The field of "materials" encompasses concepts in many diverse fields ranging from chemistry, physics, and optics to mechanical, electrical, and chemical engineering. Rapid advances in technology have dramatically increased the importance of materials science and engineering to society. Materials Science and Engineering (MSE) is the study of the structure/processing/properties relationships of engineering materials. Modern MSE encompasses a broad range of materials, from traditional metallurgy to biological materials, polymers, ceramics, semiconductors, composites, and optical and magnetic materials, as well as numerous nanotechnology materials. The study of materials science allows students considerable freedom to the depth of their understanding of such materials while being simultaneously engaged in real world research. Participants in this minor will be able to improve their understanding, awareness and job skills in material selection and application to have additional opportunities and advantages to pursue a career in Engineering. Students taking graduate level EMA courses as Restricted Electives can use them for the Accelerated BS-to-MS program in Materials Science and Engineering.

**Admission Requirements**
- A minimum UCF GPA of 2.5 is required for acceptance into this minor.

**Minor Requirements**
- None

**Prerequisite Courses**
- None

**Required Courses**
- (9 hrs)
  - EMA 3124 Design and Selection of Materials 3 hrs
  - EMA 4102 Thermodynamics and Kinetics of Materials 3 hrs

**Select 1:**
- (3 hrs)
  - EGN 3365 Structure and Properties of Materials 3 hrs
  - EMA 3706 Structure and Properties of Aerospace Materials 3 hrs

**Restricted Electives**
- (9 hrs)

Select one of the following courses on properties of materials:
- PHZ 3422 Nanophysics 3 hrs
- EMA 4223 Fundamentals of Mechanical Behavior of Materials 3 hrs
- PHZ 4404 Solid State Physics 3 hrs
- EMA 4413 Fundamentals of Electronic Materials 3 hrs
- PHY 4445 Lasers 3 hrs
- OSE 4520 Laser Engineering 3 hrs
- EMA 5104 Intermediate Structure and Properties of Materials 3 hrs
- EMA 5415 Electronic Principles of Materials Properties 3 hrs

Select one of the following courses on applications of materials:
- EMA 3000 Engineering Polymeric, Ceramic, and Composite Materials 3 hrs
- EMA 3014 Nanomaterials Characterization and Applications 3 hrs
- EEE 3350 Semiconductor Devices I 3 hrs
- EEE 4463 MEMS Devices and Applications 3 hrs
- EMA 4506 Emerging Materials 3 hrs
- PCB 4521 Tissue Engineering 3 hrs
- EMA 5060 Polymer Science and Engineering 3 hrs
- EMA 5140 Introduction to Ceramic Materials 3 hrs
- EMA 5584 Biomaterials 3 hrs
- EMA 5585 Materials Science of Thin Films 3 hrs
- EMA 5705 High Temperature Materials 3 hrs

**Foreign Language Requirements**
- None

**Total Semester Hours Required**
- 18