



**MGMUNIVERSITY**  
AURANGABAD

## **INSTITUTE OF BIOSCIENCES & TECHNOLOGY**

### **PROFESSIONAL PG-DEGREE PROGRAM**

### **M.SC. (INDUSTRIAL MICROBIOLOGY)**

<b>Professional Degree Awarded</b>	<b>M.Sc. Masters of Science</b>
<b>Duration of the Degree Program</b>	<b>Two Years Research Program</b>
<b>Semester</b>	<b>Four (4)</b>
<b>Intake</b>	<b>20</b>
<b>Tuition Fee</b>	<b>Rs. 1,00,000/-</b>

#### **PROGRAM OVERVIEW**

- The program aims to provide specialised training in large scale growth and utilisation of microbial and cell cultures. The practical component of this program provides students with the chance to propose and carry out their own fermentations.
- The program develops the theoretical knowledge, understanding, and practical skills needed for a solid grounding in core and industrial microbiology.
- It empowers students with technical skill-set and capacities to provide career opportunities in key domains of Industrial microbiology: Research & Development (Academic & Industrial Sectors), Bio business companies, Breweries, Seed industries, pharmacy, Dairy, Forensics and plant diagnostic centre.
- The students are trained with specialized knowledge and practical experience for addressing contemporary problems in both academic and industrial settings.
- The program promotes an understanding of interdisciplinary approaches and technologies used in the analysis of complex biological information.

## PROGRAM DESCRIPTION

- The first term features modules that have been designed to provide students with core theoretical knowledge on current microbiology topics and practical training on techniques used in modern Industrial microbiology. The modules aim to enhance practical skills and provide specialist training in medical, industrial, and environmental microbiology.
- Modules include: Infection and Control, Industrial and Environmental Microbiology, Fermentation Biotechnology, Professional and Research Skills in the Biosciences.
- Our PG Degree program will enable you to learn about the science behind Industrial microbiology while also looking at how to succeed in a career in the bio industry.
- You will learn how new start-up Industrial microcompanies are created, as well as about exploring the market potential of products and processes, creating business plans and raising wealth from venture capitalists.
- Our group enterprise projects, which involve close collaboration with entrepreneurs, provide a great opportunity for you to stand out from other graduates.

## SPECIAL FEATURES

- Students can conduct practical work with industry-standard apparatus. Equipment and facilities available for students undertaking research projects include a cell culture suite, analytical chemistry instrumentation, protein purification equipment, a scanning electron microscope and real-time polymerase chain reaction equipment for the amplification and quantification of DNA samples.
- The Program is designed to build a strong foundation based on theoretical knowledge and specialized practical training.
- Provides exposure to various fields of life sciences with its application in Industrial microbiology.
- Designed to develop an inclination for entrepreneurship
- Provides exposure to next-generation technologies
- Provides the basic and advanced academic, research, and industry-based curriculum consisting core, advanced, optional, and specific courses for the holistic development of students in life science
- Prepares the students for campus recruitment

## PROGRAM STRUCTURE

- Two-year program with 68 choice-based credits to equate the professional degree
- Specialized experimental training with special attention to each individual through the 'Exploration Workshop'
- Special Open Elective course for students per semester
- Specialized labs with highly automated instruments
- Interactive learning with e-classrooms
- A complete package with an idea about various fields associated with industrial microbiology and life sciences
- As a final year student, you will have an opportunity to undertake a project in the labs of our world-class bioscience researchers. To support our research, we have extensive research facilities equipped with high-quality technology.

## PROGRAM CONTENTS

The new course curriculum provides ample opportunities to the students to specialize in several different areas of Concepts and Principles of Genetics, Principles and Practices of Industrial Micro, Principles of Population Genetics, Introduction to Cytogenetics, Advances in Quantitative Genetics, Radiobiology.

## TEACHING AND LEARNING

- Education is by theory, practical, tutorials, seminars and supervised research projects.
- In this program you'll be taught by our proficient academician, well known scientist and industrialist
- The syllabus based on bloom's taxonomy. Students will learn through practical oriented coursework.
- Well-equipped digital lecture hall Computer lab, Seminar hall, Workshop, problem-based learning etc.

