



Indian Institute of Technology Madras

Web-enabled PG Programs



- AEROSPACE ENGINEERING
- ARTIFICIAL INTELLIGENCE
- COMPUTER SCIENCE & ENGINEERING
- ELECTRICAL ENGINEERING
- E-MOBILITY
- MECHANICAL ENGINEERING
- PROCESS SAFETY
- MANUFACTURING ANALYTICS

About IITM CODE



We offer diverse programs emphasizing skill – based training in highly performing industrial domains. Web-enabled M.Tech programs have been curated factoring the needs of the industries and caters to the professional development of their employees. Being offered since 2017, the unique features of the program are the adequate opportunity for student – teacher interaction, availability of session recordings and flexibility to complete the program at their own pace with an upper cap.

Web-enabled M.Tech is a program exclusively for working professionals (minimum 2 years work experience) curated with course work, laboratory and project work. On completion of course work, the students shall execute the project in their employed organisation with company support through MoU or Letter of Support (LoS). The student also has an option to exit the program with a PG Diploma subject to completion of the diploma program requirements.

Freshers, entrepreneurs and anyone aspiring to upskill (less than 2 years work experience) can enroll for the PG Diploma programs. On completion of PG Diploma, the students shall upgrade to M.Tech subject to fulfillment of academic and administrative requirements defined by the IIT Madras Senate at the time of completing the PG Diploma

Additionally, we offer executive education programs to enhance leadership capabilities and strategic acumen for industry professionals. Our portfolio includes undergraduate programs such as BS in Data Science and Applications, BS in Electronic Systems, BS in Aeronautics and Space Technology & BS in Management and Data Science catering to a diverse student population.

CUTTING-EDGE SKILL PROGRAMS

Gain practical insights and hands-on experience in areas like eMobility, Quantum Computing, and more.

EXECUTIVE EDUCATION

Enhance leadership skills and strategic thinking through tailored programs for industry professionals.

NON-CAMPUS UNDERGRADUATE PROGRAMS

Accessible pathways for further education, regardless of age or background.

WEB-ENABLED PG PROGRAMS

Upskill while working with flexible, career-enhancing programs.

ACCESSIBILITY

Quality education for all, with programs open to individuals from all walks of life.

WEB-ENABLED PG PROGRAMS

OVERVIEW

- **M.Tech:** Web-enabled M.Tech Program enables professionals to obtain a M.Tech degree while working.
- **PG Diploma:** This program is offered for freshers, entrepreneurs, anyone aspiring to upskill in their career.

ELIGIBILITY FOR THE PROGRAM

- Candidates must possess relevant background and educational qualifications as per individual program.
- Work Experience :
 - M.Tech : Minimum 2 years of work experience
 - PG Diploma : No work experience is required

PROGRAM MODALITIES

- Live classes in the evenings between 4 to 7 pm or recorded videos with weekend live sessions
- Online/In-person exams at centres

M.Tech

- Employer support through MoU/Letter of support for M.Tech project at company to be produced before or start of project
- An intermediary exit with PG Diploma is offered subject to completion of the diploma program requirements

PG Diploma

- This program involves only coursework and employer support is not required (except E-Mobility)
- An opportunity to upgrade to the M.Tech program at the end of the PG Diploma, subject to fulfillment of academic and administrative requirements defined by the IIT Madras Senate at the time of completing the PG Diploma

TIMELINES

Applications open – February to May

Entrance Exam–June to July

Classes commence in August/September

SELECTION CRITERIA

Entrance Exam





AEROSPACE ENGINEERING

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

AEROSPACE ENGINEERING

Core Courses

- AS6520W Mathematics for Aerospace Engineers
- AS5010W Aerodynamics and Aircraft Performance
- AS5011W Compressible Fluid Flows
- AS5030W Aerospace Structures
- AS5020W Aerospace Propulsion
- AS5040W Flight Mechanics

