Mahindra University

www.mahindrauniversity.edu.in

Ph.D. Program Admission Notification
(Fall 2025 Semester starting in August, 2025)

Mahindra University, notified by the Government of Telangana vide Telangana Ordinance No. 1 of 2020 dated 20th May 2020, announces the launch of its 11th Batch of Ph.D. admissions in the Fall 2025 Semester starting in August, 2025.

The Doctor of Philosophy (Ph.D.) degree is acknowledged to be the highest university degree that is conferred on a doctoral student, who successfully defends her/his Ph.D. thesis in front of a panel of experts in the field appointed by the University after having spent a stipulated time and having achieved publications in reputed international journals and conferences.

The first year would require the Ph.D. candidate to go through a set of prescribed course work followed by initiation to research and comprehensive examination and carrying out actual research with the Ph.D. Adviser. The journey to earning Ph.D. degree typically goes through a cycle of four phases involving preparation, challenges, small and big successes and ultimate joy of successful defense of the written thesis. Completion of a thesis, depending on individual performance, typically may take about 4 years.

The Mahindra Edge

Ph.D. students at Mahindra University would have great opportunities for interdisciplinary research by working closely with our faculty, some of who are at the forefront of their fields (may like to check faculty profiles on our website). Our research infra-structure in terms of state-of-the art laboratories in science and engineering are of high quality and are being continually upgraded. Government of India funding agencies like SERB, BRNS, DRDO, MeitY, etc., have already funded several research projects as well as international collaboration projects granted by DST's International Division.

Ph.D. programs are offered in Engineering and Applied Sciences. For those who wish to pursue liberal arts at Ph.D. level, we have a strong Humanities and Social Sciences program, which is backed by high-quality Media and Design Thinking laboratories and Entrepreneurship cell.

Specialized areas in which Ph.D. students, if found suitable, would be admitted in Fall 2025 semester

Ph.D. Specializations for Fall 2024 semester: (Aug'25 Intake)

- **Physics:** Solar Cell; Spintronic Devices; Dielectric Metasurfaces, Integrated Quantum devices, Liquid crystal microfluidics, Multifunctional materials and devices, Quantum Computing; and Neutrino Physics, Guided Wave Photonics and Fiber Optics, Terahertz metasurfaces, Terahertz magnetotransport, Active metamaterials, Terahertz photonics, 5G/6G communications, Topological photonic insulators, Metamaterials and metasurfaces, Photonic time crystals, Specialty optical fibers, Exceptional point photonics, Topological and quantum photonics, Complex photonics, Quantum optics.

- **Civil Engineering:**

  Structural Engineering: Geopolymer concrete, Structural Engineering of Heritage Structures and Civil Structural Health Monitoring with sensors, Advanced Structural Cementitious Composites, Earthquake proof civil structures, Seismic Risk Assessment, Engineering Seismology, Engineered Bamboo, monitoring corrosion of Infrastructure, Sustainable materials, Engineered nano cementitious composites, Ultra high performance concrete composites, Structural distress and strengthening systems, Precast elements with 3D concrete printing and Performance based design of Precast structural elements.

  Transportation Engineering: Travel Behaviour and Choice Modelling, Mobility as a Service (MaaS), Shared Mobility, Sustainable Urban Transportation Systems, Road Safety Audit. Intelligent Transportation Systems, Driver Behaviour, Road Safety Education, Road Traffic Noise. Transportation and Environment- transportation systems modelling, GIS applications and optimization in transportation infrastructure modelling and development, high-speed rail infrastructure planning, and metaheuristics in alignment development and facility location. Driver Behavior, Safety Implications of Electric Vehicles, Road Safety Education, Pedestrian Safety, Intelligent Transportation Systems, Road Traffic Noise.

  Geotechnical Engineering: Geosynthetics, Sustainable/recycled/secondary pavement materials, stabilization of materials, pavement geotechnics, and NDT Testing.

  Water resources Engineering: Watershed management, hydrological modelling, and GIS application in catchment area/drainage basin.

Environmental Engineering: Indoor environmental quality, Water quality monitoring, Micropollutants, Photocatalysis, Nanomaterials synthesis for air and water pollution mitigation, Microalgal biofuels.

Construction Management: Project management, Stakeholder management, Risk management in mega construction projects, Sustainability in construction projects, Lean Construction, and Circular economy.

