

GMIT RESEARCH STRATEGY 2025

by the Academic Senate Committee for Research
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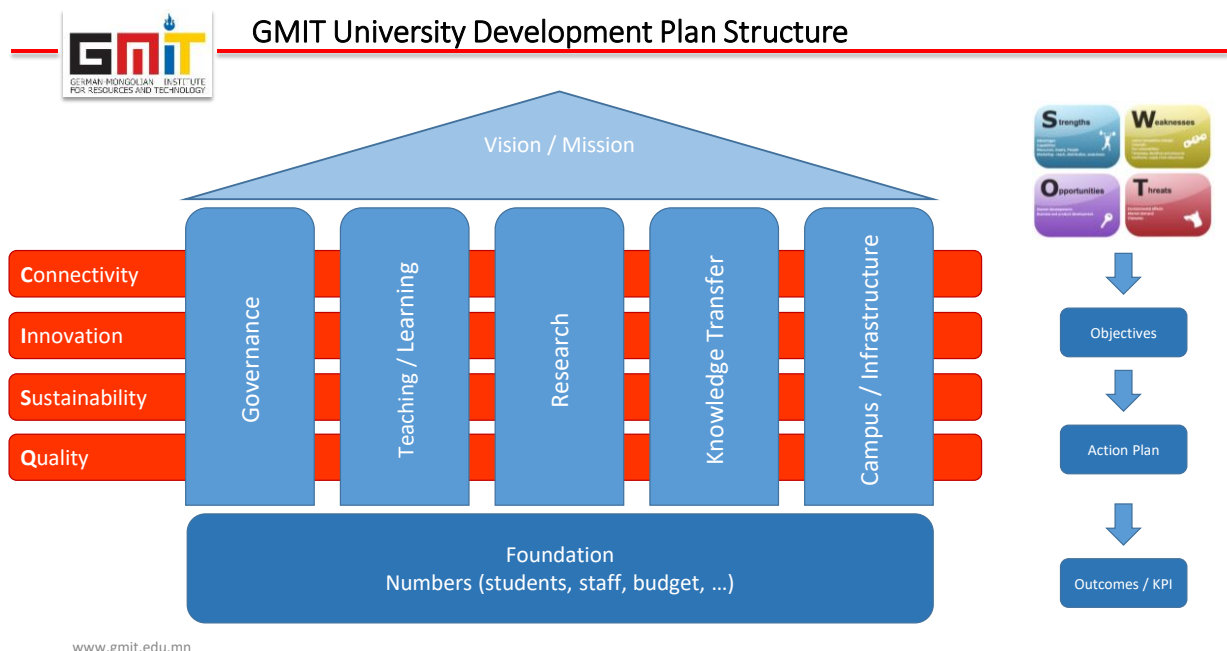
1 EXECUTIVE SUMMARY

The GMIT Research Strategy 2025 forces the university to an internationally leading research level of applied sciences. This document summarizes all strategic components of the research plan to achieve GMIT's research mission.

Based on our University Development Plan 2025, the research strategy includes three main research aims, the research areas and the supporting structure needed to fulfill our strategic goal.

2 INTRODUCTION

The GMIT research strategy is driven by the needs of the Mongolian industry and society. Subject expertise from a range of areas like Environmental Engineering, Raw Material Processing as well as basic sciences is integrated to pose new issues and find creative solutions to the problems facing the Mongolian even the Asian society. We are committed to maintaining our leading role in Mongolian education and research in aspects of mechanical and environmental sciences, raw material process developing our nascent groups in inclusive technologies for sustainability, well-being and security, impact and demand driven knowledge exchange based on inter-disciplinary research topics that align with our teaching activities and government priorities.



3 MISSION

The GMIT's research mission is to conduct cutting-edge research in applied science and technology, to create innovative technologies motivated by the needs of industry and society for the benefit of the Mongolian economic and social development.