Elective Courses

Complete Elective list can be viewed at
<https://code.iitm.ac.in/aerospace>

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Strength of Materials
- Fluid Mechanics
- Thermodynamics
- Basic Mathematics



ELIGIBILITY

BE/B.Tech in Aerospace/
Civil/Chemical/Computer Science/
Electrical/Mechanical/Metallurgical/
Naval Architecture OR Master's degree
in Physics/Mathematics/Chemistry

Live Classes between 5:30pm - 7:00pm (IST)

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/aerospace>



AEROSPACE ENGINEERING

Specialization:
Ammunition Technology

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

AMMUNITION TECHNOLOGY

Core Courses

- AS6520W Mathematics for Aerospace Engineers
- AS5010W Aerodynamics and Aircraft Performance
- AS5011W Compressible Fluid Flows
- AS5030W Aerospace Structures
- AS5020W Aerospace Propulsion
- AS5040W Flight Mechanics
- AS6080W Theory of interior and intermediate ballistics
- AS6090W Theory of Exterior and Terminal Ballistics
- AS6095W Design of Ammunition

Elective Courses

Complete Elective list can be viewed at
<https://code.iitm.ac.in/ammunition>

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Strength of Materials
- Fluid Mechanics
- Thermodynamics
- Basic Mathematics



ELIGIBILITY

BE/B.Tech in Aerospace/
Civil/Chemical/Computer Science/
Electrical/Mechanical/Metallurgical/
Naval Architecture OR Master's degree
in Physics/Mathematics/Chemistry

Live Classes between 5:30pm - 7:00pm (IST)

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/ammunition>



ARTIFICIAL INTELLIGENCE

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

ARTIFICIAL INTELLIGENCE

Core Courses

- DA5000W Mathematical Foundations of Data Science
- DA5301W Python and data structures for data science.
- DA5400W Foundations of Machine Learning
- DA6401W Introduction to Deep Learning

Electives

- CH5350W Applied Time Series Analysis
- ID6004W Industrial Vision AI
- ID5004W AI in Predictive Maintenance, Reliability and Warranty
- ID6003W AI in Process & Logistic Optimization
- ID6002W Online and Reinforcement Learning
- ID6001W Applied Deep Learning
- CH5440W Multivariate Data Analysis for Process Modeling

Lab

- DA5401W Data Analytics Laboratory
- DA5402W Machine Learning Operations Lab

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Probability and Statistics
- Linear Algebra
- Optimization
- Basic Machine Learning



ELIGIBILITY

- 4 years B.Tech/B.E./BS in any branch of engineering and technology with Mathematics as a compulsory subject in the 10+2 system.
- 5 years Integrated MTech/MSc in any branch of engineering and technology with Mathematics as a compulsory subject in the 10+2 system.
- MSc: BSc (Maths/IT/Statistics/ Computing)* + MSc (Maths/IT/Statistics/ Computing) with Mathematics as a compulsory subject in the 10+2+3 system
- MCA: BSc (Maths/IT/Statistics/ Computing)* + MCA with Mathematics as a compulsory subject in the 10+2+3 system

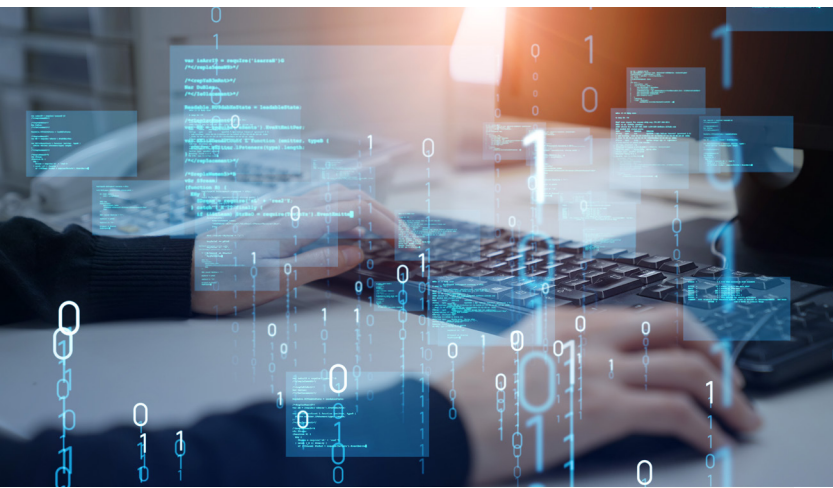
*Includes BCA & BSc (Computer Science)

