# Materials Science & Engineering

## Master of Engineering: 30 Credits or 10 Courses

This option requires three core courses, three special topics courses in electronic materials, polymers, and structural materials, and four technical electives. There is no research or thesis required for this degree.

## Graduate Certificate in Engineering: 12 credits or 4 courses

Students pursuing a Graduate Certificate in Engineering must complete:

- **ENMA461** Thermodynamics of Materials
- **ENMA650** Nanometer Structure of Materials
- **ENMA661** Kinetics of Reactions in Materials
- One additional 600-level ENMA elective

### Materials Science Core Courses (take three):
- **ENMA650** Nanometer Structure of Materials
- **ENMA660** Thermodynamics in Materials Science
- **ENMA661** Kinetics of Reactions in Materials

### Materials Science Technical electives (choose seven):
- **ENMA620** Polymer Physics
- **ENMA621** Advanced Design Composite Materials
- **ENMA624** Radiation Engineering
- **ENMA625** Biomaterials
- **ENMA626** Fundamentals of Failure Mechanisms
- **ENMA630** Advanced Nanosized Materials: Synthesis and Utilization
- **ENMA640** Advanced Nano Processing of Materials with Plasma
- **ENMA641** Nanotechnology Characterization
- **ENMA642** Current Trends in Nanomaterials
- **ENMA643** Advanced Photonic Materials
- **ENMA645** Adv. Liquid Crystals and Other Monomeric Soft Matter Materials
- **ENMA662** Advanced Smart Materials
- **ENMA671** Defects in Materials
- **ENMA680** Experimental Methods in Materials Science
- **ENMA681** Diffraction Techniques in Materials Science
- **ENMA682** Electron Microscopy for Research
- **ENMA683** Structural Determination Laboratory
- **ENMA684** Advanced Finite Element Modeling
- **ENMA685** Advanced Electrical and Optical Materials
- **ENMA687** Nanoscale Photonics and Applications
# Preliminary 10-Course Plan

Materials Science & Engineering

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