4 RESEARCH IN THE GMIT UDP 2025

In our GMIT University Development Plan we defined the following goal:

*To develop a strong reputation for its quality
applied research in Mongolia and beyond*

There are our objectives and strategic actions:

- a) GMIT will aim to foster and promote interdisciplinary applied research in core areas**
 - Identify, develop, and sustain the need-based core research areas
 - Develop and sustain a high-quality research environment and infrastructure
 - Promote interdisciplinary research and develop university-wide research initiatives
- b) Consistent with becoming a research university, GMIT will develop research-based graduate programs**
 - integrating teaching and learning
 - Establish research-based graduate programs
- c) GMIT will aim to develop a culture of entrepreneurship promoting sponsored research**
 - Develop and foster 3rd party funded research activities
 - Establish research development fund
 - Promote research-based service culture
- d) GMIT will strive to develop a sustainable research network internationally and nationally**
 - Develop an industry-university research platform
 - Promote industry involvement in teaching and research
 - Promote international cooperation
 - Promote cooperation with other national research institutions

5 FIRST AIM: DEVELOPING EXCELLENCE IN APPLIED RESEARCH

5.1 Expectations of academic staff

GMIT expects academic staff to undertake research meeting international standards of excellence and to publish the research results through appropriate channels, including publication, teaching, commercialization and engagement with policymaking and the public.



The GMIT research strategy requires its established researchers to demonstrate sustained leadership:

- in their scientific area
- through teamwork and networking internally and with external partners
- by supporting and developing young career researchers

5.2 Meeting the demand of Mongolian and Asian societies and industries

GMIT will build a world-class profile by creating and maintaining national research leadership via focusing on selected research areas, e.g., mining, mineral processing, renewable and non-renewable energy and environmental engineering and meet those demands by research, development and technology transfer. Applied research driven by needs of industry and society where the individual curiosity and imagination will be the foundation of human intellectual advance and the benefits that provide, and is central to GMIT's concept of excellence and leadership.



5.3 Attracting, retaining and cultivating academic leadership

GMIT's research excellence is determined by the qualified academic staff. In order to attract and cultivate intellectual leaders, GMIT will provide a positive and creative research environment, and offer appropriate incentives and support, such as competitive salaries on a national level, space and cutting-edge equipment; access to ambitious graduate

students; appropriate teaching opportunities and responsibilities. To attract research leaders, GMIT will increase the number of its researchers holding personal fellowships or awards.

We are committed to recruiting and retaining the best academic staff from a wide range of backgrounds considering race, gender and sexuality, social and educational backgrounds. The recruitment and training of high-quality early career researchers are critical to a university's long-term success. GMIT will support professional careers and create opportunities for young researchers to take leadership roles around their appropriate fields.

5.4 Improve and develop students' research experience

GMIT will provide the high-quality learning environment and promote the best students by involving them in research projects. GMIT will develop strategic and innovative programs – such as Ph.D. and postdoctoral programs.

Our intention is always to develop programs that support the student on a career path towards becoming a leader in research or a related activity that benefits from their research-based and leadership skills. In order to provide more opportunities at GMIT for research students from foreign countries, we will aim to diversify our range of funding sources for research students and to make significantly more additional scholarships available to foreign students.

We will promote our research students through exchange partnerships and travel funds, in recognition of the benefits to their career prospects in both research and other fields.



6 SECOND AIM: INTERDISCIPLINARY RESEARCH GROUNDED IN EXPERTISE

6.1 Strengthening impact through interdisciplinary research

Our interdisciplinary interaction between research leaders will become best-practice to find solutions that can address effectively aspects of the major issues of the 21st century in Mongolia as well as Asia. GMIT will, therefore, increase and strengthen as appropriate interdisciplinary research, to come together and optimize their joint impact. When gaps in expertise spanning a number of fields are identified, departments and faculties will be encouraged to adopt a cooperative approach to joint appointments. GMIT will facilitate and promote collaboration between researchers, research groups and industry partners.

