भारतीय प्रौद्योगिकी संस्थान खड़गपुर
INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

Advertisement No.: R/03/2019 Dated March 27, 2019

Special Recruitment Drive for SC/ST/OBC/PwD for Faculty Positions

Indian Institute of Technology Kharagpur, an Institute of national importance, is the first and largest in the chain of IITs engaged in teaching, research and development requires faculty for its various academic units. The Institute invites application from Indian nationals belonging to **SC/ST/OBC/PwD** category, possessing excellent academic background, commitment to top quality teaching and proven credentials for carrying out outstanding research and development for various Departments / Centres / Schools without any compromise on qualification, experience and competence.

As per MHRD/GoI norms reservation is applicable for SC/ST/OBC category in the subjects of Humanities, Social Sciences, Management and Law for all faculty positions i.e. Assistant Professor, Associate Professor and Professor in the following Departments/Schools:

DEPARTMENTS/SCHOOLS

i) Humanities and Social Sciences

Area of specialization :

- Human Resource (HR) preferably with specialization in Industrial Relations & Labour Laws; English; Sociology; Economics; Philosophy; Psychology; Foreign Languages (German, French, Spanish); History; Political Science; Sanskrit.

ii) Rajiv Gandhi School of Intellectual Property Law

Area of specialization :

- Procedural Laws; IP Laws; Family Law; Public Law; IT Law; Business Laws ; Labour Laws

iii) Vinod Gupta School of Management

Area of specialization :

- **Analytics:** Business Analytics, Business Intelligence, Big Data Analytics, Data Mining & Data Science for Business Decisions
- **Operations:** Operations Management, Operations Research, Supply Chain Management, Decision Sciences & Applied Statistics
- **Information Systems:** Information Systems & Technology, Management Information Systems, E-commerce, Social Network & Web Mining, Strategic Information System

Reservation is applicable only for entry level post(s) of Assistant Professor in Departments/Schools/Centres dealing with Science and Technology subjects as mentioned below:

DEPARTMENTS

i) Aerospace Engineering

ii) Agricultural and Food Engineering

iii) Architecture and Regional Planning

Area of specialization :

- Age Friendly Environment; Architectural Design; Advanced Architecture Design; Building materials; Advanced Construction technology and BIM; Advanced AUTCAD and allied

CAM applications in Architectural Design; Community and Regional planning; Community & Behavioural Studies in Planning; Computer Application in Built Environment; Creative Eco-tourism & Heritage based Tourism; Cultural Heritage documentation; Disaster Management & Environmental Resilience; Energy Efficiency in Affordable Housing; Environmental Planning; Facility Location; GIS and Remote Sensing in Planning; Heritage Studies and Conservation; Housing and Community planning; Human Crowd study; Human Factors Engineering; Intangibles in Relief & Rehabilitation; Indian Traditional Architecture : principles, pedagogy, anthropometrics, Solar constructs); IT based Infrastructure; Information System; Landscape and landscape planning; Mixed use development model; Parametric Design and Modular Coordination; Pedagogy in Architectural Design; Dynamics of Metropolitan systems with Peri-urban dynamics; Public Transportation; Traffic Management & Safety; Regional analysis and programming; Residential Satisfaction in Post Disaster Housing; Service quality assessment; Settlement Dynamics and GIS application; Smartness of Traditional Indian cities; Liveability; Social Indicators and Quality of Life; Sustainable Community Planning; Transportation Planning and Routing Services; Urban and Regional Planning; Urban and Regional Econometrics; Urban Design; Urban Planning: Utilities, Services; Water Sensitive planning

iv) Biotechnology

Area of specialization :

- Chemical and Biochemical Engineering: Bioprocess Engineering Metabolic engineering, and Tissue Engineering.
- Biochemistry/Genetics/Structural and functional Genomics/Environmental Microbiology/Molecular Microbiology/Synthetic Biology/Immunology/Structural Biology/Proteomics/Metabolomics/Cell biology/ Neurobiology/Plant Molecular biology

v) Chemical Engineering

vi) Chemistry

vii) Civil Engineering

viii) Computer Science and Engineering

ix) Electrical Engineering

x) Electronics and Electrical Communication Engineering

Area of specialization :

