INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

Powai, Mumbai – 400 076

Advertisement Number : G-9/2021

Indian Institute of Technology Bombay (IIT Bombay), an Institute of Eminence, invites applications from well qualified Indian nationals (including Persons of Indian Origins (PIOs) and Overseas Citizens of India (OCIs) and *Foreign Nationals** for Faculty positions at the level of Professor / Associate Professor for following Departments / Centers / Schools and Inter-disciplinary programs :

**Foreign National (who does not have either an Indian passport or PIO/OCI card) will be offered contractual position up to 5 years. The appointment can be renewed thereafter.*

Departments	
1	Aerospace Engineering
2	Biosciences and Bioengineering
3	Chemical Engineering
4	Chemistry
5	Civil Engineering
6	Computer Science & Engineering
7	Earth Sciences
8	Electrical Engineering
9	Energy Science and Engineering
10	Environmental Science and Engineering
11	Humanities & Social Sciences
12	IDC School of Design
13	Mathematics
14	Mechanical Engineering
15	Metallurgical Engineering & Materials Science
16	Physics

Centers	
1	Centre for Studies in Resources Engineering
2	Centre for Technology Alternative for Rural Areas
3	Centre for Urban Sciences & Engineering
Schools	
1	Shailesh J. Mehta School of Management
Inter-disciplinary Groups	
1	Industrial Engineering & Operations Research
2	Systems and Control

Qualifications :

Ph. D. with first class or equivalent (in terms of Grades, etc.) at the preceding degree and excellent academic record throughout.

Experience :

Professor	A minimum of 10 years post-PhD teaching/research/professional experience of which at least 4 years should be at the level of Associate Professor in IITs, IISc, IISERs, IIMs or at an equivalent level in any other Indian/Foreign Institutions/Universities of comparable standard. The candidate should have demonstrated leadership in research in a specific area, with excellent record of publications in reputed journals and conferences, patents, laboratory/course development and other recognized relevant professional activities of specialization. The candidate should have generated sufficient funding for research and should have guided PhD students.

Associate Professor	A minimum of 6 years post-PhD teaching/research/professional experience of which 3 years should be at the level of Assistant Professor Grade I in IITs, IISc, IISERs, IIMs or at an equivalent level in any other Indian/Foreign Universities/Institutions/Industries of comparable level. The candidate should have demonstrated very good experience of research and guidance of postgraduate and Ph.D. students, publications in reputed journals and conferences, patents, laboratory/course development and other recognized relevant professional activities. It is desirable that the candidate has received external funding for research. The criteria of guidance of students may be relaxed for candidates from industry with excellent research record .

Salary Structure :

PROFESSOR Academic Level 14A (Rs.159100 - Rs.220200) For Direct recruits, minimum pay in the Pay Matrix to be fixed at Rs.1,59,100/-p.m. *(Gross salary as on 01.01.2021 is Rs. 2,32,755/- p.m. [Incl. HRA])*	Pay protection is admissible as per rule. Allowances as admissible to Central Government Employee
ASSOCIATE PROFESSOR Academic Level 13A2 (Rs.139600 - Rs. 211300) For Direct recruits, minimum pay in the Pay Matrix to be fixed at Rs.1,39,600/p.m. *(Gross salary as on 01.01.2021 is Rs. 2,05,260/- p.m. [Incl. HRA])*	

Areas of Specialization for the position of Associate Professor and Professor :

The table below lists the desired areas of recruitment by various academic units. Outstanding candidates in other areas may also be considered depending on the requirement of the individual academic unit.