GMIT also provide an environment in which researchers are encouraged to think about how their work can intersect with and impact upon global issues. GMIT will increase activities within each researcher will expand the opportunities for involvement, within and beyond the university, including increased student participation; seek to engage alumni and external funders; and maximize their impact on policy and practice, and engagement with the public.

6.2 Fostering interdisciplinary interaction

Much interdisciplinary interaction occurs spontaneously, but fostering it at scale requires a more directed and proactive approach:

- sustaining a broad and excellent research spectrum
- fostering an environment where openness to interdisciplinary interaction is considered a significant aspect of leadership
- supporting leaders through the difficult process of finding funding for interdisciplinary research activities through the expertise of research facilitators
- supporting those academic departments that already adopt an interdisciplinary approach
- providing thematic contexts for interdisciplinary interaction



7 THIRD AIM: REALISING THE IMPACT OF GMIT TO THE INDUSTRY AND SOCIETY

7.1 Outputs

GMIT will ensure that the research results are as widely available as possible. GMIT will solve industrial technical and technological problems based on the industrial demand, e.g. to increase the lifetime of the machine parts and effectiveness and availability of the processes, reduce environmental pollutions to create a healthy and safe environment.

The main factor of the research strategy is the further development of a searchable database which records the GMIT's research activities. GMIT will provide a resource for industries and external partners to gain an insight into the extent of their activity in a particular area.

7.2 Strategic partnerships

Strategic partnerships can bring together complementary strengths and deepen the impact of interdisciplinary research. GMIT will form strategic partnerships – for example with other research organizations, with commerce and industry and NGO's to force the impact of our research. GMIT will further enhance existing international and national partnerships and create new ones as appropriate.

7.3 Engagement

We will make our research results accessible and comprehensible to the public, and engage in responsible and mutually beneficial debate. GMIT will further develop its reputation as a source of excellent research which can inform policymaking, and as a source of evidence-based policy solutions.



In particular, we will seek to bring our expertise in the engineering sciences to serve public, policy and commercial concern. GMIT will work with governments, as well as with non-governmental organizations, think-tanks and others, to identify and respond to public policy needs. GMIT will build a connection between academics and policymakers.

GMIT will expand the engagement of its research leaders with enterprise and establish sustained relationships. GMIT will actively share its research results with industry partners, shareholders and interested publics. GMIT will build strong

connections with alumni and Friends of GMIT. We will engage with them as potential research collaborators, advisers, investors and donors.

7.4 Proactive communications

In recent years communications activity has increased and ensured organizational reputation. This reflects the quality and purpose of GMIT's research; specific research outcomes as exemplars of institutional quality. A further consolidation of external contacts among departments and administrative offices will be undertaken at the faculty level, without undermining existing personal or institutional relationships. Channels will be developed to facilitate the dissemination of research results.



7.5 Entrepreneurship

GMIT will develop a culture of entrepreneurship to transform the scientific results into economic success. To facilitate this activities a sustainable strategy on university level will be created. GMIT