**On completion of coursework,
students shall exit with a PG Diploma.**

Live Classes between 4:00pm - 7:00pm (IST)



<https://code.iitm.ac.in/artificial-intelligence>



COMPUTER SCIENCE & ENGINEERING

Specialization:
Information Security

Program Offered:
• **M.Tech**



COURSE CURRICULUM

INFORMATION SECURITY

Core Courses

- CS6530W Applied Cryptography
- CS6030W Logic and Combinatorics for Computer Science
- CS5800W + CS6140W Advanced Data Structures & Algorithms + Advanced Programming Laboratory

Elective Courses

- CS6580W Advanced Operating Systems with Lab
- CS6847W Cloud Computing
- CS6745W Mining Massive Data Sets
- CS5011W Introduction to Machine learning
- MS6031W+MS6032W Data Analysis for Research + Predictive and Prescriptive Data Analytics
- CS6570W Secure Systems Engineering
- CS6115W Structure vs Hardness in Cryptography
- CS6898W Embedded Systems Security
- CS6620W Advanced Computer Organization and Architecture with Lab
- CS6013W Advanced Compiler Design

Lab

- Advanced Operating Systems with Lab
- Advanced Networking with Lab

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Discrete Mathematics
- Programming and Data Structure
- Computer Organisation and Architecture



ELIGIBILITY

B.E./B.Tech in any Engineering branch/discipline, MCA, M.Sc.(CS) or Information Security (IS)

Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at
<https://code.iitm.ac.in/informationsecurity>



<https://code.iitm.ac.in/informationsecurity>



ELECTRICAL ENGINEERING

Specialization:
Integrated Circuits and Systems

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

INTEGRATED CIRCUITS AND SYSTEMS

Core Courses

- EE5310W Analog Electronic Circuits
- EE5311W Digital IC Design

Elective Courses

- EE5003W Electrical Networks and Systems
- EE5111W Estimation Theory
- EE5112W Detection Theory
- EE5141W Introduction to Wireless & Cellular Communication
- EE5325W Power Management Integrated Circuits
- EE6130W Advanced Topics in Signal Processing
- EE 5180W Introduction to Machine Learning
- EE6180W Advanced Topics in Artificial Intelligence
- EE6320W RF Integrated Circuits
- CS6760W Digital Design Verification
- CS6230W CAD for VLSI Systems

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Signal and Systems
- Time-Domain Analysis of CT
- Fourier Series
- Continuous-Time Fourier Transform



ELIGIBILITY

BE/B.Tech with specialization
in ECE, EEE, Electronics &
Instrumentation, Instrumentation
& Control

Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at

<https://code.iitm.ac.in/integratedcircuits>

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/integratedcircuits>



ELECTRICAL ENGINEERING

Specialization:

**Communication and Signal
Processing**

Program Offered:

- **M.Tech**
- **PG Diploma**



COURSE CURRICULUM

COMMUNICATION AND SIGNAL PROCESSING

Core Courses

- EE5110W Probability Foundations for Electrical Engineers
- EE5120W Applied Linear Algebra I for EE
- EE5130W Digital Signal Processing
- EE5140W Digital Modulation and Coding
- EE5150W Communication Networks
- EE5505W Wave Propagation in Communication
- EE5142W Introduction to Information Theory and Coding

