MSE - MATERIALS SCIENCE AND ENGINEERING

MSE 5350 Polymer Science Cr. 3
Fundamental relationships between chemical structure and physical properties of high polymers. Basic structures, states, and transitions of polymers. Polymerization reactions and processes. Molecular weight, viscous flow and mechanical properties of polymers. Offered Fall.
Prerequisites: (MAT 2150 with a minimum grade of C-)
Equivalent: CHE 5350

MSE 5360 Polymer Processing Cr. 3
Prerequisites: (CHE 3200 with a minimum grade of C-)
Course Material Fees: $10
Equivalent: CHE 5360

MSE 5385 Biocompatibility Cr. 4
Wound healing and the tissue response to foreign materials. The organization activation, and mechanisms of the immune system. Bioactive materials and the molecular basis for surface recognition Y masking. Biocompatibility testing. Offered Biannually.
Equivalent: BME 5380

MSE 5650 Surface Science Cr. 3
An introduction to the science and technology of surface phenomena, including surface structure, surface energy, surface diffusion, crystal growth and selected applications of technological importance. Offered Irregularly.
Prerequisites: BE 1300 with a minimum grade of D- and CHM 5440 with a minimum grade of D-

MSE 7100 Advanced Engineering Mathematics Cr. 3
Presentation, evaluation and use of mathematical methods within the framework of engineering problems, including ordinary and partial differential equations, transforms and vector operations. Offered Fall.
Equivalent: CHE 7100

MSE 7180 Advanced Topics in Biomaterials and Tissue Biomechanics Cr. 4
Seminar format: advanced topics presented to the class; lectures by the instructor and by the participants based on literature reviews. Topics determined by student interest. Offered Biannually.
Equivalent: BME 7300, ME 7180

MSE 7300 Advanced Thermodynamics Cr. 3
Advanced presentation of the principles of thermodynamics; application to open systems, phase diagrams and chemical equilibria. Offered Fall.
Equivalent: CHE 7300

MSE 7400 Mechanical Behavior of Materials Cr. 3
Analysis of elastic and plastic deformation of single crystals and polycrystalline materials, emphasizing the relations between metallurgical microstructure and material properties. Offered Irregularly.

MSE 7995 Special Topics in Materials Science II Cr. 1-4
A consideration of special subject matter in materials science. Topics to be announced in Schedule of Classes. Offered Irregularly.
Repeatable for 12 Credits

MSE 8996 Research Cr. 1-10
Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion. Offered Every Term.

MSE 8997 Seminar Cr. 0.5
Offered Fall, Winter.

MSE 8999 Master's Thesis Research and Direction Cr. 1-8
Offered Every Term.

MSE 9990 Pre-Doctoral Candidacy Research Cr. 1-8
Research in preparation for doctoral dissertation. Offered Every Term.
Repeatable for 12 Credits

MSE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5
Offered Every Term.

MSE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9991, with a minimum grade of S

MSE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9992, with a minimum grade of S

MSE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9993, with a minimum grade of S

MSE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0
Offered Every Term.
Repeatable for 0 Credits

MSE 9996 Research Cr. 1-10
Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion. Offered Every Term.

MSE 9997 Seminar Cr. 0.5
Offered Fall, Winter.

MSE 9999 Master's Thesis Research and Direction Cr. 1-8
Offered Every Term.

MSE 9990 Pre-Doctoral Candidacy Research Cr. 1-8
Research in preparation for doctoral dissertation. Offered Every Term.
Repeatable for 12 Credits

MSE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5
Offered Every Term.

MSE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9991, with a minimum grade of S

MSE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9992, with a minimum grade of S

MSE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5
Offered Every Term.
Prerequisite: MSE 9993, with a minimum grade of S

MSE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0
Offered Every Term.
Repeatable for 0 Credits