## ENGINEERING (ENGR)

**ENGR 8076** PROJECT MANAGEMENT (3 credits)
Project development, role of the project manager, project selection, project planning, budgeting and cost estimation, project scheduling, and project termination.

**ENGR 8100** ERGONOMICS (3 credits)
Introduction to the principles of ergonomics. Information processing, human output and control, workplace design and environmental conditions. Not open to students with credit in ISMG 3150.

**ENGR 8156** COGNITIVE ERGONOMICS (3 credits)
Human factors affecting work. Focus on humans: energy requirements, lighting, noise, monotony and fatigue, learning, simulations versus sequential tasks. Experimental evaluation of concepts.

**ENGR 8166** PHYSICAL ERGONOMICS (3 credits)
Human performance in work. Human response to various environmental and task-related variables with emphasis on physical and physiological effects.

Prerequisite(s)/Corequisite(s): ENGR 4300 or permission

**ENGR 8176** OCCUPATIONAL SAFETY HYGIENE ENGINEERING (3 credits)
Introduction to occupational hygiene engineering with emphasis on workplace environmental quality. Heat, illumination, noise, and ventilation.

Prerequisite(s)/Corequisite(s): Senior standing or permission.

**ENGR 8230** RELIABILITY ENGINEERING (3 credits)

**ENGR 8306** APPLIED STATISTICS AND QUALITY CONTROL (3 credits)
Systematic analysis of processes through the use of statistical analysis, methods, and procedures; statistical process control, sampling, regression, ANOVA, quality control, and design of experiments. Use of software for performing a statistical analysis.

Prerequisite(s)/Corequisite(s): MENG 3210.

**ENGR 8310** STOCHASTIC PROCESSES (3 credits)

**ENGR 8406** DISCRETE EVENT SIMULATION MODELING (3 credits)
Development of simulation models of discrete systems. Model development, Monte Carlo techniques, random number generators, and output analysis.

Prerequisite(s)/Corequisite(s): CONE 2060, MENG 3210 and CIST 1400 or CSCI 1620 or CSCI 2240 or permission

**ENGR 8506** PACKAGING ENGINEERING (3 credits)
Investigation of packaging processes, materials, equipment and design. Container design, material handling, storage, packing and environmental regulations, and material selection.

Prerequisite(s)/Corequisite(s): CONE 2060, MENG 3210, MENG 3730

**ENGR 8616** RFID SYSTEMS IN THE SUPPLY CHAIN (3 credits)
Foundations of Radio Frequency Identification Systems (RFID). The fundamentals of how RFID components of tag, transponder, and antennae are utilized to create RFID systems. Best practices for implementation of RFID systems in common supply operations.

**ENGR 8696** TECHNOLOGY, SCIENCE AND CIVILIZATION (3 credits)
(Lect 2 Dis. 2) This course studies the development of technology as a trigger of change upon humankind, from the earliest tools of Homo Habili to the advent of the radio telescope in exploring the creation of the universe. The course traces the paths from early science to development of the sciences and technologies that will dominate the new millennium. (8696 is for non SET students.) (Cross-listed with ENGR 4690). Prerequisite(s)/Corequisite(s): Senior or permission. (ENGR 8696 is for non-SET students.)

**ENGR 8816** SUPPLY CHAIN OPTIMIZATION (3 credits)
Foundations of supply chain network modeling. The concepts that support the economic and service trade-offs in supply chain and logistics management. Using decision support system (DSS) to design optimal logistics network models given data requirements and operational parameters. Using leading software packages to model problems arising in strategic management of logistics networks.

**ENGR 8820** MATERIAL PLAN IN LOGISTIC SYSTEMS (3 credits)
Theory, practice and application of inventory, demand and supply planning techniques in multistage environments. Managing economies of scale, uncertainties, capacity constraints, and product availability in a supply chain. Integrated planning, supply chain coordination and technology enablers.

Prerequisite(s)/Corequisite(s): MENG 3210, ISMG 3280

**ENGR 8836** LOGISTICS IN THE SUPPLY CHAIN (3 credits)
The process of planning, implementing and controlling the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption. Domestic transportation systems, distribution centers and warehousing, international logistics, logistic system controls, and reengineering logistics systems.

**ENGR 8910** TOTAL QUALITY MANAGEMENT USING SIX SIGMA TECHNIQUES (3 credits)
Introduction to advanced topics in Engineering Management and the foundations of Total Quality Management (TQM). Costs of quality, statistical tools, initiating change, advanced topics, and TQM in practice. Using DMAIC, DFSS, and CQPQ along with the other industry accepted Six Sigma tools, initiating change, advanced topics, and TQM in practice. Using DMAIC, DFSS, and CQPQ along with the other industry accepted Six Sigma Quality Techniques.

**ENGR 9010** TOTAL QUALITY MANAGEMENT USING SIX SIGMA TECHNIQUES (3 credits)
Introduction to advanced topics in Engineering Management and the foundations of Total Quality Management (TQM). Costs of quality, statistical tools, initiating change, advanced topics, and TQM in practice. Using DMAIC, DFSS, and CQPQ along with the other industry accepted Six Sigma Quality Techniques.

**ENGR 9050** ANALYSIS OF ENGINEERING MANAGEMENT (3 credits)
Continuation of concepts and principles of engineering management applied to production cases.

**ENGR 9060** FINANCIAL ENGINEERING (3 credits)
Applications of principle and financial economics in industrial and systems engineering. Term structure of interest, capital asset pricing and other capital allocation modes. Evaluation of real-options using binomial lattice, Black Scholes and other pricing models.

Prerequisite(s)/Corequisite(s): ISMG 8066.

**ENGR 9190** DETERMINANTS OF OCCUPATIONAL PERFORMANCE (3 credits)
Focus on the individual in the industrial working environment. Emphasis on evaluation of fatigue, training, shift work, perception, vigilance, and work rest scheduling as they relate to the working environment.

Prerequisite(s)/Corequisite(s): Permission.