Sr. No.	Department/Centre/ Interdisciplinary Program	Professor	Associate Professor
1	Aerospace Engineering	Environmental damage and residual strength modeling in polymer composites, Multifunctional polymer composites	i. Computation of high enthalpy flows and plasmas ii. Guidance and control of aerospace systems, Optimal and adaptive control
2	Biosciences and Bioengineering	i. Structural Biology and Biomolecular NMR spectroscopy ii. Biophysics and computational biology iii. Molecular Virology and evolutionary biology	Diffuse correlation tomography, functional near infrared spectroscopy, Inverse imaging problems in medical imaging.
3	Chemical Engineering	i. Biotechnology and Biosystems Engineering ii. Catalysis and Reaction Engineering iii. Energy and Climate Studies iv. Materials Engineering v. Process Systems and Controls Engineering	i. Biotechnology and Biosystems Engineering ii. Catalysis and Reaction Engineering ii. Energy and Climate Studies iv. Materials Engineering v. Process Systems and Controls Engineering

Sr. No.	Department/Centre/ Interdisciplinary Program	Professor	Associate Professor
		vi. Transport, Colloids and Interface Science vii. Other Frontier areas of chemical engineering	vi. Transport, Colloids and Interface Science vii. Other Frontier areas of chemical engineering
4	Chemistry	Biomimetic Supramolecular Chemistry	Membrane biophysics and biology
5	Civil Engineering	i. Water Resources Engineering -Water resources system optimization ii. Ocean Engineering- Coastal Infrastructure Engineering and Dynamics iii. Structural Engineering - Mechanobiology	i. Geotechnical Engineering - Offshore Geotechnics ii. Structural Engineering -Structural sustainability and design improvement & Structural reliability of infrastructure systems iii. Water resources Engineering - Hydrological systems in a changing environment
6	Computer Science & Engineering	a. Image analysis with machine learning, and in particular medical image analysis using pattern recognition and machine learning. b. Formal methods (concurrency, automata and logics) and computer aided geometric design.	-
7	Earth Sciences	Structural geology with emphasis on fieldwork, numerical modelling and microstructures. Experience in Himalayan tectonics, ductile and brittle shear zone kinematics	i. Metamorphic Petrology with emphasis on phase equilibria modelling, structural geology, and in situ geochronological methods. Experience in Electron Probe Microanalyzer (EPMA) with proficiency to develop new analytical approaches and its application to geological problems. ii. Ore Geology with emphasis on ore deposit modeling using geochemistry, stable isotopes and fluid inclusions. Experience in characterizing fluid inclusions using Heating-Freezing stages and Raman spectroscopy, mineral-fluid equilibria, and *in situ* mineral chemical analysis
8	Electrical Engineering	i. Information Theory, Coding and statistical inference, Learning Theory in Signal Processing, Deep Learning in Medical Image processing ii. Reaction Networks and Molecular Computing with application to Medical Diagnostics	i. Information theory and statistical inference, Silicon photonics, Resource Allocation in Networks ii. Transients in Power Systems and switchgear, Power system operations and planning with focus on data-driven control

Sr. No.	Department/Centre/ Interdisciplinary Program	Professor	Associate Professor
		iii. Power electronics and its applications in power grids, renewables and drives iv. Terahertz micro-devices and system (filters, sensors), Atomistic Modeling of Hybrid Quantum Devices for quantum technologies, Modeling of Electronic devices for beyond-CMOS applications (Solar cells, biosensors, etc.)	iii. Memory Technology and Design, Energy Efficient and variation tolerant circuit design iv. Embedded low-cost sensor systems and structural health monitoring, v. Development of quantum technologies in diamond and peripherals, Solar Photovoltaic Module Reliability
9	Energy Science and Engineering	Photovoltaic Cells, Modules, Systems and their Performance and Reliability	Energy Efficient Process Design and Development, Waste to Energy, Renewable Energy Integration, Rheology of Oil and Gas Flows
10	Environmental Science and Engineering Department	Municipal Solid Waste Management; Waste to Energy Technologies	i. Environmental Exposure and Health Assessment, Aerosol and Emission Measurements ii. Photocatalysis and Algal Technologies for Water and Waste Water Treatment.
11	Humanities & Social Sciences	i. Sociology: Political Sociology; Caste studies; Environmental Sociology; Political Ecology ii. Psychology: Social Psychology; Health Psychology iii. Philosophy: Philosophy of Mind iv. History: All specializations within discipline v. Political Science: All Specializations within discipline	i. Sociology: Sociology of Gender and Sexuality; Economic Sociology. ii. Philosophy: 20th Century Western Philosophy and Feminist Philosophy. iii. English: Adaptation Studies iv. History: All Specializations within discipline v. Political Science: All Specializations within discipline
12	IDC School of Design	i. Product Design ii. Communication Design iii. Animation iv. Interaction Design v. Mobility and Vehicle Design vi. VR/AR/New Media vii. Immersive Technologies viii. Film Making	i. Product Design ii. Communication Design iii. Animation iv. Interaction Design v. Mobility and Vehicle Design vi. VR/AR/New Media vii. Immersive Technologies viii. Film Making
13	Mathematics	i. Algebraic Geometry, Algebraic Topology, Topological Groups, Lie Groups ii. Operator Theory, Several Complex Variables, Harmonic Analysis iii. Probability and Statistics	i. Algebraic Geometry, Algebraic Topology, Topological Groups, Lie Groups ii. Operator Theory, Several Complex Variables, Harmonic Analysis iii. Probability and Statistics

