

Materials Science and Engineering Minor Requirements

Total Credits: 18

Core Requirements (9 Credit Hours)

- EGN 3365 or EMA 3706 – Structure and Properties of Materials / Aerospace Materials
- EMA 3012C – Experimental Techniques in Mechanics of Materials
- EMA 3124 – Design and Selection of Materials

Restricted Electives (9 Credit Hours)

1. Properties of Materials (choose 1, 3 credits)

- EMA 4223 – Fundamentals of Mechanical Behavior of Materials
- EMA 4413 – Fundamentals of Electronic Materials
- EMA 5104 – Intermediate Structure and Properties of Materials
- EMA 5415 – Electronic Principles of Materials Properties
- BME 3211 – Engineering Biomechanics
- OSE 4052 – Foundations of Photonics
- OSE 4520 – Laser Engineering
- PHY 4445 – Lasers
- PHZ 3422 – Nanophysics
- PHZ 4404 – Solid State Physics

2. Processing and Characterization (choose 1, 3 credits)

- EMA 3691 – Nanomaterials Process Engineering
- EMA 4013C – Experimental Techniques in Properties of Materials
- EMA 4503 – Materials Characterization Techniques
- EMA 4513 – Structures of Materials
- EMA 4602C – Materials Processing and Testing Laboratory
- EMA 5585 – Materials Science of Thin Films
- EMA 5610 – Laser Materials Processing
- BSC 4434 – Biomedical Informatics: Sequence Analysis
- BSC 4439 – Biomedical Informatics: Structure Analysis
- CHM 4230 – Applied Molecular Spectroscopy
- CHM 4427 – Electrochemistry

- MCB 4721C – Methods in Biotechnology
- PCB 4174 – Foundation of Bio-Imaging Science

3. Applications of Materials (choose 1, 3 credits)

- EMA 4506 – Emerging Materials
- EMA 5060 – Polymer Science and Engineering
- EMA 5140 – Introduction to Ceramic Materials
- EMA 5584 – Biomaterials
- EMA 5586 – Photovoltaic Solar Energy Materials
- EMA 5705 – High Temperature Materials
- BCH 4024 – Medical Biochemistry
- BSC 3424 – Nanobiotechnology
- CGN 3501C – Civil Engineering Materials
- EEE 3350 – Semiconductor Devices
- EEE 4463 – MEMS Devices and Applications
- ENV 4120 – Air Pollution and Hazardous Waste Control
- MCB 4312 – Molecular Biotechnology
- OSE 4410 – Optoelectronics
- OSE 4721 – Biophotonics
- OSE 5414 – Fundamentals of Optoelectronic Devices
- PCB 4521 – Tissue Engineering