

IIT Madras - Faculty Recruitment - Specialization Area - (2018c)

Advt.No.IITM/R/6/2018 dt. 17.10.2018

Please see the Column A & B of detailed advertisement of Faculty Recruitment for basic qualifications and experience for the posts of Professor & Assistant Professor.

For Departments the Post Advertised, specific qualification requirements (if any) and areas of specialization sought are detailed in the table below:

SNo	Department	Post / Specific Qualification Requirement	Specialization Area(s)
1	Aerospace Engineering	Assistant Professor Only candidates with a clear focus on one or more of the specified areas will be considered	<ul style="list-style-type: none"> • Airplane Design • Airplane Aerodynamics • Dynamics & Control of Aerospace Vehicles • Experimental structural mechanics • Structural Dynamics • Advanced Manufacturing of Aerospace Structures
2	Applied Mechanics	Professor	<ul style="list-style-type: none"> • Turbulent convection and near wall dynamics • Thermofluid Dynamics for Energy Systems
		Assistant Professor A degree in Mechanical/ Electrical / Metallurgical / Engineering Design with Experimental Background	<ul style="list-style-type: none"> • Biomaterials and Medical Devices
3	Bio Technology	Professor Postgraduate degree in Chemical or Life Sciences.	<ul style="list-style-type: none"> • Endothelial inflammation and Atherosclerosis • Developmental Genetics • Organocatalytic synthesis of new chemical entities and chemical biology.
		Assistant Professor BE/BTech in Chemical Engineering (preferably)/ Biochemical Engineering	<ul style="list-style-type: none"> • Bioprocess / Biological Engineering.
4	Chemical Engineering	Professor	All Areas in Chemical Engineering.
		Assistant Professor At least one Degree in Chemical Engineering or allied Engineering Disciplines	<p>Energy: Conventional and unconventional energy sources; Carbon capture and sequestration; Electrochemical energy systems; Batteries; Process intensification;</p> <p>Environment: Aerosol fate and transport; Modeling and remediation/restoration of environmental and ecological systems; Environment sensors;</p> <p>Materials: Synthesis and characterization of functional materials; Fabrication and testing of energy and display devices; Multi-scale modeling;</p>

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	Chemical Engineering (contd..)		<p>Systems Engineering: Systems biology; Modeling and control of complex networks;</p> <p>Computational Modeling and Simulation: Non-equilibrium simulations and modeling of biomolecular and biological systems; Large scale modeling and computations in energy and environmental engineering;</p> <p>Quantum simulations for reaction kinetics in condensed phases with temperature and other effects in solution, at surface/interface; Meso-scale computations of glassy materials and solids; Theoretical statistical mechanics in chemical physics.</p>
5	Chemistry	Professor	<ul style="list-style-type: none"> Stochastic Chemical Dynamics, Polymer Dynamics –Theory.
6	Civil Engineering	Professor	<ul style="list-style-type: none"> Water Resources and Hydrological Modelling
		Assistant Professor At-least one degree in Civil Engineering	<ul style="list-style-type: none"> Infrastructure and Construction Management Building Science
		Bachelor degree in Civil Engineering/ Chemical Engineering.	<ul style="list-style-type: none"> All areas of environmental engineering (Preference will be given to candidates specialized in anaerobic treatment systems, life cycle analysis, air pollution monitoring and modelling, ecotoxicity and environmental health risk analysis).
		Bachelor degree in Civil Engineering.	<ul style="list-style-type: none"> Ground Water Engineering
		At-least one degree in Civil Engineering	<ul style="list-style-type: none"> <u>Transportation Systems</u> - Transportation Economics, Freight Transportation, Emerging Mobility Technologies (such as mobility on demand, electric vehicles, connected vehicles) and Traffic Safety. <u>Pavement Engineering and Management</u> - Advanced Bituminous Material Characterization, Concrete Pavements, Non-destructive testing of Pavements, Pavement Management System, Road Asset Management, and Pavement Construction Technology.