- Communication Engineering
- Signal Processing, Image and Video Processing, Computer Vision, Pattern Recognition
- Microwave/THz Engineering
- Micro/ Nanoelectronics, Optoelectronics, MEMS and Nanotechnology
- VLSI Engineering, Embedded Systems.

xi) Geology and Geophysics

Area of specialization :

- Geology
- Geophysics

xii) Industrial and Systems Engineering

Area of specialization :

- Industrial Engineering, Systems Engineering, Operations Research, Production and Operations Management, Supply Chain Management, Manufacturing Systems, Systems Dynamics and Simulation, Engineering Ergonomics and Human Factors, Safety Engineering and Analytics, Healthcare Systems Engineering, Engineering Product Design and Life Cycle Management, Quality Engineering, Information Systems and E-business, and Data Analytics.

xiii) Mathematics

Area of specialization :

- Theoretical Computer Science, Statistics, Optimization, Functional Analysis, Complex Analysis, Numerical Analysis, Topology, Algebra, Differential Equations and Fluid Mechanics.

xiv) Mechanical Engineering

xv) Metallurgical and Materials Engineering

Area of specialization :

- Ferrous and non-ferrous extractive metallurgy processes; Metallurgical thermodynamics, kinetics and diffusion; Conventional and advanced techniques for processing of materials with emphasis on solidification, joining, surface coatings technologies or thin film processing, etc; Materials characterization techniques with emphasis on transmission electron microscopy, diffraction techniques, or non-destructive evaluation, etc.; Advanced materials for structural or functional applications with emphasis on electronic materials or energy storage materials or smart materials; Corrosion and environmental degradation; Advanced techniques in computational materials science.
- Outstanding candidates in other core or emerging areas of Metallurgical and Materials Engineering will also be considered.

xvi) Mining Engineering

Area of specialization :

- Rock Mechanics and Ground Control; Ventilation and Mine Environment; Mine Planning and Mineral Economics; Hard Rock Mining Methods and Blasting

xvii) Ocean Engineering and Naval Architecture

Area of specialization :

- Marine and Ocean Hydrodynamics, Marine and Ocean Structures, Surface and Submerged Vehicles, Offshore and Subsea Technology, Ocean Energy, Marine Design and Production, Coastal, Port and Harbour Engineering.

xviii) Physics

Area of specialization :

- Astrophysics and Cosmology
- Atomic, Molecular and Optical Science (including Photonics)
- Complex Systems and Nonlinear Science (including Statistical Physics & Bio-Physics)
- Condensed and soft-condensed Matter Physics (including Physics of Nanomaterials and Devices)
- High Energy and Nuclear Physics (including Mathematical Physics)
- Quantum Information and Quantum Computation

CENTRES

i) Centre for Artificial Intelligence

Area of specialization :

Ph.D. with first class or equivalent at the preceding degree with a good academic record throughout with a proven track record of excellence in research in Artificial Intelligence theory, algorithms or systems and a background in Computer Science or a related discipline

- Artificial Intelligence and Machine Learning Algorithms and Theory
- Data Engineering and Big Data systems
- Natural Language and Speech processing
- Visual computing
- Machine Learning Applications

ii) Centre for Computational and Data Sciences (CCDS)

Area of specialization :

Ph. D. degree in any branch of Science or Engineering with research experience in any of the following areas:

- Design and Management of Hardware and Software for High Performance Computing (HPC) Systems
- Data Management/Analytics/Visualization
- HPC application domains including but not limited to the areas of Computational Biology/Computational Fluid Dynamics/Multi-scale Modeling /Comuptational Chemistry/ Computational Physics / Numerical Mathematics / Cryptanalysis / Computational Geo-Science/ Atmospheric Modeling /Computational Mechanics.