Sr. No.	Department/Centre/ Interdisciplinary Program	Professor	Associate Professor
14	Mechanical Engineering	i. Propellant combustion and diagnostics, novel propellants ii. Interfacial fluid dynamics, fluid-Structure Interaction iii. Environmental fluid dynamics iv. Computational fluid dynamics related to thermo-fluid sciences and manufacturing processes v. Advanced micro-forming, microstructure characterization vi. Multiphysics and multiscale computational solid mechanics, topology optimization	i. Molecular modeling and chemical kinetics of energetic materials ii. Robotics and automation related to physical human-robot interactions iii. Advanced micromachining iv. Microsystems packaging
15	Metallurgical Engineering & Material Science	i. Photovoltaics and reliability ii. Simulation of soft materials iii. Flexible electronics iv. Battery materials v. Corrosion and electrochemistry vi. Phase field modeling vii. Nanophotonics viii. 2D materials ix. Process Metallurgy	i. Micromechanics of materials ii. Quantum mechanical simulation
16	Physics	i. Nuclear Spectroscopy ii. Experimental Plasmonics/ Nanophotonics iii. Experimental Molecular Optoelectronics iv. Experimental High Energy Physics v. Experimental Studies of Transport in Mesoscopic Systems	i. Theoretical Strong-field and Attosecond Physics ii. Theoretical Biophysics/Soft Matter Physics iii. Theoretical High Energy and Astro-particle Physics iv. Theoretical Quantum Condensed Matter v. Theoretical Quantum Information vi. Astrophysical Instrumentation vii. Experimental Soft Matter Physics
17	Shailesh J. Mehta School of Management	i. Accounting and Finance: with specialization in Accounting & Corporate Governance ii. Decision Sciences: with specialization in Operations Research	i. Economics: with specialization in development economics / microeconomics

Sr. No.	Department/Centre/ Interdisciplinary Program	Professor	Associate Professor
18	Centre for Studies in Resources Engineering	Microwave Remote Sensing	-
19	Centre for Technology Alternatives for Rural Areas	-	Rural Electrification, Energy usage in irrigation
20	Centre for Urban Sciences & Engineering	i. Urban social infrastructure planning ii. Urban informatics and analytics iii. Sustainable design of built environments iv. Urban water management	i. Urban social infrastructure planning ii. Urban informatics and analytics iii. Sustainable design of built environments iv. Urban water management
21	Interdisciplinary programme in Industrial Engineering & Operations Research	-	Multi-armed bandit problems, Pricing of communication networks, and related problems from Industrial Engineering and Operations Research.
22	Systems and Control Engineering	Multi-agent System for Autonomous Robotic Application, Embedded Robotics and Control, Mobile Robotics	Control of Partial Differential Equations, Output Regulation

Reservation in Faculty positions will be as per rules of Ministry of Education, Government of India.

