



**MIT ADTU School of
Bioengineering Sciences
& Research**

Breathe Life into Engineering Career!

A Constituent Unit Of MIT ADT University



**MIT-ADT
UNIVERSITY**
PUNE, INDIA

A Leap Towards World Class Education

(Accredited by NAAC with "A" Grade)

MIT ADTU School of Bioengineering Sciences & Research, MIT ADT University, Pune



Advanced Certificate Courses for Working Professionals

About School of Bioengineering

The MIT ADTU School of Bioengineering offers UG, PG and PhD programs in various specialization of Bioengineering since 2016. The institute is well endowed with state of art labs, two centers of excellence and well qualified faculty with research and industry experience. It is recognized by DSIR SIRO for its in house research. Bioengineering is a multi-disciplinary field bridging the gap between biology and engineering sciences and is fast becoming a globally expanding academic discipline. The School of Bioengineering Sciences & Research aims to upskill industry professionals in bioengineering areas by imparting super specialized training through blended learning approach. The courses are designed in sync with the current ecosystem in bioengineering as well as anticipated future technological advancements.

Program Overview

Rapid technological development has created significant skills gaps across industries so there is a dire need for upskilling programs that enhance employee capabilities and drive organizational performance. We are facing unprecedented technological disruptions leading to **evolving market demands**, hence hybrid programs that combine online and offline training, offer a strategic solution which is cost effective and flexible.

Businesses, specially in life sciences context face a talent paradox, majority companies report skill gaps and traditional methods are inadequate to keep pace with the change. The half life of technical skills in current scenario is barely **2.5 years** necessitating **continuous skill enhancement** without disturbing daily operations. Virtual learning platforms alone are insufficient without the hands-on experience and peer collaboration essential for acquiring deep tech skills. A hybrid upskilling course that strategically combines digital learning modules with weekend practical sessions, micro credentials customized to the particular industry vertical is the key solution. Technical skills enhancement coupled with an immersive back to campus experience in academia for the trainees will build an organization culture that will promotes productivity and performance.

Bioinformatics and Biotechnology are rapidly growing disciplines driven by the integration of technological advances with life sciences. Massive amounts of data is being generated by genomic sequencing, proteomics, metabolomics, and clinical trials. Professionals who can interpret this data and derive meaningful insights are in high demand in the industry for product development and strategic decisions. Modern biotechnology requires integration of lab scale discoveries with industrial scale implementation. Accordingly the institute offers **two advanced certificate courses** viz. Bioinformatics Skills and Techniques and Biotechnology Applications in Industry with clear learning outcomes tied to business priorities.

Objectives of the Advanced Certificate Course in Biotechnology

- Understand and analyze practical applications of bio-technology in food and agri bioprocessing by applying biosensor and omics technologies for food safety and quality control.
- Apply knowledge of upstream and down stream bioprocessing for pharmaceutical product development, including bioreactor design, cell culture, fermentation, chromatographic purification and formulation.
- Evaluate the use of gene therapy and RNA based therapeutics siRNA, mRNA in treating genetic and infectious diseases.
- Metagenomics training for characterization of microbial communities in ecosystems.
- Updating knowledge in regulatory affairs, FDA, EMA, CDSCO guidelines, GLP, GMP, QbD and other related key skills.
- Accelerating understanding of techno-economic analysis, business development, project management and technical consulting landscape within respective life science companies.
- Imparting AI, digital and automation skills essential in integrating Industry 4.0 for smart biomanufacturing to enhance production.



Objectives of the Advanced Certificate Course in Bioinformatics

- Imparting skills in bioinformatics customized for pharma, biotech, bioIT, tech companies with dedicated life sciences divisions.
- Honing key technical competencies and bridging the gap between technical and biological expertise.
- Hands on trainings in advanced AI based drug design software tools.
- Programming skills in python, advanced python and algorithm development.
- Handling big data, visualization, pattern recognition and analytics for applications in NGS metagenomics and omics data.



Course Duration and Content Delivery

Six months advanced course of 20 credits with a modular course structure, micro-credentialing options and a hands-on workshop for assessing the learning outcomes.

Program Structure

The sessions will be conducted by well trained faculty as well as industry resource persons thrice a week, two online sessions on Tuesdays and Thursdays from 6.30 to 7.30 pm and one offline session on Saturdays from 10 am to 4 pm that will include lecture by industry resource person and hands on sessions in laboratory/ seminars.

