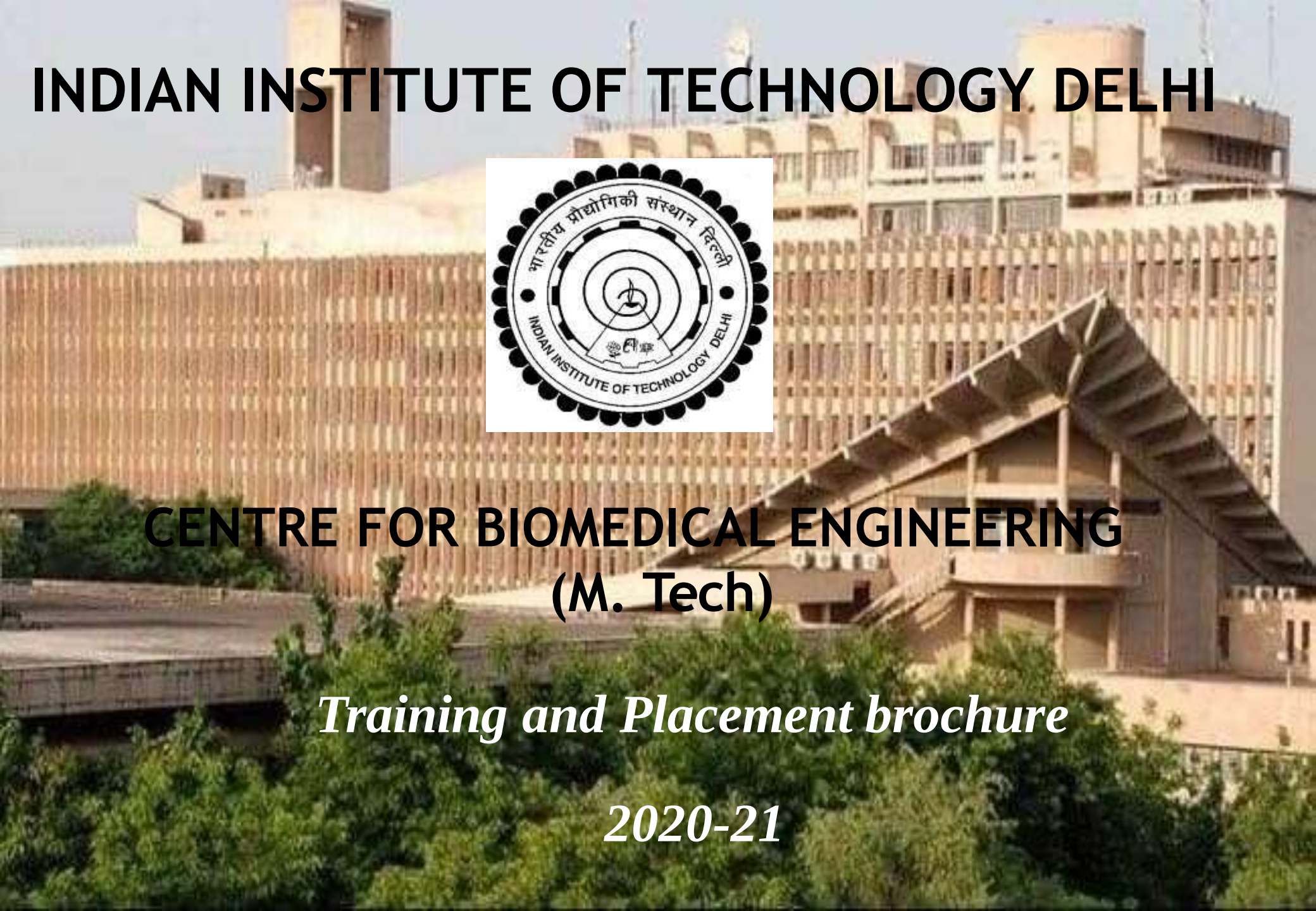
INDIAN INSTITUTE OF TECHNOLOGY DELHI



CENTRE FOR BIOMEDICAL ENGINEERING
(M. Tech)

Training and Placement brochure

2020-21

ABOUT US



Prof. Naresh Bhatnagar
Head, Centre for Biomedical Engineering IIT Delhi
hodcbme@admin.iitd.ac.in

Centre for Biomedical Engineering was established in 1971 as a Joint programme of Indian Institute of Technology, Delhi and All India Institute of Medical Sciences, Delhi. The centre has applied engineering principles to address medical and biological problems. It has faculty from diverse backgrounds who are actively engaged in various interdisciplinary research activities. In the last two decades the focus has expanded to include biological medicine, development of innovative biomaterials, implants, biomedical devices and informatics approaches for the prevention, diagnosis and treatment of diseases.