## LEARNING FACILITIES

Our modern teaching labs are equipped for a range of Industrial micro technologies. Below are a few of them:

- Polymerase chain reaction (PCR); DNA sequencing; gel electrophoresis; Spectro-photometry; dissection and histology; Data Analysis, etc.
- Our computing facilities include access to over 200 PCs in dedicated clusters and e-learning tools including online lecture notes, discussion boards, lecture podcasts and quizzes.

## RESEARCH FACILITIES

In the Research Skills unit, you will have the freedom to carry out techniques that are widely used in current biological science research. Final year topics reflect the current hotspots of Industrial microendeavour and the research interests of our staff, and are constantly being updated. You will undertake an independent in-depth research project that may involve supervised practical work in a laboratory, or you may choose to work on e-learning, educational, data analysis, enterprise topics.

## COURSEWORK AND ASSESSMENT

- Assessment is conducted through coursework and examinations. Coursework includes literature reviews, oral presentations, poster presentations, laboratory reports, and short video assessments. The final assessments are the preparation of a research dissertation for your research project and an associated presentation.
- Specific training on each form of assessment is included in the programme, with the aim of improving your performance as a postgraduate student as you progress.
- The relative weightage to the various examinations, course work, group project, lab report, oral examination, poster presentation, research project, case study, study tour, unit test, quiz, home assignment, seminar and record maintained during a semester shall be considered for assessment. Assessment is by Program work and written Semester End Examination which take place at the end of each semester.

## DISABILITY SUPPORT

Practical support and advice for current students and applicants is available from the Disability Advisory and Support Service. Email: [admin@mgmibt.com](mailto:admin@mgmibt.com)

## PLACEMENTS AND CAREER OPPORTUNITIES

- The overall aim of the MSc Industrial Microbiology degree is to provide students with the chance to develop knowledge and practical skills in the cross-disciplinary applications of microbiology that are relevant to science and society.
- Our graduates may choose to work in industry, academia or a bioinformatics company.
- Career options also include working as a geneticist in the field of medical research.
- You are not limited to the biotechnology industries, however, and may go into a variety of careers.
- Find out more about how we help our students prepare for the workplace and the careers our post graduates go into within and outside the lab.

## ALUMNI

Our students were placed in different companies like Serum Institute, Pfizer, Wockhardt, Mahyco, Bejosheetal, Ajit seed, Serum, Lupin, Biocon, Aptuit Informatics, Bigtec, Bio Images India, Innoplexus, Genotype, Helix Infosystem, Mascon life Science, Novo Informatics, Krushidhan, Ocimum Biosolution, Infosys, Wipro, Dr. Reddy's Lab, Glaxo Smithkline, Novozyme, FDC, Harman, Panacea Biotech, Reliance Life Sciences, Bioera, Ankur seeds, Nath Seeds, Sygene International, Monsanto India, DuPont, Nuziveedu Seeds, Jindal Seeds, Advanta Limited, Rallies India, Metahelix , Springer, Krushidhan, Dr. Reddys, Biocon, National Institute of Virology, National Chemical Lab, Government agriculture department and university , Government and private colleges etc.

## INDUSTRY COLLABORATION

At the MGMUIBT we know the value of working together. We break down barriers and get involved; we collaborate across disciplines, cultures to solve state, national and global problems; and we transform people's lives by making positive change across the India and world.

Partner with us today, and discover what a difference we could make to your-our-future. We engage with big companies to small scale companies like Mahyco, wockhardt, Metahelix, Jindal seeds, Ulman Lab, Matrix Life sciences, Probus, CFTRI, NIN, CIFE.



### Contact us

Admission: <https://mgmu.ac.in/admissions/>

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MGM University, established by the widely revered Mahatma Gandhi Mission Trust, is a self-financed State University. It has the 2(f) status of the University Grants Commission of India (UGC) and is approved by the Government of Maharashtra.

**MGM Institute of Biosciences & Technology** is a constituent college of **MGM University** from 2019. The institute has excellent infrastructure, and students can access all the facilities, in the areas of sports and culture, in the environs of the green, safe, and eco-friendly, **MGM Campus**.