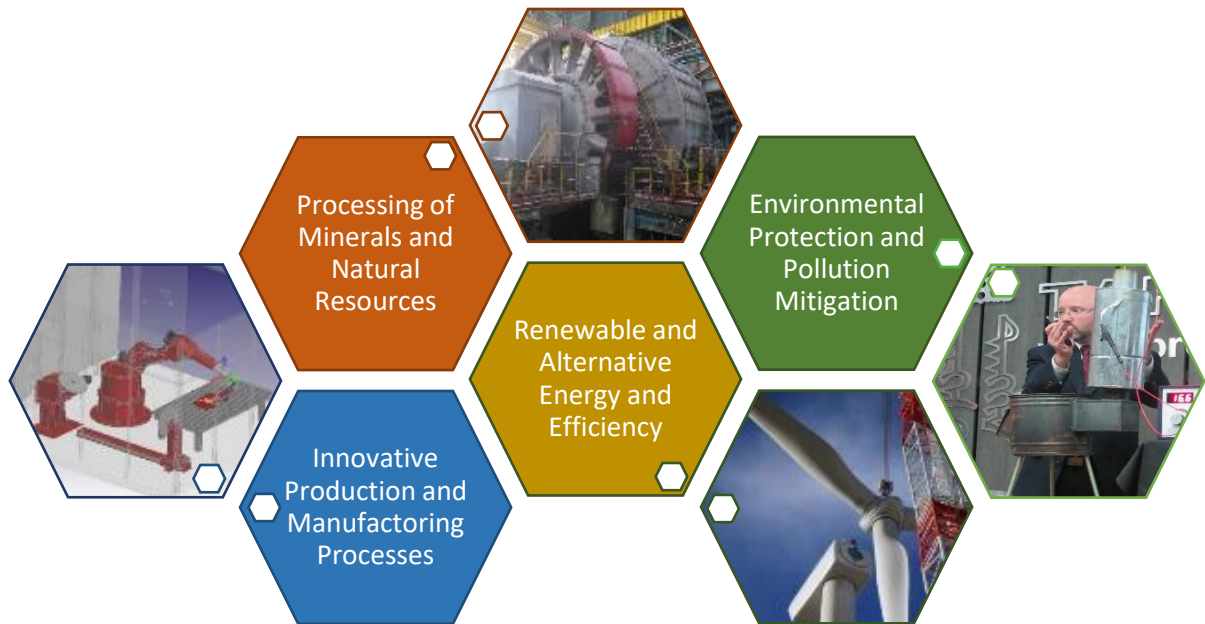


will reward faculty for the development of Intellectual Property (IP) and start-up and spinoff companies by including these activities in the annual evaluation of faculty and in the considerations for reappointment, tenure and promotion. GMIT will encourage a spirit of entrepreneurship within the university that empowers faculty to develop resources necessary to establish new innovative teaching, research and service programs.