iii) Cryogenic Engineering

Area of specialization :

- Superconductivity, applied superconductivity, cryogenic instrumentation, Low temperature physics
- Cryogenic separation processes
- Cryobiology
- Cryogenic heat and mass transfer, Cryogenic fluid flow including multiphase flow and CFD, Cryogenic fluid machineries
- Cryogenic refrigeration and liquefaction including large scale cryogenics and cryocoolers, LNG and Liquid hydrogen technology

iv) Deysarkar Centre of Excellence in Petroleum Engineering

Area of specialization :

- Ph. D. with first class or equivalent at the preceding degree in Petroleum Engineering or a closely related field/relevant discipline of engineering such as Mechanical/Chemical/Mining Engineering or Geology/Geophysics with a very good academic record throughout.
- The successful candidate will be expected to develop and lead internationally prominent research in one or more research areas related to petroleum engineering like (i) Petrophysics/Well logging (ii) Reservoir Simulation (iii) Drilling Engineering (iv) Geomechanics (v) Reservoir Engineering (vi) Production Engineering.

v) Educational Technology

Area of specialization :

- Language Processing; Cognitive Psychology and Cognitive Science; Multimedia Information Processing; Assistive Technology; Artificial Intelligence; Cognitive Computing; Educational Neuroscience; Learning Sciences

vi) Materials Science

Area of specialization :

- Materials Processing and Product Development
- Computational Materials Science

vii) Oceans, Rivers, Atmosphere and Land Sciences

Area of specialization :

- Fluvial Dynamics/Hydrological Modelling/River Dynamics
- Atmospheric Data Assimilation for Extreme weather Modelling
- Climate Modelling
- Monsoon Modelling
- Ocean Biochemistry Modelling and Observations

viii) P. K. Sinha Centre for Bio-Energy

Area of specialization :

- Chemical Engineering with Biochemical/Bioprocess Engineering; Energy Engineering with Bioenergy; Biotechnology with Biochemical Engineering as major

ix) **Rubber Technology**

x) **Rural Development**

SCHOOLS

i) **Bio Science**

Area of specialization :

Ph. D. in any one of the following research areas :

- Cellular Biology / Molecular Biology / Chemical Biology / Structural Biology / Systems Biology / Computational Biology / Developmental Biology / Microbiology / Biochemistry / Biophysics / Enzymology / Immunology / Genetics / Bioengineering.

ii) **Energy Science & Engineering**

Area of specialization :

- Fundamentals of Energy Sciences: Transport phenomena including heat and mass transfer, electrochemical phenomena, thermal and electrical aspects, Bio-processes, Deep ocean processes, Gas and Fluid Dynamics, Nuclear Energy.
- Energy Resources and Recovery: Traditional resources - Coal, Petroleum, Natural Gas; Others - Solar, Wind, Geothermal, Wave, Ocean-thermal, Biomass, Hydrogen; Integrated Energy Resource Systems - analysis, characterization, recovery, production, management, transportation; Clean Energy, Energy Planning and Modelling.
- Energy Systems: Energy Conversion Systems for Oil, Gas, Coal, Solar, Wind, Biomass, Nuclear, Hydrogen, Ocean Waves, Waste; Power Systems - Power generation, distribution, transmission, access; Transportation Power Systems- Electric, and Hybrid Systems; Portable Power Systems; Fuel Cells; Integration of green energy sources in existing grid; Embedded generation systems; Smart grids; Electrochemical systems; New age Fuel systems and process development; Hybrid and electrical systems; Battery & Super-capacitors; Energy systems for marine, space and difficult terrains, Energy System Modelling.
- Other Aspects of Energy Science & Engineering: Energy Materials; Energy Storage & Transportation; Energy Efficient Devices & Systems; Energy Efficient Design of equipment, buildings and appliances; Sustainable Energy; Conservation; Recycling and Management: Environment and Climate Change; Computational Aspects; Energy Economics; Energy by-product (particularly carbon) recycling, capture, sequestration and storage; Rural and small scale energy research.