- **Electrical and Computer Engineering**:

  VLSI Design & Embedded Systems: IoT architecture, Fault tolerant and resilient embedded systems, Embedded/Edge AI, VLSI designs beyond CMOS, Machine learning applications in VLSI, Algorithms for physical design automation, Semiconductor Devices, High Electron Mobility Transistor modelling for High Frequency applications, Memristor logic for low power logic implementation, Low power reliable memories for In memory compute (IMC), SRAM for space applications, Design of digital circuits and memories using Quantum-dot Cellular Automata (QCA), Synthesis of high k nanomaterials for semiconductor applications, hardware security, approximate computing. Embedded systems for smart homes, smart farming, and smart healthcare, deep neural network accelerator VLSI design, approximate circuit synthesis for deep neural network.

  Renewable Energy System & Smart Grid: Hybrid Energy Storage Systems, Cyber Physical Systems, Cyber Security for Power Electronic Systems, Fuel Cell.

  Power Electronics and Electric Drives: Sensorless Electric Drives, Electric Vehicles, EV charging, Cyber Physical Systems, Cyber security for Power Electronic systems, fuel cell, Hybrid Energy Storage systems

  Communications and Signal Processing: Biomedical Signal Processing, Biometrics and Computer vision, Wireless communications, 5G and massive IoT, High performance sense amplifier design, Deep learning for wireless communication, Radio Resource Management, MIMO communication, Non-orthogonal Multiple Access Technologies, Optimization in PHY and MAC layers, Dynamic Spectrum Access, Error correction coding for 5G and IoT communication, underwater optical communications, underwater object identification, and ocean optics, RF security and interference management for 5G IoT, AI/ML for RF signal processing for 5G/6G, Ultra-wideband digital predistortion for 5G/6G, 5G Security and RF Fingerprinting, Integrated Sensing and Communications, Energy-efficient next generation broadcasting systems, PAPR reduction techniques for 5G and beyond

- **Chemistry:** Layered Transition Metal Oxide based electrode materials for flexible Supercapacitors, Design engineering Photocatalyst for wastewater treatment, Hybrid Polymer materials, Two Dimensional materials for Energy Application.

- **Mathematics:** Numerical Analysis; Differential Equations; Analysis of Partial Differential Equations; Image Processing; Stochastic Differential Equations; Optimal Control Theory; Probability and Statistics; Fluid Dynamics; Operations Research; Scheduling and Timetabling in Industry and Education; Finite Group Theory; Numerical Linear Algebra; and Machine Learning, Financial Mathematics, Graph Theory, Graph Algorithms; Computational Methods for PDEs, Mathematical biology, mathematical modeling

- **Mechanical and Aerospace Engineering**:

  Fluid & Thermal Engineering: Solar Thermal Power, Refrigeration and Air-Conditioning, Cell modelling, Experimental study on Battery thermal management, Direct/indirect cooling of Lithium-ion battery pack, ageing, thermal runaway of Lithium-ion cell, Heat transfer, Microfluidics, Biofluid Dynamics, Biomechanics Modelling and Simulation.

  Solid mechanics: Computational Mechanics, Theoretical solid mechanics, Computer Aided Design, mechanics of 3D printed cellular materials, functionalized 3D print resins (modelling + development)

  Materials and Manufacturing Process: Nano materials, Cyber-Physical Systems, Advanced manufacturing systems, Sheet metal forming of Titanium Alloy Ti6AI4V, Forming, Rolling of Aerospace materials, Manufacturing process simulation for aerospace materials, Additive manufacturing, Numerical Modelling and Simulation of additive manufacturing, advance finishing process, Smart Manufacturing, Industrial Engineering, Tribology

  Robotics: Robotics, Cable-Driven Robotics, Exoskeletons, Exosuits, Unmanned Aerial Vehicles, etc.

  Aerospace Engineering: Gas turbine Combustion, Computational Turbomachinery, Scramjet Propulsion with hydrogen and hydrogen fuel, Regenerative Cooling in high speed flow, Turbulence modelling, Combustion modelling, Large Eddy Simulation, Direct Numerical Simulation, Turbulence-chemistry interaction, Laminar to Turbulent Transition, CFD code development in high speed reacting and non-reacting flows, Numerical Modelling of Heterogeneous Solid Propellant Combustion, Combustion Instability

- **Computer Science and Engineering:**

  Any area of CS and AI overlapping with current research interests of the faculty of the department.

  Prospective candidates are encouraged to explore the research interests of individual faculty members on their respective websites. A meaningful overlap between the candidate's proposed research and the established research areas within the department is to be ensured by candidates.

