluate performance, and achieve intendedoutcomes of global standards.

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7. Human Resources

- The Director (RDC), the coordinators and members of various committees (nominated by the Director-RDC from/among the existing faculties with research credentials) and supporting administrative/technical staff would ensure smooth conduct of the research activities in BMU.
- Re-employing or designating superannuated faculty/scientists with exceptional research profiles and eminent faculty as Mentors/ Scientists/ Professor Emeritus on a selective basis will help to build a resilient research ecosystem. Distinguished faculties or research scientistsgrooming young talents can help replenish the void created as a result of superannuated faculty/ researchers.

8. Research Promotion & Guidance

• Research promotion activities at the BMU should be aligned with the mandates of various National Missions, SDGs, and Start-up India leading to a Self-Reliant India (Atma-Nirbhar Bharat). Research Guidance from RDC will aim to encourage faculties to conceive ideas through enhanced industry-academia interactions and prepare research proposals for funding from various agencies. Organizing events like capacity-building programs (Research Methodology and Research Techniques) and specific research theme-based workshops and Research Internships will motivate the end-users (students, scholars, and faculties) to participate actively in the process of ideation and innovative research in emerging areas.

8.1. Research Thrust and Clustered Areas

• Thrust areas for research in BMU should be identified, underpinning the societal needs and the availability of key resources, including in-house human resources, faculty research competencies, and support systems. This would enable BMU to consider establishing a Center of Excellence (CoE) in these identified contemporary areas of research.

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- Research Clusters and/or Regional Research Consortia prompted/formed by RDC to bring all researchers, faculty, students, scholars, and Post-Doctoral Fellows for joint high value (interdisciplinary and trans-disciplinary) research projects to avail national and international funding opportunities. Shared infrastructure and expertise will enable cross- fertilization of ideas and mobilization of resources. Further, forming Regional Research Consortia adds a synergistic advantage in finding solutions in inter-disciplinary, trans- disciplinary, and multidisciplinary areas.
- CoEs' can serve as Incubation Centres to transform innovative ideas into processes and products administered and monitored by the proposed RDC. RDC could also provide an avenue for community talent with prior learning/expertise to engage in research and innovation activities of BMU.

8.2. Research Incentives/ Financial Support and Recognition

- Incentives/ financial support play a significant role in triggering and catalyzing research interest among scholars and faculties. Incentivizing quality publications and patents by students and facultywill have an enduring positive impact.
- RDC shall facilitate resource mobilization and create a Corpus for research and developmentfrom government, industry, and other funding agencies and channelize Corporate Social Responsibility (CSR) funds for sustenance and furtherance of research activities. Apart from creating a Corpus fund exclusively for R&D, RDC shall explore venture capitalists and angel investors for funding in research and innovation. RDC will mediate with funding agencies, and track funding opportunities from industrial consortia. The BMU may make provision for research in the annual budget subject to the availability of funds. The corpus created for research could also support the seed funding for freshly recruited faculty for developing research facilities, publications and patenting. A separate policy exists for identifying research funding and intensives for faculty.

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9. Technology Development and Business Centered Facility

• The Technology Development and business-centered facility will be a hub for strategic partnerships/ collaborations, industry-institute interface, sponsored or contract research, new knowledge generation, IPR, and patent services, venture capital, trade/market portfolio, technology transfer, and commercialization of research to facilitate innovation, incubation, entrepreneurship and start-up ventures. A separate policy exists for facilitating collaboration for mutual benefits and to maximize industrial connectivity.

10. Integrity and Ethics तमसो मा ज्योतिगेमय

• Regular initiatives by RDC will ensure that researchers understand the importance of integrity and ethics and comply with ethical codes of research and publishing practices at institutional, national, and global levels. A standard plagiarism check should be mandatorily implemented and the requisite software in this regard should be made accessible to all researchers. In addition, the RDC will sensitize the research community about research misconduct, god publishing practices and details about predatory and non- predatory journals. A separate policy exists for facilitating IPR, Legal & Ethical Matters.

11. Capacity Building

• RDC would play a crucial role in building the capacity of faculty and students to undertake research problems in line with the latest advances in diverse disciplines to push the boundaries of knowledge through publications and contribute to technological developments relevant to societal needs. It would also pave the way for BMU to attract more research grants under norm-based funding, improve its accreditation ranking and enhanceits brand image. Regular events such as refresher courses, workshops, trainings/internships, group discussions and

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seminars/conferences may be organized for capacity building. RDC would play a pivotal role in creating central R&D facilities with the provisioning of associated training/internship thereon.

12. Research Monitoring

- The current policy environment in BMU to be responsible and accountable for research development and innovation activities through the creation of infrastructure, generation of resources, promotion of business, and facilitation of policy framework to nurture the culture of quality research by adhering to ethical practices. Among the standard functions, the RDC in BMU shall monitor and oversee research progress, coordinate program, manage and facilitate resources required for research, timely review of research activities for completion of the projects as per schedule.
- BMU need to formulate and adhere to specific quality benchmarks for research to meet the global/international standards. The proposed RDC should conduct a quality review or internal evaluation of the research papers and suggest Scopus Indexed, Web of Science (WoS), or UGC-CARE recognized journals for appropriate publications.
- R & D Cell of BMU must ensure that all the Research Labs in the institution fulfill the normsof Good Laboratory Practices (GLP) and Safety (Bio and Chemical) measures, recognized as Quality Improvement Programme (QIP) centre and by the National Accreditation Board of Laboratories (NABL).

Checked by: 18 Approved by: