Compulsory and elective courses in DSEE and other relevant courses for UG & PG students.

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>The courses are distributed over Semester I (odd) and II (even)</td>
<td></td>
</tr>
<tr>
<td><strong>SCHEME basket course (for UG students)</strong></td>
<td></td>
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<tr>
<td>SEE-211: Energy, Climate Change and Sustainability [Semester II]</td>
<td>3-0-0-9</td>
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<tr>
<td><strong>PG Core Basket (minimum 2 for M.Tech., M.S.(R), and Ph.D. students)</strong></td>
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<tr>
<td>SEE-601: Thermo-Fluid Engineering [Semester I]</td>
<td>3-0-0-9</td>
</tr>
<tr>
<td>SEE-603: Electrical Power Engineering [Semester I]</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-609: Mathematical and Computational Tools for Engineering* [Semester I]</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-612: Manufacturing of energy systems [Semester II]</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-604: Thermodynamics of Energy Systems [Semester II]</td>
<td>3-0-0-9</td>
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<tr>
<td><strong>Compulsory (for all M.Tech., M.S.(R), and Ph.D. students)</strong></td>
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<tr>
<td>SEE-605: An Introduction to Sustainable Energy Technologies (with Laboratory) [Semester II]</td>
<td>2-0-3-9</td>
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<tr>
<td>SEE-690: Seminar Course I [both semesters]</td>
<td>0-0-0-0</td>
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<tr>
<td>SEE-691: Seminar Course II [both semesters]</td>
<td>0-0-0-0</td>
</tr>
<tr>
<td><strong>Compulsory (only for Ph.D. students)</strong></td>
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<tr>
<td>SEE-600: Introduction to profession and communication [Semester I]</td>
<td>1-0-0-3</td>
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<tr>
<td><strong>Department Electives</strong></td>
<td></td>
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<tr>
<td>SEE-606: Electrochemical Energy Systems</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-607: Hydrogen Energy: Production, Storage and Utilization</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-608: Introduction to Bioenergy and Biofuels</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-610: Introduction to Materials Modelling and Simulations*</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-611: Energy Systems: Modelling and Analysis</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-613: Solar Photovoltaics</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-614: Wind Energy</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-615: Solar Thermal Engineering</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-616: Essential Electrical Engineering for Renewables Integration*</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-617: Introduction to sustainable energy policy</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-618: Energy Efficient Building Design</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-619: Finite Volume Methods for Engineers</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-620: Heat Driven Cooling Systems</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-621: Biomass Conversion and Biorefineries</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-622: Sustainable Energy- Enabling Net Zero Emissions</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-624: Design Strategies for Net-Zero Energy Buildings</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-625: Structural, Microstructural and Spectroscopic Characterization of Materials</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-626M: Ecological Principles and Biodiversity for Sustainability</td>
<td>3-0-0-9</td>
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<tr>
<td>SEE-627: Electric Vehicles</td>
<td>3-0-0-9</td>
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<tr>
<td><strong>Open Electives</strong></td>
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<tr>
<td>EE698D: Smart Grid Technology</td>
<td>3-0-0-9</td>
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<tr>
<td>EE630A: Simulations of Power Systems</td>
<td>3-0-0-9</td>
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<tr>
<td>EE660A: Basics of Power Electronic Converters</td>
<td>3-0-0-9</td>
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<tr>
<td>EE631A: Advanced Power System Stability</td>
<td>3-0-0-9</td>
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<tr>
<td>MSE673: Fundamentals and Applications of Electrochemistry</td>
<td>3-0-0-9</td>
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<tr>
<td>Course</td>
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<td>ME743: Fuel Cells</td>
<td>3-0-0-9</td>
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<tr>
<td>ME685A: Applied Numerical Methods*</td>
<td>3-0-0-9</td>
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<tr>
<td>AE603: Introduction to Scientific Computing*</td>
<td>3-0-0-9</td>
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<tr>
<td>CHE622A: Molecular Simulations</td>
<td>3-0-0-9</td>
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<tr>
<td>ChE626A: Practical Introduction to Quantum Mechanical Methods for Scientists and Engineers*</td>
<td>3-0-0-9</td>
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<tr>
<td>Any other suitable elective in the Institute</td>
<td>3-0-0-9</td>
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</tbody>
</table>

* Designated as an elective only for the students admitted in May-July 2023 and onwards.

*This is designated as a core course only for the students’ of 2022 batch. However, those who have already taken SEE 603 are exempted from SEE 616 as core/compulsory.