Elective Courses

- EE5003W Electrical Networks and systems
- EE5111W Estimation Theory
- EE5112W Detection Theory
- EE5141W Introduction to Wireless & Cellular Communication
- EE5325W Power Management Integrated Circuits
- EE6130W Advanced Topics in Signal Processing

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Signal and Systems
- Time-Domain Analysis of CT
- Fourier Series
- Continuous-Time Fourier Transform



ELIGIBILITY

BE/B.Tech with specialization
in ECE, EEE, Electronics &
Instrumentation, Instrumentation
& Control

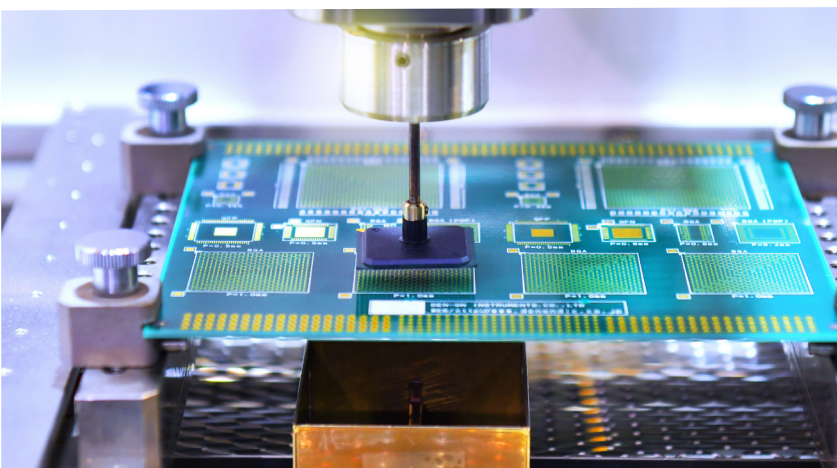
Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at
<https://code.iitm.ac.in/communicationsignals>

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/communicationsignals>



ELECTRICAL ENGINEERING

Specialization:
Micro Electronics

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

MICRO ELECTRONICS

Core Courses

- EE5311W Digital IC Design
- EE5310W Analog Electronic Circuits
- EE5320W Analog IC Design
- EE5313W Semiconductor Device Modelling
- EE5312W VLSI Technology
- EE5130W Digital Signal Processing

Elective Courses

- EE5003W Electrical Networks and systems
- EE5111W Estimation Theory
- EE5112W Detection Theory
- EE5141W Introduction to Wireless & Cellular Communication
- EE5325W Power Management Integrated Circuits
- EE6130W Advanced Topics in Signal Processing
- EE 5180W Introduction to Machine Learning
- EE6180 Advanced Topics in Artificial Intelligence

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Signal and Systems
- Time-Domain Analysis of CT
- Fourier Series
- Continuous-Time Fourier Transform



ELIGIBILITY

BE/B.Tech with specialization
in ECE, EEE, Electronics &
Instrumentation, Instrumentation
& Control

Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at

<https://code.iitm.ac.in/microelectronics>

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/microelectronics>



ELECTRICAL ENGINEERING

Specialization:
Multimedia Signal Processing

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

MULTIMEDIA SIGNAL PROCESSING

Core Courses

- EE5110W Probability Foundations for Electrical Engineers
- EE5120W Applied Linear Algebra I for EE
- EE5130W Digital Signal Processing
- EE5175W Image Signal Processing

Elective Courses

- EE5003W Electrical Networks and Systems
- EE5111W Estimation Theory
- EE5112W Detection Theory
- EE5141W Introduction to Wireless & Cellular Communication
- EE5325W Power Management Integrated Circuits
- EE6130W Advanced Topics in Signal Processing
- EE 5180W Introduction to Machine Learning
- EE6180W Advanced Topics in Artificial Intelligence
- EE6320W RF Integrated Circuits

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Signal and Systems
- Time-Domain Analysis of CT
- Fourier Series
- Continuous-Time Fourier Transform



