

# INDIAN INSTITUTE OF TECHNOLOGY DHARWAD



॥ सा विद्या या विमुक्तये ॥

भारतीय प्रौद्योगिकी संस्थान धारवाड  
Indian Institute of Technology Dharwad

**Department of Bio Sciences and Bio Engineering**

**Information Brochure**

**Ph.D. Admissions**

**Autumn Semester (2019-20)**

## A. SCHEDULE OF Ph.D. ADMISSION

S. No.	Particulars	Dates
1	Availability of online application forms	
2	Last date for submission of completed application forms	Friday, 17/05/2019
3	Listing of shortlisted candidates for the Selection Process <sup>1</sup>	Friday, 31/05/2019
4	Date for the Selection / Examination Process	Thursday, 04/07/2019
5	Declaration of the Result of the Written Test	Thursday, 04/07/2019
6	Date for the Interview Process	Thursday, 04/07/2019
7	Display of the final result <sup>2</sup>	Monday, 08/07/2019
8	Last date for the Fee Payment	Friday, 19/07/2019
9	Date of Joining	Monday, 29/07/2019

## B. ELIGIBILITY FOR ADMISSION

Eligibility for admission: M. Tech. /M.Phil. /MSc. or equivalent in Biotechnology/Life Sciences or allied biology subjects.

Candidates who are yet to complete their qualifying examinations, but expect to complete all the requirements for admission eligibility (including all examinations, project dissertation, viva-voce etc.) are also eligible to apply provided they can furnish the necessary certificates by 20th July, 2019.

MSc. – Must have Valid GATE Score/ Junior Research Fellowship (JRF) of CSIR/UGC/NBHM/ DBT/ICAR/ICMR/ ICPR/PMRF or DST INSPIRE Fellowship.

M. Tech and M.Phil. – GATE/JRF desirable but not essential.

## C. APPLICATION CATEGORIES AND FINANCIAL SUPPORT

The Department of Bioscience and Bioengineering admits Ph.D. candidates under the full time research scholarship, Teaching Assistantship (TA) and FA (Govt./ Semi-Govt. Fellowship Awardees (CSIR, UGC, DBT, ICMR, etc) only.

### C.1. Fellowship Awardees

Students with valid fellowship from CSIR, UGC, DBT, ICMR, etc can apply in this category.

<sup>1 & 2</sup> Will be announced on the institute webpage

## C.2. Teaching Assistantship (TA)

Funded by MHRD, the TAs are expected to assist in the academic/administrative work for smooth functioning of the Institute. Students under this category are entitled to financial support as per MHRD norms.

For students with MSc./M.Tech./M.E./M.Phil. or equivalent degree as the qualifying degree, the assistantship is payable for a maximum duration of 5 years or up to the thesis submission, whichever is earlier. At present, the monthly rate of assistantship is 25,000 for the first 2 years and enhanced rate of 28,000/- for the remaining period.

For students with B.Tech./B.E. or equivalent degree and students with M.Sc. or equivalent as the qualifying degree and having valid GATE score or having Junior Research fellowship (JRF) of UGC/CSIR or DST INSPIRE fellowship, the assistantship is payable for a maximum duration of 5 years or up to the thesis submission, whichever is earlier. At present, the monthly rate of assistantship is ₹25,000/- for the first two years and enhanced rate of ₹28,000/- for the remaining period.

To get Teaching Assistantship, the students concerned must assist in teaching, research and/or administrative work as assigned by the respective Academic Unit to the extent of 8 hours of work per week.

The continuation of the assistantship will be subject to satisfactory performance of the duties assigned by the Departments as well as satisfactory academic performance.

Employees on the rolls (with or without pay) of any organization are not eligible for admission under this category.

As per MHRD directives, the employees of any organizations with or without pay are not eligible for admission under TA category. Candidates selected in this category have to resign from the current job and submit a relieving letter from their employer before joining the programme. Students getting assistantships from the Institute may join projects sponsored by external agencies and obtain corresponding fellowships in lieu of TA ship.

## D. GUIDELINES FOR THE SHORTLISTED APPLICANTS

The following are the important guidelines of the institute to be followed by the shortlisted applicants on the day(s) of the selection process.

1. Shortlisted applicants should report to the institute on 04<sup>th</sup> July, 2019 at 8.00 am.
2. No accommodation will be provided for the candidates during the selection process or interview.
3. Applicants should bring:

- a. Photo ID card (any one from these: PAN/AADHAR/Driving Licence/Voter ID/Passport/Govt. issued ID/Educational Institute ID)
- b. Printed copy of the application
- c. Thesis/dissertation/report of M.Tech./M.E./MSc-Engineering or equivalent degree
- d. Copy of certificates and mark-sheets
- e. Two recent passport size photographs
- f. Scientific calculator

#### D.1. DO NOT's

- a. Mobile phones are not allowed in the examination hall or in the interview room
- b. Department's decision is the final decision regarding any matter pertaining to this selection process.
- c. Institute doesn't take any responsibility of your luggage/items that you leave before entering the examination hall.

### E. MODALITY OF THE SELECTION PROCESS

1. The selection process consists of MCQ type screening test. The duration of the exam would be 60 minutes. The syllabus for the exam is given in the Information Brochure.
2. Each question will have 4 options to choose from. Only one option would be correct.
3. The exam will have negative marking scheme. For MCQ questions, 1/3rd of the points allotted for that question will be deducted for wrong answers.

**Document Verification:** Only for candidates short-listed for interview. Certificate required are like Date of Birth certificate, Degree certificate along with marks cards, aggregate percentage, JRF offer letter from UGC/CSIR and INSPIRE fellowship, GATE Score, Cast certificate, Income certificate, Photo Identity, etc.

### F. RESEARCH TOPICS

Cancer Biology and Biochemistry

### G. SYLLABUS FOR SCREENING TEST AND INTERVIEWS

#### General English and logic

**Bioinformatics:** Major bioinformatics resources (NCBI, EBI, ExPASy); Sequence and structure databases and analysis, Sequence analysis, Phylogeny, Comparative genomics; Molecular modeling and simulations. Overview and functions of a computer system; Basics of database management system- Conceptual Schema, ER diagrams, normalization and SQL.

Basics of programming; Statistics: Descriptive statistics, Correlation and regression, Hypothesis Testing, Probability theory.

**Biochemistry, Molecular & Cell Biology, Genomics:** Biomolecules, Metabolism, Membrane transport, Structure and regulation of prokaryotes and eukaryotes genes, Transcription, Translation, Post-transcriptional and Translational modifications, Molecular interaction, Phylogenetic, Molecular markers, Genetic and physical mapping, Gene interaction; Population genetics, Genetic engineering; Cloning and expression vectors, rDNA technology, Gene cloning approaches, Whole genome sequencing & annotation, High throughput gene expression and Function elucidation technologies, PCR, Blotting techniques, Gene transfer technologies, Protein-protein interactions, Mass spectrophotometry, Signal transduction pathways and their elucidation, Primary and secondary metabolic pathways, Systems biology frameworks for metabolic engineering, Nano biotechnology, Genomics and proteomics.