  Indicative areas **-** High-Performance Computing; Social Network Analysis; Artificial Intelligence; Machine Learning; Deep Learning; Cyber-Physical Systems; Computer Vision and Image Processing; Natural Language Processing; Computational Intelligence; Theoretical Computer Science; Big Data Computing; Computer Architecture; Computer Networks; Network Security; Cyber Security; Wireless Sensor Networks; Generative AI, Neuroscience, Brain-Computer interface

- **Entrepreneurship:** Innovation and Entrepreneurship; Start-ups and Technology Entrepreneurship, Family Business Management, Start-ups-Scaling up & Growth, Incubation processes and models

- **Humanities and Social Sciences:**

  Indian Ocean History; Economic Anthropology; Political Science; English Language Skills Teaching and Assessment, Technology (Digital and Multimodal) in ESL Education, Intercultural Communication, Materials Development in ELT, Teacher Professional Development, Material Development, Teacher Identity/Cognition, Teaching Approaches, Methods and Strategies, Gender and Disability Studies in Francophone literature, Political Economy, Macro Economics, Labour Economics, Development Economics, Economics of Climate Change, Agricultural Economics, Environmental Economics, Energy Economics, Philosophy of logic; Philosophy of Mind; Philosophy of Language; Consciousness studies; Cognitive Science; Professional Ethics; Environmental Ethics; Indian Philosophy, Sociology of Migration, Citizenship, Governance, Political Ecology and Climate Change, School Education, Educational leadership and Governance, Gender and Educational Leadership, Medieval and Early Modern Indian History, Gender History of Islamic Societies in Early Modern India, Law and Colonialism, History of Emotions

  Cognitive Science: Attention, Perception and Memory, Speech Perception, Vision and Cognition, Colour Perception, Role of Vision in Driving Behaviours, Alzheimer's Disease and Cognitive Aging**,** Cognitive Psychology and Cognitive Linguistics.

  Linguistics: Applied Linguistics (Phonetics, Phonology, Syntax, Semantics and Pragmatics), Sociolinguistics**,** Psycholinguistics, Cultural Linguistics, Machine Translation and Computational Linguistics

- **Life Sciences:**

  Cancer Genomics, Host-Pathogen Interactions, Microbial Genomics, Stem Cell Biology, Synthetic Biology, Plant Metabolic Engineering, AI in Healthcare, Computational Drug Discovery, CRISPR Gene Editing, Biomedical Image Analytics, Disease Modelling, Bioprocessing Green Products

Eligibility:

Programme	Minimum qualification required for admission	Admission Process
Ph.D. **(Full Time ONLY)**	Master's degree in Engineering/Technology/Science/Humanities/Social Sciences with a minimum CGPA of 6.00 on a 10-point scale or 60% marks in aggregate. Full time students who do not possess M.Tech. or equivalent degree and instead possess B.Tech. or equivalent degree with a minimum CGPA of 7.00 on a 10-point scale or 70% aggregate marks are required to have a valid GATE score or UGC/CSIR/DBT/INSPIRE Fellowship Examination for Sciences/Humanities and Social Sciences disciplines. - The requirement of GATE/National examination can be waived off for possible admission to Ph.D. programs for all graduates from Centrally Funded Technical Institutes with a B.Tech./B.E./Integrated M.Sc. (or any other program of minimum four years duration, admission to which was on the basis of JEE) with CGPA of 8.00 and above at the time of graduation. - The requirement of GATE/National Examination can be also waived off for M.Sc. graduates from IITs with a CGPA of 8.00 and above.	Entrance Test followed by Interview (For Shortlisted Applicants)

Ph.D. Entrance Test:

Candidates not having valid GATE score or or UGC/CSIR/DBT/INSPIRE will have to appear in the written Test to be conducted by ECSE-MU, followed by an interview for the shortlisted candidates.

Mahindra University Ph.D. Entrance Test: 14-Jun'25 (Saturday) at Mahindra University Campus

FEE STRUCTURE & Ph.D. ASSISTANTSHIP (Free Boarding & Lodging):

Important Dates (* Subject to revision):

Last Date for submission of applications	**4 th June, 2025**
Shortlisting of candidates for interview	**9 th June, 2025**
Ph.D. Entrance Test / Interview	**14th Jun, 2025**
Announcement of Results	**30th Jun, 2025**
Commencement of the Fall 2025 Semester Teaching	**4th Aug,2025**

Please click here to view Application Procedure for Ph.D. Program

Please click here to Apply