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
CHE/GEOL 174 (3) – Hazardous Materials
CHE/METR 131 (3) – Air Pollution Meteorology
CE 170 (3) – Environmental Engineering
CE 171 – Environ. Engr. Analysis and Design
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.