ELIGIBILITY

BE/B.Tech with specialization
in ECE, EEE, Electronics &
Instrumentation, Instrumentation
& Control

Live Classes between 4:00pm - 7:00pm (IST)

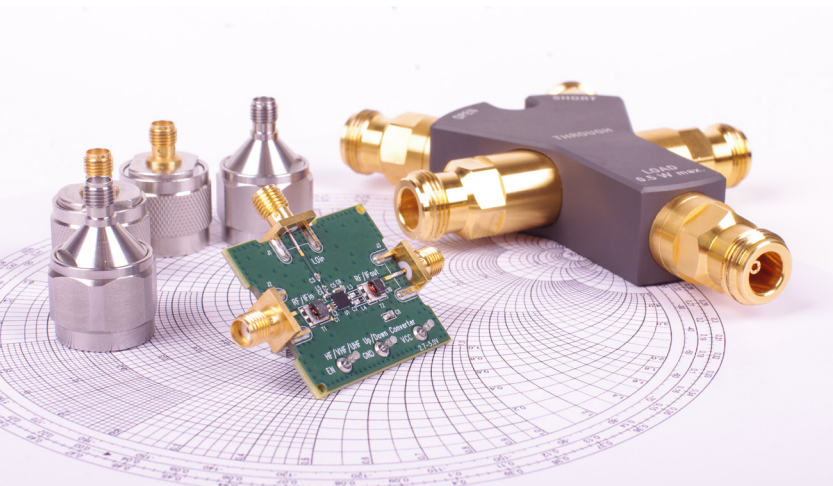
Complete Elective list can be viewed at

<https://code.iitm.ac.in/multimedia>

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/multimedia>



ELECTRICAL ENGINEERING

Specialization:
RF and Microwave

Program Offered:

- **M.Tech**
- **PG Diploma**



COURSE CURRICULUM

RF AND MICROWAVE

Core Courses

- EE5003W – Electrical Networks & Systems
- EE5310W – Analog Electronic Circuits
- EE6320W – RF Integrated Circuits
- EE5500W – Introduction to Photonics
- EE5505W – Wave Propagation in Communication

Elective Courses

- EE5130W – Digital Signal Processing
- EE6323W – Wireless System Design
- EE5110W – Probability Foundations for Electrical Engineers
- EE5150W – Communication Networks
- EE6506W – Computational Electromagnetics
- EE6505W – Waveguides, Microwave Circuits, and Antennas
- EE5504W – Fiber Optic Communication Technology

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Signal and Systems
- Time-Domain Analysis of CT
- Fourier Series
- Continuous-Time Fourier Transform



ELIGIBILITY

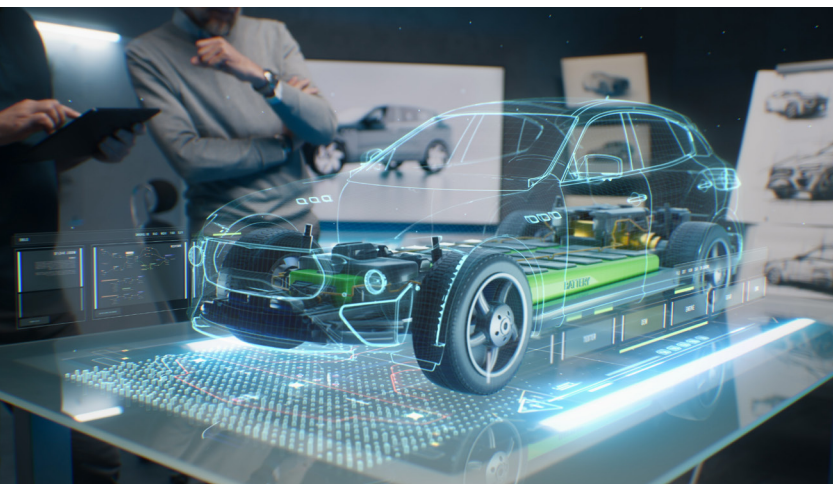
BE/B.Tech with specialization
in ECE, EEE, Electronics &
Instrumentation, Instrumentation
& Control