iii) **Environmental Science & Engineering**

Ph.D. in Environmental Science and Engineering. Prior degree should preferably be in engineering discipline.

iv) **G. S. Sanyal School of Telecommunication**

Area of specialization :

- Communication Theory; Detection and Estimation Theory; Wireless Communications; Optical Communications; Mobile Communications; Information Theory and Coding; Error Control Coding; Space-time Codes; Coding for Distributed Storage and Repair; Signal Processing for Communications; Statistical Theory of Communications; Satellite and Space Communications; Communications and Information Systems Security; Communications QoS and Modelling; RF and mmWave Communications; Quantum Communications; Molecular Communications; Biological Communications; Multi-Scale Communications; Multimedia Communications; Power line Communications; Grid Communications; Green Communications;
- Wireless Networks; Optical Networks and Systems; Cellular Networks; Network Coding; AdHoc and Sensor Networks; Cognitive Radio and Networking; Next Generation Networks; Cloud Communications and Networks.

v) **Medical Science and Technology**

Area of specialization :

- Researchers, preferably with basic degree in Engineering or Applied Sciences, and with strong background of working in the interface of Engineering and Biomedical Applications.
- Researchers with Medical Degree or background expertise in the Medical domain.

vi) Nanoscience & Technology

Area of specialization :

Ph. D. in any branch of science or engineering with research experiences in any one of the following research areas :

Nanofabrication / Nanoelectronic and Photonic Devices / NEMS / Nanosensors. Bulk nanostructured materials for structural applications. Novel nanomaterials : Synthesis, self-assembly and applications. Nanostructured coatings for energy conversion/storage and surface engineering. Nano-biotechnology. Computational nanostructures.

vii) Rajendra Mishra School of Engineering Entrepreneurship

Area of specialization :

- Entrepreneurship: Entrepreneurship development & ecosystem; Start-up or venture creation; Social Entrepreneurship; Entrepreneurial finance & economics; Growth & Sustainability of enterprises; Entrepreneurial leadership;
- Product Engineering & Innovation: Design thinking; Product development; Intelligent Manufacturing; Innovation management & diffusion
- Sectoral Technological Modelling & Development: Energy & Clean Technology; Smart-grid; Healthcare; Edupreneurship; Bio-innovations; Rural Technology; Waste Management; Data Analytics & Modelling

viii) Ranbir & Chitra Gupta School of Infrastructure Design and Management

Area of specialization :

- Social Infrastructure (for instance, Health, Tourism, Education, Economic Innovation Hubs) Design and Management in the context of Livable/ Smart /Sustainable and Compact Urban Engineering/ Planning
- Transport and Transport-oriented Development (ToD) driven Physical Infrastructure Design and Management in the context of Livable/ Smart /Sustainable and Compact Urban Engineering/ Planning
- Ports facilities (Airport, Sea Ports and Riparian Networks) driven Special Economic Zone Logistics and Infrastructure Design and Management
- Industrial Parks and Energy / Ecology conscious Infrastructure Design and Management
- Advanced IT-driven E-governance and Infrastructure Finance Planning / Telecommunication Infrastructure driven Design and Organizational Management systems (inclusive of MEMS)
- Advanced Construction Project Management Skills and Techniques in - a) Sustainable Infrastructure Planning; b) Energy management in infrastructure; c) Infrastructure Project management; and d) Urban and Regional infrastructure and various ambit of Rural-urban contiguity infrastructure.

ix) Subir Chowdhury School of Quality and Reliability

Area of specialization :

