MATERIALS SCIENCE & ENG (MS&E)

**MS&E 4001 Special Topics** (LAB 0.0 and LEC 0.0)  
This course is designed to give the department an opportunity to test a new course. Variable title.

**MS&E 5000 Special Problems** (IND 0.0-6.0)  
Problems or readings on specific subjects or projects in the department. Consent of instructor required.

**MS&E 5001 Special Topics** (LEC 0.0-6.0)  
This course is designed to give the department an opportunity to test a new course. Variable title.

**MS&E 5010 Seminar** (RSD 0.0-6.0)  
(Variable) Discussion of current topics.

**MS&E 5040 Oral Examination** (IND 0.0)  
(Variable) After completion of all other program requirements, oral examinations for on-campus M.S./Ph.D students may be processed during intersession. Off-campus M.S. students must be enrolled in an oral examination and must have paid an oral examination fee at the time of the defense/comprehensive examination (oral/written). All other students must enroll for credit commensurate with uses made of facilities and/or faculties. In no case shall this be for less than three (3) semester hours for resident students.

**MS&E 5099 Research** (IND 0.0-15)  
(Variable) Investigations of an advanced nature leading to the preparation of a thesis or dissertation. Consent of instructor required.

**MS&E 5210 Tissue Engineering I** (LEC 3.0)  
The course will introduce senior undergraduate students to the principles and clinical applications of tissue engineering including the use of biomaterials scaffolds, living cells and signaling factors to develop implantable parts for the restoration, maintenance, or replacement of biological tissues and organs. Prerequisite: Senior standing. (Co-listed with Bio Sci 5240).

**MS&E 5220 Advanced Phase Equilibria** (LEC 3.0)  
Advanced aspects of unary, binary and ternary organic, phase equilibria. Includes practical examples of the applications of phase diagrams to solve engineering problems. Prerequisite: Graduate standing.

**MS&E 5230 Energy Materials** (LEC 3.0)  
The objectives of the course are to understand how the rational design and improvement of chemical and physical properties of materials can lead to energy alternatives that can compete with existing technologies. Discussions on the present and future energy needs from a view point of multidisciplinary scientific and technological approaches. Prerequisite: Senior standing.

**MS&E 5517 Materials Selection in Mechanical Design** (LEC 3.0)  
This course will introduce the basics of materials selection in mechanical design. It will also introduce the benefits of computational materials and process selection. The students will also learn to use a commercially available materials selection software. This course will be offered as Distance Ed. Prerequisite: Met Eng 2110.