



School of Biochemical Engineering

Indian Institute
of Technology(BHU)
Varanasi Placement
Brochure2019-20



Introduction



- The School presently offers courses leading to IDD, M. Tech. and Ph. D. degrees in Biochemical Engineering. The School also offers courses to undergraduate students of Department of Chemical Engineering, Department of Pharmaceutics, and postgraduate students of School of Materials Science & Technology, School of Biomedical Engg, Department of Civil Engg, Department of Food Science & Tech, Institute of Agriculture Sciences, and School of Biotechnology, Faculty of Science. In the new undergraduate curriculum, the School has been entrusted to offer a number of institute level courses either independently or jointly with other departments. The research facilities of the School are utilized not only by other departments of the institute and BHU but also by other teaching institutions and research laboratories. The faculty also guides inter departmental / interdisciplinary projects and dissertations.
- The School was established for achieving several benchmarks in teaching and research in the modern field of Bioengineering. It has kept on modernizing its programmes to impart education in upcoming areas of Biochemical Engineering.
- The School has been functioning the premise of Dept of Chemical Engineering since its inception. However, the school developed two dedicated laboratories in the Dept of Biochemical Engineering, IIT(BHU), subsequently has also developed its own building adjacent to the Dept of Chemical Engg (Total Area about 5,000 sq ft). Recently the school has a new building, three storied which includes all teaching and Laboratories. The floor area of the new building of School is 10,000 sq. feet (Total 30,000sq ft)

Admission



IDD
(Integrated Dual
Degree B.Tech and
M.Tech)

The admission to the IDD program is through the Joint Entrance Exam (JEE) conducted by the IITs. The degree is B.Tech in Biochemical Engineering and M.Tech in Biochemical Engineering and Biotechnology. This program was started from the year 2006 onwards.



M .Tech

Admission to the M.Tech Program is through Graduate Aptitude Test in Engineering (GATE) .The program involves coursework and project work of 2semesterseach.Theschool doesnotoffer anyspecializationbut therearethrust areasof research as mentioned in subsequent pages. This program began from the year 1986 onwards.



PhD

The School offers Ph.D. Degree in Biochemical Engineering. The yearly intake varies between 10and 20. Students with Biochemical engineering degree or allied disciplines can join the Ph.D. programme. The School also offers joint research programmes with other Schools of the Institute or other academic institution/ R & D organizations. This program started from the year 1986 onwards.

Curriculum (IDD)

Core Courses

- Introduction to Biochemical Engineering
- Advances in Biochemistry
- Fundamentals of Microbiology
- Microbial Process Principles
- Bioprocess Calculations & Technology
- Microbial Engineering
- Enzyme Engineering
- Wastewater Engineering
- Biofuels & Bio Energy
- Molecular Biology and Genetic Engineering
- Bioinstrumentation and Control
- Bioreactor Design & Bioprocess Plant Design
- Fermentation Processes
- Structural Biology
- Downstream Processing
- Fundamentals of Bioinformatics
- Food Engineering & Technology
- Animal Cell Culture
- Protein Engineering
- Bioprocess simulation
- Cell & tissue Engineering

Institute Science and Engineering Courses

- Engineering Mathematics-II
- Physics-II; Introduction To Engineering Electromagnetics
- Chemistry-I
- Engineering Thermodynamics
- Manufacturing Practices –I and II & Engineering Drawing
- Computer Programming
- Essentials of Biochemistry
- Fundamentals of Electronics and Instrumentation Engineering
- Chemical Reaction Engineering
- Numerical Analysis
- Energy resources and Utilisation
- New separation Processes
- Engineering Economics and Management
- Drug Delivery Techniques
- Process Optimisation
- Biotransport Processes

Curriculum (Postgraduates)

The School also offers many **PG level** courses to the students for their course credit requirement.

The School does not offer any specialization but runs a number of elective courses at PG/ Ph. D. level. Such courses include:

- Bioprocess Instrumentation & Control
- Enzyme Engineering and Technology
- Food Biotechnology
- Bioconversion
- Waste Water Treatment
- Bioinformatics
- Biobusiness Planning and Management
- Animal Cell Culture

Student Achievements

In the past, students have done research work in top foreign universities in countries such as Canada, US, Germany, France, Australia, Singapore through fellowships like DAAD-WISE, MITACS-GLOBALINK, KHORANA etc. and also in prestigious research institutions and laboratories in India like IISc, IISERs, BARC, DRDO, IITs, Bose Institute, NIPGR, CIMAP Biocon, Genebox etc.

