



BIRLA INSTITUTE OF TECHNOLOGY, MESRA

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PLACEMENT
BROCHURE
2021 - 22

Department of
BIOENGINEERING & BIOTECHNOLOGY



Programmes Offered :

Undergraduate Programmes

- B.Tech. Biotechnology (4 years)

Post-Graduate Programmes

- M.Sc. Biotechnology (2 years)
- M.Tech. Biotechnology (2 years)

Doctoral Programmes

- Ph.D. degrees are offered by the Department in Bioengineering and Biotechnology related disciplines as well as multi-disciplinary fields.

The Department of Biotechnology was established in 2002 with financial support from the Department of Agriculture, Government of Jharkhand, with objectives like providing education and training facilities, carrying out application oriented research, developing in-house technologies and promoting consultancy services in various areas of Biotechnology. The Department name was changed to Bio-Engineering in May, 2013.

The Department of Bioengineering has a vision to impart international standard quality education in the field of Bioscience, Biotechnology and Bioengineering.

The department aims to:

- Create state-of-the-art infrastructure for Research and Training in Biotechnology and Bioengineering.
- Provide globally acceptable technical education in Bioscience, Biotechnology and Bioengineering.
- Nurture graduates for innovation and creativity in the field of Bioscience, Biotechnology and Bioengineering having ethical and social concern.
- Promote collaboration with Academia, Industries and Research Organizations at National and International level.
- Contribute to socio-economic development through education and bio-entrepreneurship.

BIOTECHNOLOGY

- Bioanalytical Techniques
- Biological Science
- Reaction Engineering
- Thermodynamics of Chemical & Biological Systems
- Functional Genomics & RDNA Technology
- Cell & Molecular Biology
- Microbiology
- Food & Enzyme Technology
- Plant & Agricultural Biotechnology
- Bioprocess & Fermentation Engineering
- Bio separation Engineering
- Biochemistry & Enzyme Technology

COMPUTER SCIENCE

- Programming in C/ C++
- Fundamentals of Data Structures

CHEMICAL ENGINEERING

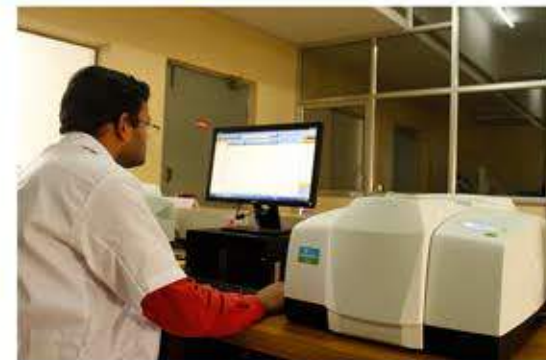
- Chemical Reactions Engineering I, II & III
- Mass Transfer Operations
- Chemical Process Calculation
- Process Management & Control

MATHEMATICS

- Real & Complex Analysis
- Differential Equations: ODE & PDE
- Transformations: Laplace & Fourier

The new 'state-of-the-art' instrumentation facilities include –

- MegaBACE Automated DNA sequencer
- GC-Mass Spectrophotometer
- GC (FID)
- Real Time PCR
- HPLC
- Typhoon Laser imager
- Lypholizer
- Thermal cyclers
- Gene pulser
- Microplate reader
- 2D electrophoresis system
- Chromatography system
- Spectrophotometers
- Fluorimeters
- Modern microscope with digital imaging system
- Leica microscope with colony counter
- Leica fluorescence microscope
- Lab and Pilot scale Bioreactors
- Cross-flow filtration systems.



The department has a vision to develop a "Centre for Excellence" in Biotechnology for carrying out basic research on Biofuels, Biodiversity conservation, Cultivation of endangered medicinal plants of Jharkhand, to create a Bio-tech Information Hub and Entrepreneur Park. It has proactively taken the lead to provide academic and scientific support to various institutions like NITs and Universities for setting up academic and research facility.