Office Address: Block 3, 299, IIT Delhi, Hauz Khas, New Delhi – 110016; Phone: +91-11-2659-6396; 6312

Faculty



Veena Koul ,
Ph.D
(KashmirUniv.)



Harpal singh
Ph.D
(IIT,Delhi)



S.M.K Rahman
(MNIT, Allahabad)



Sandeep Kumar Jha
Ph.D
(BARC, Mumbai)



Neetu Singh
Ph.D
(Georgia Tech.,USA)



Dinesh Kalyanasundaram
Ph.D
(Iowa State Univ., USA)



Anup Singh
Ph.D
(IIT Kanpur)



Amit Mehndiratta
D. Phil
(Oxford, UK)



Deepak Joshi
Ph.D
(IIT Delhi)



Jayanta Bhattacharyya
Ph.D
(IICT, Hyderabad)



Arnab chanda
Ph.D
(University of
Alabama,USA)



Biswarup Mukherjee
Ph.D
(IIT Madras)

ACADEMICS

- ✓ M. Tech programme in Biomedical Engineering is designed for students from both engineering and science disciplines to give training in frontier areas for solving the longstanding problems of healthcare.

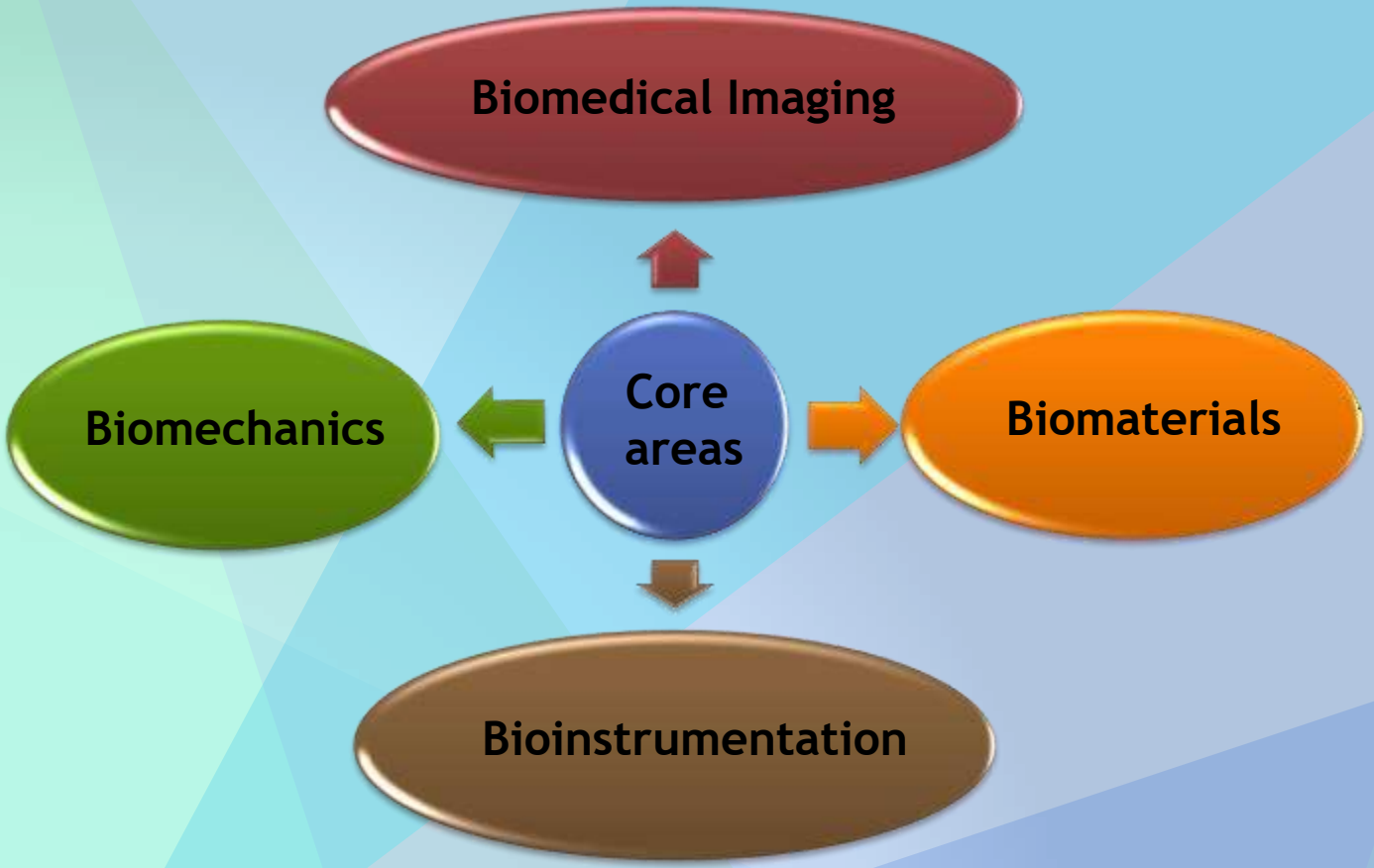
- ✓ During 1st Year students are provided with basic knowledge across biology, chemistry, mathematics, clinical science and engineering.