The School requires the IDD students to undergo a compulsory eight week internship at the end of the third year at universities, research institutions and industries.

Research

The three broad categories in which research work is going on are:

- 1. Bioprocess & Bioreactor Design**
- 2. Molecular Biology and Genetic Engineering**
- 3. Enzyme Engineering and Tissue Engineering**

In the recent past, the School has successfully completed number of industrial consultancy projects for process improvement, modification. Many such projects have been/are being carried out jointly with industry. The School has also obtained two patents in the last five years and some of the research projects have been funded by agencies such as DRDO, DST, DBT, AICTE, CSIR, TIFAC etc.

Some of the current research work involves cell bioprocessing, protein engineering, wastewater management, modelling simulation and process optimization, computer aided drug delivery and design, biodegradable polymers etc. The research and development works in these areas has contributed to the significant advancement of knowledge.



ResearchFacilities

- The School has 8 specialised laboratories (apart from UG and PG lab), 6 lecture theatres, a 100 seat conference room, a small library with textbook bank and internet facility. The School also has a seminar room and a few instruction rooms and rooms for its faculty. The School enjoys an excellent professional interaction with various industrial organisations, experts and consultants. Faculty members are engaged in high level research collaborations and consultancy work in industry, where as some others have projects funded by the industry. Besides these, the School also provides know-how for process improvement/ development, raw materials and products analysis, microbiological testing , etc. to the industries in and around Varanasi.

Labs	In charge
Biomolecular Engg	Dr Abha Mishra
Protein Engg	Prof Mira Debnath
Bioprocess Technology	Prof RM Banik
Enzyme Engineering	Prof S.K.Srivastava
Cell Processing and Bioreactor Design	Prof Subir Kundu
Cellular Biochemistry Lab	Prof Vikash Kumar Dubey
Tissue Engineering Lab	Prof Pradeep Srivastava
Food Engineering Lab	Coordinator
Sophisticated Instruments Lab	Coordinator

Contact us

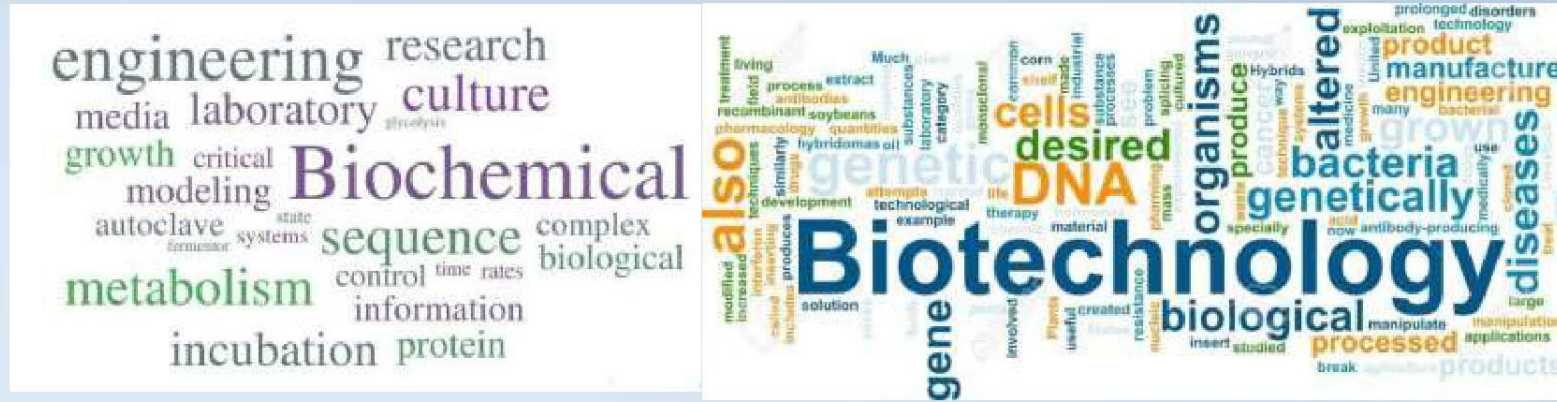
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