Publications :

- Abhishek Indoliya, Dhruba Dhar, Muktesh Mohan and Raju Poddar. In-vivo analysis of iron-gold composite nanoparticles as potential exogenous contrast agents for magnetomotive optical coherence tomography (MMOCT); Journal of Magnetism and Magnetic Materials; Volume 514, 2020.
- Aggarwal, Y., Das, J., Mazumder, P. M., Kumar, R. and Sinha, R. K. (Accepted) Heart rate variability time domain features in automated prediction of diabetes in rat, Physical and Engineering Sciences in Medicine.
- Aggarwal, Y., Das, J., Mazumder, P. M., Kumar, R. and Sinha, R. K. (2020) Heart rate variability features from nonlinear cardiac dynamics in identification of diabetes using artificial neural network and support vector machine, Biocybernetics and Biomedical Engineering, 40: 1002-1009.
- Basani, M., Malothu, R., Sinha, R. K. and Murthy, S. V. (2020) Electroencephalogram correlates the role of ashwagandha in sleep and memory promoting effect, Indian Journal of Pharmaceutical Education and Research, 54:xx-xx.
- Dutta S, Afreen U, Kumar M, Mukhopadhyay K* (2020) Small RNA in tolerating various biotic stresses. In: Guleria P and Kumar V (ed.) Plant Small RNA, 1st Edition, Biogenesis, Regulation and Application. ELSEVIER BV. Publishing Date: 1st February 2020.

Research Areas :

- Agriculture & Plant Biotechnology
- Algal Biotechnology
- Animal & Plant Tissue Culture
- Biofuel Production
- Biosensor & Nano-biotechnology
- Down Stream Processing
- Environmental Biotechnology
- Food Biotechnology
- Industrial Biotechnology
- Medicinal Plant
- Microbial Resources
- Microbial Biotransformation
- Electrophysiology
- Bio signal Analysis
- Biomedical Instrumentation
- Artificial Intelligence in Healthcare
- Value Addition to Biomass & Waste Materials
- Systems Biology

SOCIETY OF BIOTECHNOLOGISTS - BIOTS

The Society of Biotechnologists (BIOTS) is an endeavor by the students and faculty of the Department of Bio-Engineering. This society is instituted to encourage the students to take part in the various Biotechnology related events, hands-on-training, field and industry visits, conferences, workshops, seminars, webinars, societal programs, start-up, and entrepreneurial ventures. It aims to provide all potential students a chance to do something apart from the curriculum. The club innovates to go beyond the curriculum and indulge in activities in the exciting world of combinatorial sciences for different biotechnological products and process.



- ▶ Piyush Sourav received offer for his master's from IIM Lucknow, IIM Ranchi.
- ▶ Vikramaditya received offers for his master's from IIM Lucknow.
- ▶ Vaibhav Raj cleared GATE with AIR 163 and received offer for higher studies from IIT Bombay, IIT Guwahati, IIT Kharagpur.
- ▶ Monica Rohini cleared XAT and received offer from NTPC school of business for higher studies in energy management.
- ▶ Abhiram Chakka and Durjoy Basumantry received offers from foreign colleges like National University of Singapore, University College of London, Imperial College of London and University of Greenwich Northumbria University.
- ▶ Pre-final year students Hrithik Baradia and Ishita Hiremath also cleared GATE with AIR 533 and 580 respectively.
- ▶ Student team comprising of B. E and MTech was adjudged the overall champion in the poster presentation based on industrial problems at National Biotechnology Conclave hosted by Indian Chemical Technology, Mumbai in March 2019.
- ▶ Students got selected for internship via the prestigious industry program, “Mind over Matter” organized by Tata Steel.

The students have in them a varied sense of understanding in the current methods and operating procedures by the help of subsequent internships during summer and winter breaks. In order to facilitate the students with new advancements the department also ensures industrial visits over the period of semester so that students are convinced by practical means of theoretical sorts. These are some of the places wherein our students have worked as interns:

Industries:

- Amazon
- BCG
- Futures First
- Biocon
- Scigenics India
- Affine Analytics
- Biosafe Medical India
- Strides
- Sudha Diary
- Nuziveedu Seeds

Institutes:

- Illinois institute of technology
- IIT Bombay
- IIT KGP
- CMR
- IGCAR
- IIT Kanpur
- IIT Mandi
- IIT Roorkee
- Shiv Nadar University



Few of our proud
RECRUITERS



Thank You

for your Time & Attention !

Contact Us :

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