I. Advanced Certificate Course in Bioinformatics Skill and Techniques

Sr. No	Course Code	Title	Cr
1	26PGBID101	Introduction to Python and R programming	4
2	26PGBID102	Artificial Intelligence and Machine Learning	4
3	26PGBID103	Basic concepts in drug design	4
4	26PGBID104	Molecular Docking and biomolecular dynamics	4
5	26PGBID105	Next generation sequence data analysis	4

II. Advanced Certificate Course in Industrial Applications of Biotechnology

Sr. No	Course Code	Title	Cr
1	26PGBTD101	Regulatory Compliances	4
2	26PGBTD102	Nanobiotechnology	4
3	26PGBTD103	Environment and Sustainability	4
4	26PGBTD104	Downstream Processing	4
5	26PGBTD105	Biotherapeutics	4

Duration: 6 Months

Course Fee: 75000/- INR

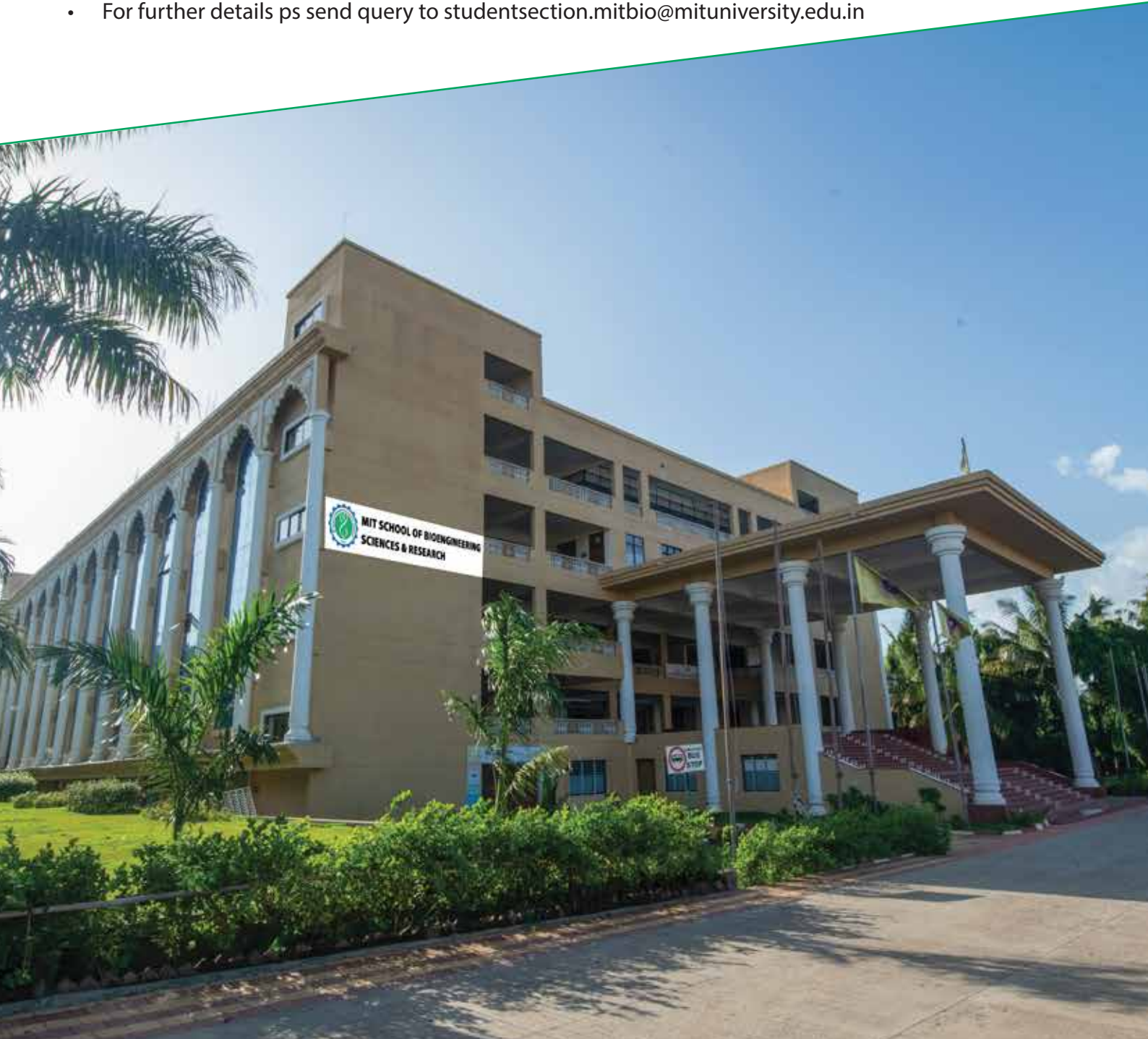
Evaluation and continuous assessment will be through regular assignments/ seminars and a written exam at the end of the course. Regular in person mentoring sessions will be conducted by industry thought leaders for providing clarity on career paths apart from domain knowledge.

Eligibility

Graduate degree in Life sciences and related subjects with 50 % aggregate or equivalent CGPA , working professional in industry.

Admission

- Online application form is available at www.mitbio.edu.in or in person at the institute
- For further details ps send query to studentsection.mitbio@mituniversity.edu.in



Contact Details

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