General Information :

In addition to incentives which are a part of the pay package according to 7th Pay Commission norms, the following apply :

a) The Institute provides a Cumulative Professional Development Allowance (CPDA) of Rs. 3 Lakhs for every block period of 3 years, minimum of Rs. 2 Lakhs is earmarked for presenting papers at conferences and a maximum Rs. 1 Lakh is available towards membership fee of professional bodies and contingency expenditure.

b) A matching grant of Rs. 3 Lakhs in the block period is supported from IRCC / Donation funds to attend conference, workshop, etc.

c) Further, IRCC also provides Rs. 1 Lakh over a period of 3 years to file patent on the research outcome at IIT Bombay.

d) Reimbursement of relocation charges of upto Rs.1.0 Lakhs for faculty from abroad for reimbursement of air fare for self and spouse and cost of transportation of goods. Reimbursement of upto Rs.50,000/- for self and family and transport of goods for faculty joining from within India.

e) An honorarium of Rs.15,000/- per month to the faculty who have obtained Bhatnagar Award and to faculty who are fellows of at least two National Academies.

NOTE :

1. Last date of receiving application is March 31, 2021 and application should be sent at facultyrecruitment@iitb.ac.in.

2. Faculty application is available at http://www.iitb.ac.in/sites/default/files/Advertisement_0.pdf.

3. Separate applications must be sent if a candidate is applying for a faculty position in more than one Department/Centre/School etc.

4. Foreign Nationals who are "Persons of Indian Origin" (PIO) or Overseas Citizens of India (OCI), in whose case, if selected, permission will be sought from Govt. of India before he/she can join the Institute.

5. Other Foreign Nationals, in whose case, if selected, appointment will be on a contract basis for up to 5 years subject to permission from the Govt. of India before he/she can join the Institute.

6. Political and security clearance from Ministries of External Affairs and Home Affairs is necessary in every case for individuals with foreign passports.

7. Mere fulfillment of the qualifications and experience requirement laid down does not entitle a candidate to be called for interview.

8. The Institute encourages interaction of the faculty with industry, other research and professional institutions. Consultancy is encouraged at IIT Bombay and liberal consultancy policies are in practice.

9. Facilities for research and development activities exist in all the Departments, Schools and Centers. These are being continuously modernized with contemporary equipment and services. Good facilities also exist for computing. The Institute has a well stocked library with 2.54 lakhs volumes of books, 1.19 lakhs bound volumes of journals, 0.68 lakhs reports, pamphlets, standards etc. and 3400 e-books.

10. A technology business incubator hosted by the Institute, called the Society for Innovation and Entrepreneurship (SINE), (http://www.sineiitb.org) serves to promote technology based entrepreneurship by faculty.

11. Candidates belonging to SC/ST communities, Persons with Disabilities (PwD) and Female candidates are exempted from payment of application fee. No fee is applicable for candidates applying from abroad. Candidates other than those mentioned above, need to send a Demand Draft for Rs.100/- drawn on any nationalized bank payable at Mumbai in favor of Registrar, IIT Bombay along with the application. Candidates also can make online payment to the below account and send the acknowledgement along with application form :

INSTITUTION ACCOUNT NAME (AS PER BANK RECORD)	REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
ACCOUNT NO.	00000010725729128
IFSC CODE	SBIN0001109
BANK NAME (in full)	STATE BANK OF INDIA
BRANCH NAME	IIT POWAI BRANCH
COMPLETE BRANCH ADDRESS	IIT POWAI BRANCH, IIT MAIN GATE, ADISHANKARACHARYA MARG, POWAI, MUMBAI-400076
MICR NO.	400002034
ACCOUNT TYPE	CURRENT
SWIFT CODE	SBININBB519

12. Outstation candidates (within India) called for interview will be reimbursed apex air fare by Economy class from the place of their residence and back by the shortest route preferably by Air India.

13. Persons employed in Government/Semi Government Organization or Educational Institutions must apply through proper channel OR shall provide No Objection Certificate while applying or at the time of Interview.

14. The Institute reserves the right to fill or not to fill any or all the posts advertised.

Sd/-

Date : 12.03.2021 **REGISTRAR**