Live Classes between 4:00pm - 7:00pm (IST)

On completion of coursework, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/microwave>



E-MOBILITY by Department of Engineering Design

Program Offered:

- M.Tech
- PG Diploma



COURSE CURRICULUM

E-MOBILITY

Core Courses

- ED5350W Electric Vehicle Engineering and Development
- ED5235W Power Electronics and Motor Drives for Electrified Vehicles
- ED5516W Design and Control of AC Motors for Electrified Vehicles
- ED5021W Battery Charging Infrastructure
- ED5014W Energy Storage Devices and Systems
- ED5003W Electric Vehicle System Dynamics and Control

Elective Courses

- CY6015W Electrochemistry: Fundamentals and Applications
- ED5080W Mechatronics System Design
- ED5345W Powertrain and Fuels
- ED5515W Fundamentals of Thermal Management in Electric Vehicles
- ED5512W Electromagnetic Compatibility for Automotive Electronics
- ED5004W AI Algorithms for E-Mobility Applications

Lab

- ED5211W E-Mobility Lab

Project

- ED5214W Mini Project for WEMEM – with employer / company support
- ED5216W Main Project for WEMEM – with employer / company support



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Linear Algebra
- Differential Equations
- Probability and Statistics
- Numerical Methods
- Vector Analysis
- Sequences and Series
- Basic Physics
- Analytical and Quantitative Aptitude



ELIGIBILITY

Completed a BTech/BE in any engineering discipline with a minimum CGPA of 6.0 (out of 10) or 60%

On completion of coursework and mini project, students shall exit with a PG Diploma.

Recorded videos and live classes with faculty every Weekends





MECHANICAL ENGINEERING

Specialization:
Mechanical Design

Program Offered:

- **M.Tech**
- **PG Diploma**



COURSE CURRICULUM

MECHANICAL DESIGN

Core Courses

- ME5201W Computational Methods in Engg
- ME5203W Advanced Mechanics of Solids
- ME5128W Principles of Product Design
- ME5205W Theory of Vibration
- ME6226W Product Reliability

Elective Courses

- ME6225W Failure Analysis and Design
- ME6010W Advanced Heat & Mass Transfer
- ME5204W Finite Element Analysis
- ME7223W Optimization Methods for Mechanical Design
- ME6222W Design of Mechanical Transmission Systems

Lab

- ME5281W Design Laboratory

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Engineering Mathematics
- Materials
- Applied Mechanics and Design



ELIGIBILITY

B.E/B.Tech in any specialization with adequate professional experience

Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at

<https://code.iitm.ac.in/mechanicaldesign>

On completion of coursework and labwork, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/mechanicaldesign>



MECHANICAL ENGINEERING

Specialization:
Automotive Technology

Program Offered:

- **M.Tech**
- **PG Diploma**



COURSE CURRICULUM

AUTOMOTIVE TECHNOLOGY

Core Courses

- ME5201W Computational Methods in Engg
- ME5109W Measurements in Thermal Engineering
- ME6162W IC engine combustion and pollution
- ED5220W Vehicle Dynamics

Elective Courses

- ME6156W Design of Combustion Engines
- ME6139W Simulation of IC Engine Processes
- ME6158W Engine Systems & Performance
- ME6160W Alternate Fuels for IC Engines
- ME6141W CFD and Its Applications to Engine Processes

Lab

- ME7570W Automotive Laboratory

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Heat Transfer
- Thermodynamics
- Fluid Mechanics
- Manufacturing and Metrology
- Mathematics
- Applied Mechanics & Design
- Mechanics of Materials
- Theory of Machines
- Machine Design



ELIGIBILITY

B.E/B.Tech in any specialization with
adequate professional experience

Live Classes between 4:00pm - 7:00pm (IST)

Complete Elective list can be viewed at

<https://code.iitm.ac.in/automotive>

On completion of coursework and labwork, students shall exit with a PG Diploma.



