

Curriculum

| Classification | Course Code | Subject Name | Lecture: Experiment: Credit | Semester | Remark |
|----------------------|-------------|---|-----------------------------------|---------------|---------|
| Mandatory General | CC010 | Special Lecture on Leadership | 1:0:0 | Fall | |
| | CC020 | Ethics and Safety | 1 AU | Spring · Fall | |
| | CC500 | Scientific Writing | 3:0:3(4) | Spring · Fall | |
| | CC510 | Introduction to Computers and Applications | 2:3:3(10) | Spring · Fall | |
| | CC511 | Probability and Statistics | 2:3:3(6) | Spring · Fall | |
| | CC512 | Introduction to Material Science | 3:0:3(3) | Spring · Fall | |
| | CC513 | Engineering Economics | 3:0:3(6) | Fall | |
| | CC522 | Instrumentation | 2:3:3(8) | Fall | |
| | CC530 | Entrepreneurship and Management Strategy | 3:0:3(6) | Fall | |
| | CC531 | Patent Analysis and Invention Disclosure | 3:0:3(6) | Spring · Fall | |
| | CC532 | Collaborative System Design and Engineering | 4:0:4 | Spring | |
| Mandatory Major | EEW501 | Introduction to Energy Science and Engineering | 3:0:3 | Spring · Fall | |
| Elective | EEW502 | Nature of the Chemical Bond | 3:0:3 | Fall | **MS590 |
| | EEW503 | Molecular Thermodynamics and Energy System | 3:0:3 | Spring | |
| | EEW504 | Advanced Quantum Mechanics | 3:0:3 | Spring | |
| | EEW505 | Principles of Statistical Thermodynamics | 3:0:3 | Fall | |
| | EEW506 | Introduction to Electrochemical science for energy materials | 3:0:3 | Fall | |
| | EEW507 | Thermal Physics for Energy Application | 3:0:3 | Fall | |
| | EEW508 | Surface Physics and Chemistry | 3:0:3 | Spring | |
| | EEW509 | Theory of Electron Microscopy and Its Experiment | 3:0:3 | Fall | |
| | EEW510 | Design of Functionalized Nanostructures | 3:0:3 | Fall | |
| | EEW511 | Hydrogen Energy I. Storage | 3:0:3 | Fall | |
| | EEW512 | Sustainable Catalysis | 3:0:3 | Spring | |
| | EEW513 | Water Treatment and Desalination | 3:0:3 | Spring | |
| | EEW514 | Membrane Science and Engineering for EEW Systems | 3:0:3 | Fall | |
| | EEW520 | Solid State Physics for Nanodevices | 3:0:3 | Spring | |
| | EEW521 | Theory and Practices of Electronic Structure Calculations | 3:0:3 | Spring | |
| | EEW522 | Quantum Transport in Semiconductors | 3:0:3 | Fall | |
| | EEW523 | Organic Semiconductor Devices | 3:0:3 | Fall | |
| | EEW524 | Topics in Physical Properties for Energy Science | 3:0:3 | Spring | |
| | EEW525 | Semiconductor Photoelectrochemistry: Fundamentals and Energy Applications | 3:0:3 | Fall | |
| | EEW530 | Special Topics in Energy Storage Devices Using Nanomaterials | 3:0:3 | Fall | |
| | EEW531 | Electrochemistry for Energy Applications | 3:0:3 | Spring | |
| | EEW532 | Special Topics in Functional Nanoscale Oxides | 3:0:3 | Fall | |
| | EEW533 | Advanced Catalytic Chemistry for EEWS | 3:0:3 | Spring | |
| | EEW540 | Transport Phenomena in EEWS System | 3:0:3 | Fall | |
| | EEW550 | Solar Energy Conversion | 3:0:3 | Spring | |
| | EEW555 | Supramolecular Chemistry | 3:0:3 | Spring | |
| | EEW560 | Mechanical Properties of Nanostructured Materials | 3:0:3 | Spring | |
| | EEW570 | Diffraction from Hard- and Soft-condensed Matter | 3:0:3 | Spring | |
| | EEW580 | Lattice Defects for Energy Science | 3:0:3 | Fall | |

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|----------------|-------------|---|-----------------------------------|---------------|---------|
| | EEW600 | Solar Energy System Design and Characterization | 3:0:3 | Fall | |
| | EEW601 | Special Topics in EEWS (Energy and Material Science) | 3:0:3 | Spring Fall | |
| | EEW602 | Special Topics in EEWS II | 3:0:3 | Spring Fall | |
| | EEW603 | Fundamentals and Applications of Molecular Dynamics Simulations | 3:0:3 | Spring | |
| | EEW604 | Materials and Processing in Photovoltaic Devices | 3:0:3 | Spring | |
| | EEW610 | Advanced Batteries | 3:0:3 | Fall | |
| | EEW666 | Nanomaterials for Photocatalysis | 3:0:3 | Fall | |
| | EEW800 | Advanced Electron Microscopy | 3:0:3 | Fall | **MS658 |
| | EEW810 | Atomic Level Simulations of Materials and Molecules | 2:3:3 | Fall | |
| | EEW830 | Design and Synthesis of Energy Materials by Building Block Approach | 3:0:3 | Fall | |
| | EEW840 | Mechanostereochemistry and Molecular Nanotechnology | 3:0:3 | Fall | |
| Research | EEW960 | Thesis Research in MS | | Spring • Fall | |
| | EEW966 | Seminar (MS) | 1:0:1 | Spring • Fall | |
| | EEW980 | Thesis Research in Ph.D. | | Spring • Fall | |
| | EEW986 | Seminar (Ph.D.) | 1:0:1 | Spring • Fall | |

※ Notes: 1) 500 level courses open to both undergraduate and graduate students

2) **For EEW510 and EEW610, these courses are identical to MS590 and MS658 in the department of MSE, respectively.