Master of Engineering (MENG)

Courses

MENG 400. Engineering Law. 3 or 4 hours.
Overview of the legal system. Legal principles affecting the engineering profession. Professional ethics in engineering. Intellectual property law. Basic contract and tort principles. Environmental law. Course Information: Same as ENGR 400. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. This is an online web-based course. Prerequisite(s): Senior standing or above.

MENG 401. Engineering Management. 3 or 4 hours.
Theory, strategy, and tactics of the use of project management including project planning, matrix management concept, and team meetings. Course Information: Same as ENGR 401. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. This is an online web-based course. Prerequisite(s): Senior standing or above.

MENG 402. Intellectual Property Law. 3 or 4 hours.
Patent, copyright, trade secret, mask work, and cyber-squatting legal and procedural principles; protection for novel software, biotech inventions, and business methods; and trademark protection for domain names. Course Information: Same as ENGR 402. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. This is an online web-based course. Prerequisite(s): Senior standing or above.

MENG 403. Reliability Engineering. 3 or 4 hours.
Probability overview; statistics overview; system reliability modeling and prediction-static methods; system reliability modeling and prediction-dynamic methods; maintainability and availability; reliability optimization; and risk analysis. Course Information: Same as ENGR 403. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. This is an online web-based course. Prerequisite(s): Senior standing or above.

MENG 405. Foundations of Emergency Management. 4 hours.
Introduces the principles of emergency management including the history of EM in the United States; the roles of federal, state, and local EM agencies; national response concepts; and preparedness, recovery, and mitigation strategies. Course Information: Extensive computer use required. Online web-based course.

MENG 406. Critical Infrastructure. 4 hours.
Designed to enable students to formulate policies and strategies aiming to protect the leading critical infrastructure sectors in the U.S. (e.g. energy, water, telecommunications, internet, etc.). Course Information: Extensive computer use required. Online web-based course.

MENG 410. Transport Phenomena. 3 or 4 hours.
Continuum theory of momentum, energy, and mass transfer. Viscous behavior of fluids. Laminar and turbulent flow. Thermal conduction and convection, diffusion and coupled operations. Course Information: Same as CHE 410. 3 undergraduate hours. 4 graduate hours. Prerequisite(s): CHE 312 or consent of the instructor.

MENG 411. Non-Newtonian Fluids. 3 or 4 hours.
Fluid mechanics and transport processes involving non-Newtonian fluids. Purely viscous and viscoelastic behavior. Viscometric functions and rheometry. Heat and mass transfer in non-Newtonian fluids. Course Information: Same as CHE 440. 3 undergraduate hours. 4 graduate hours. Prerequisite(s): CHE 410 or MENG 410 or consent of the instructor.

MENG 412. Computational Molecular Modeling. 3 or 4 hours.
Provide students with a fundamental understanding of the methods, capabilities and limitations of molecular simulations. Course Information: Same as CHE 438. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. Prerequisite(s): CHE 301. Recommended background: Engineering/Science.

MENG 413. Fundamentals and Design of Microelectronics Processes. 3 or 4 hours.
Design and practical aspects of the most advanced state of micro- and nano-electronics processing with emphasis on thin film deposition, substrate passivation, lithography and etching with thermodynamics, kinetics, reactor design, and optimization. Course Information: Same as CHE 456. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. Prerequisite(s): Graduate standing or consent of the instructor. Recommended background: Engineering/Science.

MENG 436. Wireless Data. 3 or 4 hours.
Data communications, existing Wireless Data Networks, planning, topology, performance, and operation. Course Information: Same as ENGR 436. 3 undergraduate hours. 4 graduate hours. Extensive computer use required. This is an online web-based course. Prerequisite(s): Senior standing or above and a course in digital communications and an introductory course in wireless communications.

MENG 505. Environmental Risk. 4 hours.
Covers vulnerability and risk management (RM) methodologies with an emphasis on the decision tree technique and its potential to facilitate the analysis and identification of optimal RM alternatives. Course Information: Extensive computer use required. Online web-based course.

MENG 506. Disaster Response. 4 hours.
teaches the development and implementation of a standards-based, audible and actionable Business Continuity Management (BCM) system which is a cornerstone for building disaster resilient communities. Course Information: Extensive computer use required. Online web-based course.

MENG 512. Microhydrodynamics, Diffusion and Membrane Transport. 4 hours.
Theoretical and numerical fluid mechanics of microstructure: potential flow and virtual mass, quasi-static versus transient Stokes flow, integral theorems, multipole expansions, singularity solutions, fluctuations, and current applications. Course Information: Same as CHE 512. Prerequisite(s): CHE 410 or MENG 410 and CHE 445 or consent of the instructor.

MENG 594. Adv Special Topics Engineering. 4 hours.
Particular topics vary from term to term depending on the interests of students and specialties of the instructor. Course Information: Extensive computer use required. Online web-based course.