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7	Computer Science & Engineering	Professor Specific Qualification*	<ul style="list-style-type: none"> All areas of Computer Science and Engineering.
		Assistant Professor Specific Qualification*	<ul style="list-style-type: none"> All areas of Computer Science and Engineering.
8	Electrical Engineering	Professor	<ul style="list-style-type: none"> Analog mixed signal IC Design Power Electronics and Motor Drive Sensors and Instrumentation <p><i>Candidates with exceptional record in other research areas may also be considered.</i></p>
		Assistant Professor	<ul style="list-style-type: none"> RF Power Amplifier Design Power Trains for EVs Machine Learning <p><i>Candidates with exceptional record in other research areas may also be considered.</i></p>
9	Engineering Design	Professor	<ul style="list-style-type: none"> Computer methods in imaging, design and additive manufacturing. Geometric computing and modelling.
		Assistant Professor At least one Electrical/ Electronics/ Allied degree.	<ul style="list-style-type: none"> Power electronics and Motor drives. Sensors and Instrumentation with demonstrated research experience in Automotive or Biomedical or Robotics applications. Electric/Hybrid Vehicle Design.
		At least one Mechanical/Allied degree.	<ul style="list-style-type: none"> Noise, Vibration and Harshness (NVH) with demonstrated research experience in Automotive applications.
10	Humanities & Social Sciences	Professor	<ul style="list-style-type: none"> Linguistics.
		Assistant Professor	<ul style="list-style-type: none"> Economics (Finance, Health); Psychology; Political Science (Political Theory)

***Computer Science & Engineering:**

- **Bachelors Degree:** Candidates must have an engineering degree in Computer Science and Engineering. Candidates with a Bachelor's degree in Electrical Engineering (with specialization in Electronics and Communications) or in Electronics and Communications Engineering may also apply if their records clearly demonstrate ability to teach core computer science courses.
- **Masters Degree:** Candidates must hold a master's degree in engineering from Computer Science/Computer Science and Engineering/Computer Engineering program. *[This may be waived if the candidate was admitted to a direct Ph.D. program after the Bachelor's degree.]*
- **Ph.D. Degree:** Must be in Computer Science/Computer Science and Engineering/ Computer Engineering.

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11	Management Studies	Professor	<ul style="list-style-type: none"> Operations Management
12	Mathematics	<p>Professor</p> <p>M.Sc. and Ph.D. must be in the subject of Mathematics with good quality continuous track record.</p>	<ul style="list-style-type: none"> Wave Structure Interaction Fractal Interpolation Functions and Approximation
13	Mechanical Engineering	Professor	<ul style="list-style-type: none"> Non-destructive Evaluation Heat Transfer Machining & Machine Tools Manufacturing Automation Control Engineering Turbomachines
		Assistant Professor	<ul style="list-style-type: none"> Multi Scale Mechanics Design Automation Control Engineering Refrigeration, HVAC, Cryogenics Multi Phase Flows Turbomachines Machine Tools Metrology Manufacturing Automation Atmospheric Sciences
14	Ocean Engineering	<p>Professor</p> <p>Ph.D relevant to Ocean Engineering with excellent academic record with first degree in engineering in Naval Architecture/Civil/ Mechanical /Ocean/ Petroleum/ Chemical Engg.</p>	<ul style="list-style-type: none"> Naval architecture: Ship structures; Motion/Manoeuvring; Ship Hydrodynamics and Ship design; Ocean Engineering: Ocean structures; Marine Hydrodynamics. Petroleum Engineering: EOR and natural gas engineering.
		<p>Assistant Professor</p> <p>Ph.D relevant to Ocean Engineering with excellent academic record with engineering degree in Naval Architecture/Civil/ Mechanical/Ocean Engg.</p>	<ul style="list-style-type: none"> Naval architecture: Ship structures; Motion/ Manoeuvring; Ship Hydrodynamics and Ship design; Ocean Engineering: Ocean structures; Coastal Engineering and Hydrodynamics.
15	Physics	Professor	<ul style="list-style-type: none"> Experimental Condensed Matter Physics: Ferroics.