- ✓ During 2nd year students will undertake research project in their area ofinterest.

- ✓ Some of the core courses and electives taught by the centre to students are as follows:

Biomechanics
Biomedical Instrumentation
Medical Device design Point of care devices Nanomedicine
Cancer: Diagnosisand Therapy
Application of Math in BioMed Eng. Emerging Biomedical Technologies and Healthcare.
Medical Imaging Biomaterials
Biosensors
Industrial biomaterial technology
Tissue Engineering
Mechanics of biomaterials
Biomedical Signal and Image Processing

RESEARCH AND DEVELOPMENT @ CBME



Technologies and devices for biomedical applications

- Diagnostics
- Therapeutics
- Implants
- Rehabilitation

FACILITIES @ CBMEB

Biomechanics Lab



Wireless EEG System



EMG System(Trigno)



Flexural testing

Biosensor & POCT



BSL 2 facility



8” Mask aligner



Thermal evaporator

Biomaterials Characterization



Laser Confocal Microscopy



Raman microscopy



Particle Analyser



Flow cytometer – BD Accuri



RT-PCR



GPC-Viscotek

FACILITIES @ CBMEB

MedImg Lab



Development of Methods and Software tools for processing and analysis of Medical Imaging and Signal Data; Quantitative Imaging; Applications of Machine Learning; Patient specific 3D modelling

FACILITIES @ CBMEB

Medical Device Fabrication facility



3D-Printer –Stratasys
Objet30 OrthoDesk



400 W CW Fibre laser



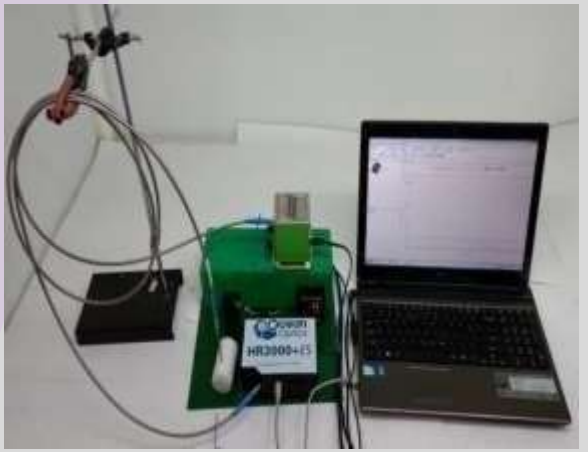
Injection Molding
BOY XXS



Dual Laser (CO2 + fibre laser)

Device Testing Laboratory





High resolution
spectrometer HR2000+ES

TECHNOLOGIES DEVELOPED

- Intelligent prosthetic leg for amputees
- Polymeric nanoparticles and process of preparation thereof for delivery of chemotherapeutics, peptide and DNA based anticancer agents
- Hemoglobin meter
- Antimicrobial acrylic bone cement for fixation of hip and knee joints
- Polymeric nanoparticles based toners for digital imaging and related applications
- Heat sealable coatings onto paper for packing applications
- Iontophoresis Unit for transdermal drug
- Surgical drill guides for scoliosis
- Forcemyography