- All areas in the field of Quality, such as: Statistical Process Control, Quality Engineering, Total Quality Management, Quality Testing, Quality Systems and Standards, Product and Process Quality, Structural Quality, Human Aspects in Quality, Software Quality, etc.
- All areas in the field of Reliability Engineering, such as: Reliability Design, Life Testing and Reliability Estimation, Repairable Systems Reliability, Reliability of Networks, Human Reliability, Software Reliability, Warranty Analysis, Maintenance and Maintainability, Condition Monitoring and Fault Diagnosis, System Safety and Risk Analysis, Product and Process Reliability, etc.

x) Water Resources

Area of specialization :

- Research / Field / Industry experience in the following areas: Groundwater Modelling and Management; Hydro-informatics/ Information & Communication Technology (ICT) in Water; Water Economics and Governance; Urban/Rural Water Supply Systems; Water &Wastewater Treatment and Reuse; Industrial Wastewater Management.

IMPORTANT NOTE

- **The list of specializations in Departments/Centres/Schools and areas of therein are not exhaustive but indicative.**
- **The institute reserves the right to add/delete/modify its requirements depending upon exigencies. Prospective Candidates are advised to constantly visit the website for updates.**

ELIGIBILITY CRITERIA

Posts: Professor, Associate Professor and Assistant Professor

Qualifications for the Post: Ph.D. with first class or equivalent at the preceding degree in the appropriate branch with a very good academic record throughout.

Experience for the Posts:

Posts	Experience for the post
Professor	A minimum of 10 years' teaching / research / industrial experience of which at least 4 years should be at the level of Associate Professor in IITs, IISc Bangalore, IIMs, NITIE Mumbai and IISERs or at an equivalent level in any such other Indian or foreign Institution(s) of comparable standards.
Associate Professor	A minimum of 6 years teaching / research / industrial experience, of which at least 3 years should be at the level of Assistant Professor or equivalent positions in IITs, IISc Bangalore, IIMs, NITIE Mumbai and IISERs or in any such other Indian or foreign Institution(s) of comparable standards.
Assistant Professor Grade I	• At least 3 years teaching / research / industrial experience, excluding however, the experience gained while pursuing Ph.D.
Assistant Professor Grade II	• Candidates with less than 3 years experience may be appointed on contractual basis as Assistant Professor Grade II. • At the entry level they may be placed in Level 10 of Pay Matrix with basic pay of Rs. 70,900 or Rs. 84,800 in Level 11 of Pay Matrix depending upon the experience and shall move to level 12 of Pay Matrix with a minimum basic pay of Rs. 1,01,500 on completion of 3 years of requisite experience and on assessment of satisfactory performance.

Pay level and Pay Matrix for the Posts:

Position	Level and Pay Matrix	Pay Band (Pre-revised)	AGP (Pre-revised)	Minimum basic pay in pay level	Gross emoluments (approx) including DA/Transport Allowance at the prevailing rate
Professor	Level-14A Pay Matrix: Rs.159100-220200/-	PB-4 Rs. 37,400-67,000/-	Rs. 10,500	Rs. 1,59,100	Rs. 1,79,911
Associate Professor	Level-13A2 Pay Matrix: Rs. 139600-211300/-	PB-4 Rs. 37,400-67,000/-	Rs. 9,500	Rs. 1,39,600	Rs. 1,58,426
Assistant Professor Grade I	Level-12 Pay Matrix: Rs. 101500-167400/-	PB-3 Rs. 15,600-39,100/-	Rs. 8,000	Rs. 1,01,500	Rs. 1,16,229
* Assistant Professor Grade I in IITs, IISc Bangalore, IIMs, NITIE Mumbai and IISERs on completion of 3 years of service shall move to Level 13A1 of Pay Matrix and will, however, continue to be designated as Assistant Professor Grade I.					

Accommodation: Suitable residential accommodation as per rules will be provided in the Campus of the Institute on joining the Institute.

