EMPHASES IN MATERIALS ENGINEERING

Materials Engineering students may concentrate their electives in one area of interest to develop an emphasis in that area. These courses typically come from the Materials Engineering program and other programs at SJSU. The following lists of courses are those which are available in three primary emphases areas. These lists are extensive because most of these courses are electives and are not available in every semester. Other emphasis programs may also be developed in consultation with the Materials Engineering advisor.

**BIOTECHNOLOGY EMPHASIS**

- BME 177 (3) – Physiology for Engineers
- CHE 192 (3) – Intro. to Biochemical Engineering
- CHE 194 (3) – Biochemical Engineering Lab
- MATE 175 (3) – Biomaterials
- ME 167 (3) – Intro to Engineering Biomechanics
- BME 117 (3) – Biotransport
- BME 115 (4) – Introduction to Biomedical Engineering

**ENVIRONMENTAL HEALTH & SAFETY ENGINEERING EMPHASIS**

- BME 177 (3) – Physiology for Engineers
- CHEM 120S (1) – Chemical Safety Seminar
- CHEM 121S (2) – Radiation Safety
- CHEM 161B - Physical Chemistry II
- CHEM/GEOL 174 (3) – Hazardous Materials
- CHE/ME 131 (3) – Air Pollution Meteorology
- CE 170 (3) – Environmental Engineering
- CE 173 (3) – Engineering for the Environment
- ENVS 124 (3) – Introduction to Environmental Law
- GEOL 138 (3) – Hydrogeology
- ME 140 (3) – Green & Sustainable Product Design
- ME 149 (3) – Engineering Acoustics
- ME 170 (3) – Solar Energy Engineering
- ME 172 (3) – Altern.& Renew. Energy Resources
- ISE 112 (3) – Occupational Health Engineering
- ISE 114 (3) – Safety Engineering

**SEMICONDUCTOR, MECHANICAL & STRUCTURAL EMPHASIS**

- CHEM 161B (3) – Physical Chemistry II
- EE 128 (4) – Physical Electronics
- MATE/EE 129 (3) – Mat’l Proc. Semiconductors
- MATE 135 (3) – Intro to Composite Materials
- MATE 145 (1) – Princ Scanning Probe Microscopy
- MATE 165 (1) – Photovoltaic Fab/Test Lab
- MATE 166 (1) – Advanced Thin Film Processes
- MATE 167 (3) – Microelectronics Mfg Methods
- MATE 168 (1) – Microfluidics Fab. and Design
- MATE 169 (1) – Microelectromechanical Systems
- Fabrication
- MATE 175 (3) – Biomaterials
- MATE 199 (3) – Special Topics in ChE & MatE
- PHYS 175A (3) – Solid State Physics
- PHYS 175B (3) – Solid State Physics

Students should be aware that the listed courses may require prerequisites that are not in the standard Materials Engineering program and it may be necessary for students to obtain instructor approval, to enroll. Instructor approval should be obtained prior to enrolling without the normal prerequisites. Note these course lists change frequently and you should check with your advisor to confirm the latest version.