4.2.11.2 Degree Requirements

The graduation requirements include obtaining a minimum Cumulative Average Point (CAP) of 3.00 (equivalent to an average of Grade B-) for the best modules equivalent of 40 MCs. Each graduate module of 39 lecture hours is usually assigned 4 MCs. Hence, in general, a student needs to complete 10 modules chosen from the list of modules. A maximum of 2 approved external modules are usually allowed. A candidate may read for a M.Sc. in Mechanical Engineering with or without a major or area of specialisation. Students must complete at least 5 modules from the core module list for the specialisation in order to graduate with the specialisation.

The following modules are offered for the M.Sc. (Mechanical Engineering)

General Modules

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ME5001</td>
<td>Mechanical Engineering Project</td>
</tr>
<tr>
<td>ME5103</td>
<td>Plates and Shells</td>
</tr>
<tr>
<td>ME5106</td>
<td>Engineering Acoustics</td>
</tr>
<tr>
<td>ME5161</td>
<td>Optical Techniques in Experimental Stress Analysis</td>
</tr>
<tr>
<td>ME5204</td>
<td>Air Conditioning and Building Automation</td>
</tr>
<tr>
<td>ME5205</td>
<td>Energy Engineering</td>
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<tr>
<td>ME5207</td>
<td>Solar Energy Systems</td>
</tr>
<tr>
<td>ME5301</td>
<td>Flow Systems Analysis</td>
</tr>
<tr>
<td>ME5302</td>
<td>Computational Fluid Mechanics</td>
</tr>
<tr>
<td>ME5303</td>
<td>Industrial Aerodynamics</td>
</tr>
<tr>
<td>ME5304</td>
<td>Experimental Fluid Mechanics</td>
</tr>
<tr>
<td>ME5305</td>
<td>Fundamentals of Aeroelasticity</td>
</tr>
<tr>
<td>ME5309</td>
<td>Aircraft Engines and Rocket Propulsion</td>
</tr>
<tr>
<td>ME5361</td>
<td>Advanced Computational Fluid Dynamics</td>
</tr>
<tr>
<td>ME5401</td>
<td>Linear Systems</td>
</tr>
<tr>
<td>ME5402</td>
<td>Advanced Robotics</td>
</tr>
<tr>
<td>ME5403</td>
<td>Computer Control Systems</td>
</tr>
</tbody>
</table>
ME5404  Neural Networks
ME5405  Machine Vision
ME5506  Corrosion of Materials
ME5513  Fracture and Fatigue of Materials
ME5516  Emerging Energy Conversion and Storage Technologies
ME5608  Additive and Non-Conventional Manufacturing Processes
ME5611  Sustainable Product Design & Manufacturing
ME5612  Computer Aided Product Development
OT5102  Oil and Gas Technology
OT5301  Subsea Systems Engineering
OT5302  Flow Assurance
OT5303  Subsea Control
OT5304  Subsea Construction & Operational Support
OT5305  Pressures Surges in Oil & Gas Flow Systems
ME6105  Continuum Mechanics
ME6204  Convective Heat Transfer
ME6205  Advanced Topics in Heat and Mass Transfer
ME6303  Advanced Fluid Dynamics
ME6405  Autonomous Mobile Robotics
ME6406  Optimization Techniques for Dynamical Systems
ME6504  Defects and Dislocations in Solids
ME6505  Engineering Materials in Medicine
ME6604  Modelling of Machining Processes
Specialisation in Computation and Modelling

Modules for Specialisation (at least 5 modules)

ME4291  Finite Element Analysis
CE4257  Linear Finite Element Analysis

Students can only choose either ME4291 or CE4257, which is prerequisite for CE6006.

ME5300A  Special Project in Computation and Modelling I
ME5300B  Special Project in Computation and Modelling II
ME5301  Flow Systems Analysis
ME5302  Computational Fluid Mechanics
ME5361  Advanced Computational Fluid Dynamics
ME5401  Linear Systems
ME5404  Neural Networks
ME6105  Continuum Mechanics
ME6303  Advanced Fluid Dynamics
ME6604  Modelling of Machining Processes
CE5377  Numerical Methods in Mechanics & Envr. Flows
CE6006  Advanced Finite Element Analysis

Specialisation in Advanced Manufacturing

Modules for Specialisation (at least 5 modules include one core module)

Core Module

ME5608  Additive and Non-Conventional Manufacturing Processes

Elective Module

ME5402  Advanced Robotics
ME5403  Computer Control Systems
ME5405  Machine Vision
ME5513  Fracture and Fatigue of Materials
ME5600A Project in Advanced Manufacturing I
ME5600B Project in Advanced Manufacturing II
ME5611  Sustainable Product Design & Manufacturing
ME5612  Computer Aided Product Development
ME6505  Engineering Materials in Medicine
ME6604  Modelling of Machining Processes
MLE5102 Mechanical Behaviours of Materials
MLE5204 Advanced Processing of Metallic Materials
MST5001 Structure and Properties of Materials
MST5002 Materials Characterization
PR5211 Pharmaceutical Analysis IV
PR5216 Advances in Drug Delivery
ID5951B Topics in Industrial Design: Interaction Design
ID5951C Topics in Industrial Design: Healthcare Design

Not all modules listed are necessarily available in any one year.