MEDICAL PRODUCTS



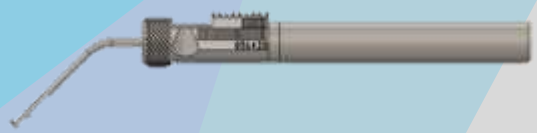
Hemoglobinometer



Intelligent prosthetic leg



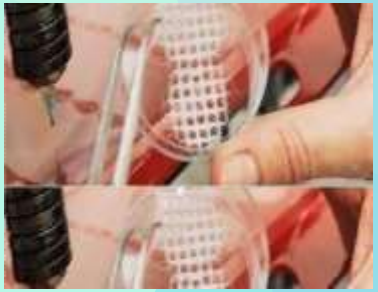
Variable stiffness elbow implant



Caliper forossicle surgery



Alveolar distractor



Soft skin regeneration



Instrumented Shoe



Affordable hearing screening device



Portable typhoid diagnostic device

ON-GOING RESEARCH PROJECTS

- ✓ Artificial skin for Burn and Trauma care
- ✓ Bio-Nano Composite Scaffold for Chronic wounds
- ✓ Concomitant delivery of anti-cancer drug
- ✓ Naturally derived vesicles for targeted drug delivery
- ✓ Quantitative software tools to detect intracranial masslesions
- ✓ Methodology for Quantitative CEST-MRI
- ✓ Multimaterial Orthopaedic screws
- ✓ Fall prediction and hip protection
- ✓ Adaptive prosthesis for transfemoral amputee

ON-GOING M .TECH THESIS PROJECTS

BIOINSTRUMENTATION

- ✓ A Biophysical insight on forcemyography genesis via deep learning model.

BIOMECHANICS

- ✓ Biomechanical Modelling of Artificial skin.
- ✓ Mathematical Modelling of knee Meniscus tear

BIOMATERIALS

- ✓ Development of novel carbon dots for the detection of pathogen.

MEDICAL DEVICE DESIGN

- ✓ Development of Footwear Based Energy Harvesting System.
- ✓Magnetic growth rods for scoliosis patient.

MEDICAL IMAGING

- ✓ Detection of Cirrhosis and Hepatocellular Carcinoma using Multi-phase Abdominal CT scans.
- ✓ Automated segmentation of Brain Tumour using Machine learning.

COLLABORATIONS

1. GOVERNMENT ORGANISATIONS

DRDO: Defense Research and Development Organization

CSIR – Central Scientific Instruments Organization

National Physical Laboratory (NPL)

National Institute of Immunology (NII)

National Institute of Health and Family Welfare

2. ACADEMIC

Jawaharlal Nehru University
Massachusetts Institute of Technology
The University of Texas at Austin
Advanced Industrial Science and Technology

3. PRIVATE ORGANIZATIONS

Boston Scientific Private Limited

Stryker India Private Limited

Fortis Hospitals

Indian Spinal Injury Center

Mahajan Imaging Centre

EXTRAMURAL FUNDING

1. GOVERNMENT ORGANISATIONS

Indian Council of Medical Research

BIRAC, Department of Biotechnology

Indo-German Science & Technology

Center Department of Science &

Technology Department of

Biotechnology

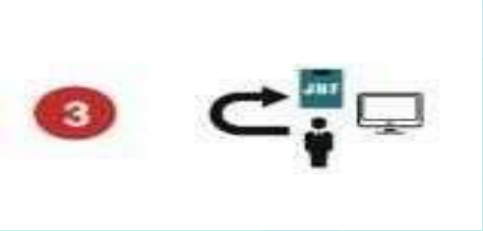
OUR RECRUITMENT PROCESS



Placement office sends invitations to companies and organizations along with relevant information. You can also send us a mail at placement@admin.iitd.ac.in regarding the same.



Companies and organizations interested to recruit, register to the OCS website.



Companies may fill Job Notification Form (JNF) or Training Notification Form (TNF) for each profile they wish to hire for. Once the filled JNF or TNF with all the required details is received, companies are registered and given login credentials to access their online account on the OCS website.



Companies/Organizations if interested in conducting a Pre-Placement-Talk can request for it along with the preferred date.



The JNF or TNF is frozen on the OCS website by the company till a deadline, after which the student shall be able to view all the details, and the eligible students may apply. The company will then shortlist the students either based on their CVs or they can conduct a Test/GD for shortlisting the students.



Shortlisted students are notified.



The placement office allots the dates for campus interviews, by considering factors like student preference. job profile, compensation, history with the campus, etc.



After completion of selection process, company is required to announce the final list of the students on the same day itself.

CONTACT US

Faculty Placement Co-Ordinator
&
M.Tech Programme Co-ordinator
Prof. JAYANTA BHATTACHARYYA
Email: jayanta@cbme.iitd.ac.in
Phone: +91-11-2659-1337

Student Placement Co-ordinator
Mr. SOURABH RANA
M.Tech (2nd year)
Email:sourabh.rana34@gmail.com
Phone:+91-7699413764