8 RESEARCH AREAS

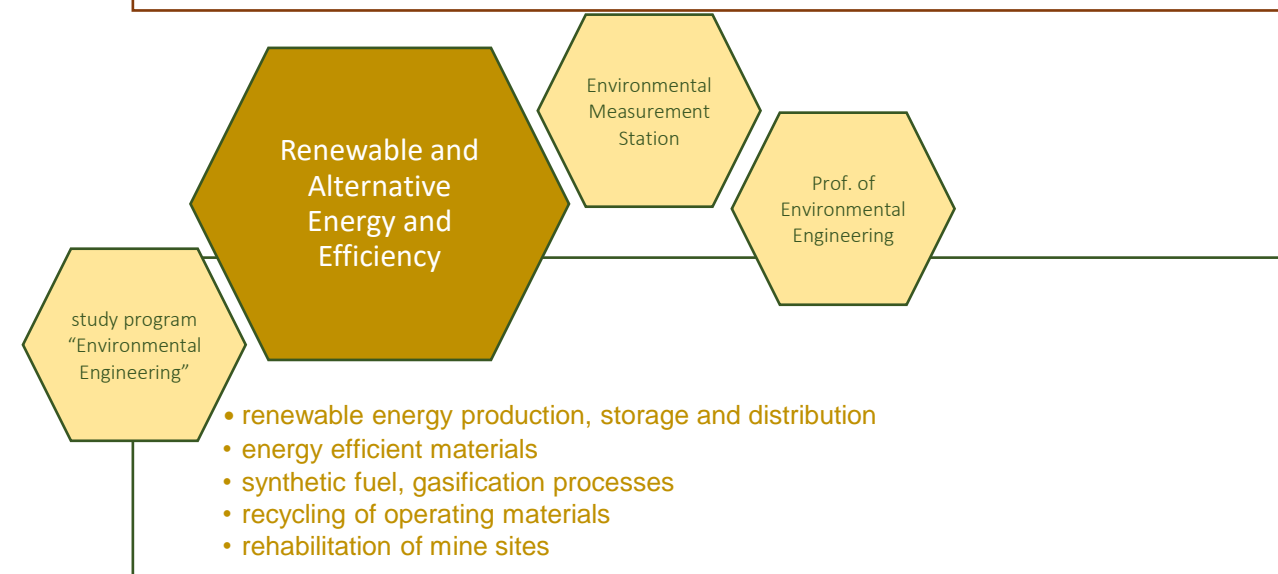
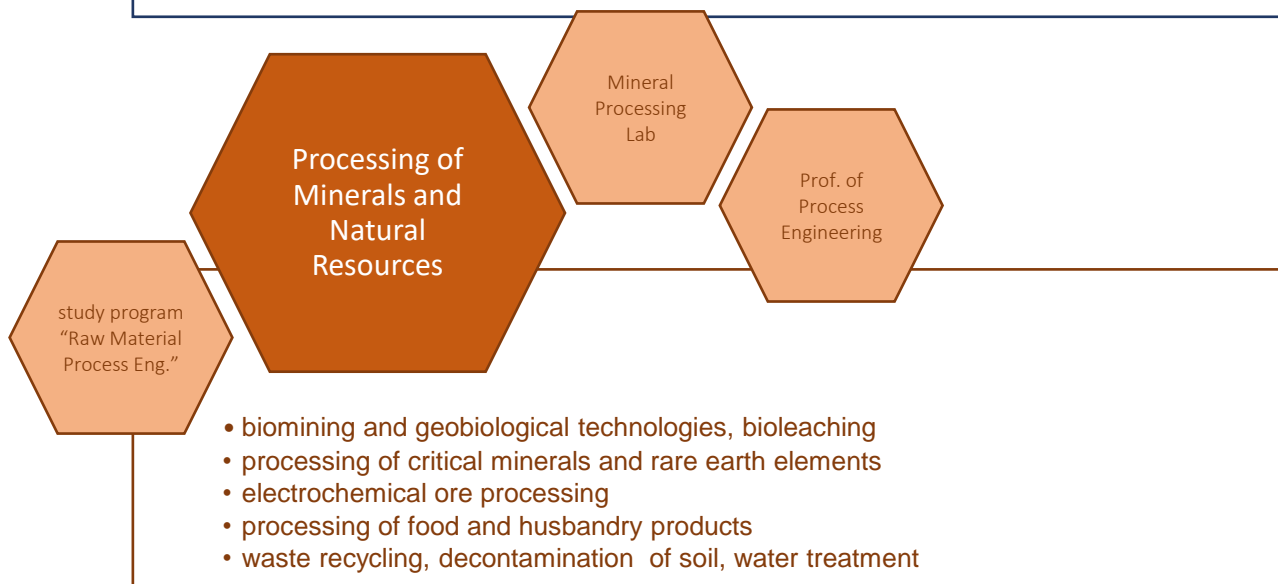
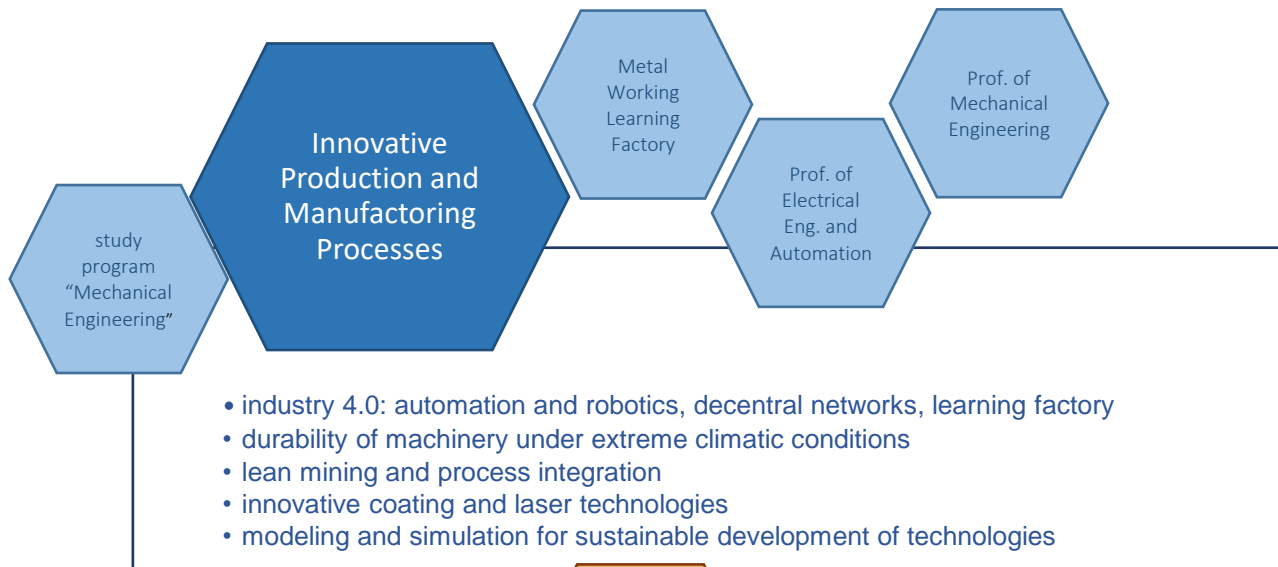
We will strengthen our Research on international level by using applied research initiatives through individual efforts and collaborative partnerships with industry as well as academia.