<https://code.iitm.ac.in/automotive>



PROCESS SAFETY

by
**Department of
Chemical Engineering**

Program Offered:

- **M.Tech**
- **PG Diploma**



COURSE CURRICULUM

PROCESS SAFETY

Core Courses

- CH5511W Fundamentals of Process Safety
- CH5510W Process Hazard Analysis
- CH5500W Risk Analysis
- CH5512W Crisis and Incident Management
- CH5513W Human Factors
- CH5514W Safety Engineering

Elective Courses

- CH5515W Advanced Process Hazard Analysis
- CH5516W Reactive Hazards
- CH5517W Process Safety Management
- CH5518W Process Safety Digitalisation

Lab

- CH5519W Process Safety Lab

Project



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Nature of Accident and Major Disasters
- Fire and Explosions: Introduction
- Introduction to Reliefs



ELIGIBILITY

- BE/B.Tech degree in Chemical, Civil Engg, Mech, Elec, Instrumentation Engg, Petroleum, or allied branches (or) MSc Chemistry
- PG Diploma
 - Minimum 60% aggregate (or equivalent CGPA) [or]
 - 50% aggregate (or equivalent CGPA) + 2 years relevant work experience
- M.Tech.
 - 50% aggregate (or equivalent CGPA)
 - 2 years relevant work experience
- The 2 years relevant work experience will be ascertained by the Department based on the experience certificate submitted along with the application form.

**Recorded videos and live classes with
faculty every Saturday**



<https://code.iitm.ac.in/processsafety>



PG DIPLOMA in MANUFACTURING ANALYTICS

by
Department of Data Science
and Artificial Intelligence



COURSE CURRICULUM

MANUFACTURING ANALYTICS

Core Courses

- Mathematical Fundamentals for Manufacturing Analytics
- Digital Transformation
- Machine Learning for Manufacturing Analytics
- Manufacturing Analytics Implementation I
- Deep Learning for Manufacturing Analytics
- Generative AI for Manufacturing Analytics
- Holistic Assessment of AI in Manufacturing Analytics
- Manufacturing Analytics Implementation II



SELECTION CRITERIA

Entrance Exam



SYLLABUS FOR THE ENTRANCE EXAM

- Linear Algebra
- Statistics
- Optimization
- Basics of Manufacturing Analytics



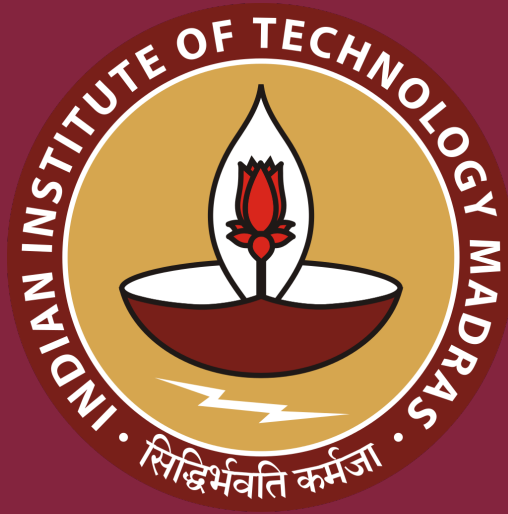
ELIGIBILITY

- Four-year Undergraduate degree students in Engineering and Science.
- Students with MSc in Science degree.
- Students with three year degrees in Math and Computer applications
- Students with three-year undergraduate degrees in:
 - B.Sc. Mathematics
 - B.Sc. Computer Science
 - BCA (Bachelor of Computer Applications)

Recorded videos and live interactive session
with faculty



<https://code.iitm.ac.in/pgdma>



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