Incentives for pursuing Excellence in teaching and research:

a) Innovative Research Grant under **the Institute Scheme for Innovative Research and Development (ISIRD)** be provided to new faculty members upto a maximum of ₹ 25 Lakh for equipment and infrastructure and an additional ₹ 3 Lakh for consumables, contingency and travel. Additionally, a number of Research Challenge grants are available.
b) A Cumulative Professional Development Allowance (CPDA) of ₹ 3 Lakhs for every block period of 3 years (Rupees one lakh per year) may be made available to every member of the faculty on reimbursable basis to meet the expenses for participating in both national and international conferences, paying the membership fee of various professional bodies and contingent expenses.
c) An additional amount of ₹ 50,000/- is given to a faculty member for attending conferences abroad who is a Principal Investigator of a Sponsored Project amounting to at least ₹ 15 Lakhs and has at least three Published Papers in referred journals in the preceding three years.
d) Reimbursement of relocation charges within India / abroad of upto ₹ 1,50,000/- to the faculty members at the time of their joining.
e) Interest free soft advance of ₹ 50,000/- to the newly recruited faculty members.
f) Honorarium of ₹ 15,000/- per month to the faculty members who have been awarded the S.S. Bhatnagar Prize OR who are fellows of at least two National Academies.
g) Transport Allowance and re-imbursement of Telephone bills upto ₹ 1500/- per month as per rules.
h) Free local telephone facility in the Department as well as residences within the campus.
i) Children Education Allowances (CEA) / LTC facility as per Government of India rules.
j) Medical facility for self and other dependent family members in the B C Roy Technology Hospital within the campus and for referrals to Speciality Hospitals as per IIT Kharagpur rules.

General Information

- Reservation for SC/ST/OBC/PwD as per Government of India Rules
- Age relaxation for SC/ST/OBC/PwD candidates is applicable as per Government of India norms.
- Candidates should submit their valid SC/ST/OBCs/Disability Certificate issued by the Competent Authority in the prescribed format along with the application form, in support of their claim.
- The valid OBC – Non Creamy Layer (OBC–NCL) certificate should be issued as per the prescribed format of Government of India by appropriate Authority.
- Minimum requirement of experience may be relaxed in respect of outstanding candidates.
- Degrees obtained by the candidate should have been awarded by a recognized University / Institute.
- Mere eligibility will not vest any right on any candidate for being called for interview. The decision of the Institute in all matters will be final. No correspondence will be entertained from the candidates in connection with the process of selection / interview.
- The Institute reserves the right to call for interview only those candidates shortlisted on the basis of their qualification, experience, research and publication records and departmental requirements, interaction in the department, etc.
- The candidates should be preferably below 35 years of age for the post of Assistant Professor.
- The Institute reserves the right to fill or not to fill any or all the posts advertised.
- Persons employed in Government Organizations / Quasi Government Organizations should submit their application through proper channel.
- Travel support to the extend of Air fare (economy class) by Air India by the shortest route within India and Institute Guest House facilities free of charges in the campus to for candidates for appearing the interview for faculty position.
- Canvassing in any manner may entail disqualification of the candidature.
- Any dispute with regard to the selection / recruitment process will be subject to Courts / Tribunals having jurisdiction over Kolkata.

Candidates possessing requisite qualification & experience are required to **apply online** (https://erp.iitkgp.ernet.in/FacultyCareer/homeFacultyCareer.jsp) on or before **30-04-2019** and send a signed hardcopy print out of online application on or before **07-05-2019** to "**Assistant Registrar, E-III, Indian Institute of Technology Kharagpur–721302, WB, India". Unless the hardcopy is received, the application will not be considered.**

For any other details please contact Assistant Registrar, E-III, Phone: 03222- 282135/282137, Fax: 03222-282020, Email: asregre@adm.iitkgp.ernet.in / recsec@adm.iitkgp.ernet.in

If any problem encountered with online application, please contact through phone: +91-3222-281017/18/19.

Candidates may also contact the Heads of the various Departments / Centres / Schools. Their address, phone numbers and email are available on Institute webpage.

कुलसचिव / Registrar