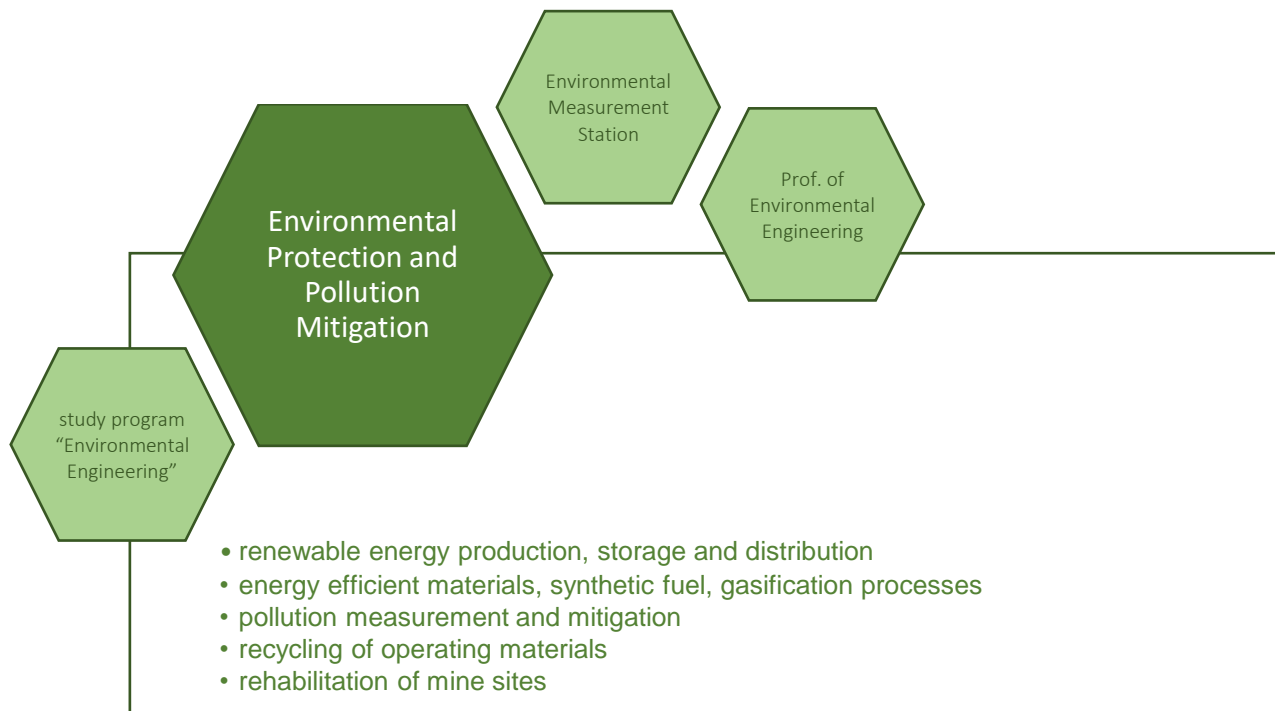
Our Research profile is defined by the following main areas:



Matrix of interdisciplinary applied research regarding the current and the *planned* GMIT study programs:

Study Programs	Innovative Production and Manufacturing Processes	Processing of Minerals and Natural Resources	Renewable and Alternative Energy and Efficiency	Environmental Protection and Pollution Mitigation
B.Sc. Mechanical Engineering	X	X	X	
B.Sc. Raw Material Process Engineering	X	X	X	X
B.Sc. Environmental Engineering	X		X	X
B.Sc. Industrial Engineering	X	X		
B.Sc. (Renewable) Energy Engineering	X	X	X	X
B.Sc. Mechatronics	X	X		
M.Sc. Int. Management of Resources and Environment		X	X	X
M.Sc. Health Safety and Environmental Management		X		X





9 SUPPORTING OUR VISION

9.1 Infrastructure, labs

GMIT will provide researchers with suitable infrastructure, facilities, library resources, lab equipment and support in order to enable them to compete with the best in Mongolia.

In cooperation with our German partners, a sustainable laboratory strategy is developed to cover the needs regarding education, research and investigations for partners from industry and community.

9.2 Funding and Grants

GMIT will ensure that comprehensive, fully resourced and sustainable funding streams and mechanisms are in place, either from external agencies or from the use of internal resources, to facilitate and promote excellence in areas of agreed strategic priority. GMIT seeks funding for research through three main activities: grant applications, engagement with commercial partners and using foreign sources.

9.3 Research Excellence Framework with external academic and commercial partners

The developing of a Research Excellence Framework (REF) is about more than funding – it also provides an assessment of research quality and has reputational significance.



As a leading applied science university in Mongolia, GMIT is committed to widespread collaboration with commercial and social enterprises in order to maximize the societal impact of our research and as a potential source of income. There are many opportunities for the GMIT research community to provide expertise, skills, services and products to external partners, collaborators and customers.

We aim to establish GMIT as a leading research collaborator and provider of knowledge-based services to the commercial sectors, as part of our commitment to long-term impact and sustainable economic prosperity for Mongolia. GMIT will respond to the priorities of business and industry and seek to maximize the mutual benefit of enterprise activities such as contract research, consultancy, licensing and continuing professional development.

9.4 Benchmarks

Achieving our mission GMIT is setting following general benchmarks related to research activities:

- Increase the Number of Research staff: ca.50% by 2025
- Increase the Number of Research Projects:
10 projects by 2020, 30 projects 2025
- Strengthen collaborative research with other universities and institutes: 10-15 joint research projects by 2025
- Industry Collaboration: Develop collaborative research partnerships with industries 10 collaborative research with industries
- Expand Graduate Programs: Increase the number graduate student enrollment by 20% by 2020. Increase the graduate programs to 6 by 2025.



- Graduate Scholarships: Increase competitive graduate scholarships by 50% in 2021.
- Increase the Level of Funding. Establish GMIT-Research Funding.

To fulfill our goals in research, benchmarks for each strategic action is defined in the GMIT University Development Plan 2025.

9.5 Governance and Administration

Research priorities are determined at the faculty level by the Faculty Deans in consultation with the Academic Senate Committee for Research. Faculties identify their priorities – including infrastructure requirements – in their individual strategic plans, which are then considered by the Academic Senate.

Limited resources will need to be directed to those developments in line with agreed strategic priorities; greater cooperation will be required between faculties in making these decisions. Faculty Deans have a particular responsibility to manage and optimize the research performance.

GMIT will continue to develop supportive administrative and financial structures that will facilitate research, enabling academics to use their research time to maximum effect, together with information networks to facilitate communication and inform strategy. Shared facilities will be enhanced.

