ENGR 8056  ANALYSIS OF ENGINEERING MANAGEMENT (3 credits)
General concepts and principles of engineering management applied to
cases. (Cross-listed ENGR 4050).
Prerequisite(s)/Corequisite(s): CONE 2060.

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. (Cross-listed with ENGR 4070)

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. (Cross-listed with
ENGR 4150)

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. (Cross-listed with ENGR 4160)
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.
(Cross-listed with ENGR 4170)
Prerequisite(s)/Corequisite(s): Senior standing or permission.

ENGR 8230  RELIABILITY ENGINEERING (3 credits)
System and component reliability analyses of series, parallel and complex
systems. Concepts of reliability, availability, and maintainability in design of
systems. Methods of reliability testing and estimation.

ENGR 8306  APPLIED STATISTICS AND QUALITY CONTROL (3 credits)
Systematic processes of designing 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. (Cross-listed with ENGR 4300).
Prerequisite(s)/Corequisite(s): MENG 3210 or permission

ENGR 8310  STOCHASTIC PROCESSES (3 credits)
Fundamentals of random processes and their application in modeling
production/inventory control, maintenance and manufacturing systems.
Markov and semi-Markov chains, Poisson processes, renewal processes,
regenerative processes and Markov decision processes.

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.
(Cross-listed with ENGR 4400)
Prerequisite(s)/Corequisite(s): CONE 2060, MENG 3210 and CIST 1400
or CSCI 1620 or CSCI 2240 or permission

ENGR 8606  PACKAGING ENGINEERING (3 credits)
Investigation of packaging processes, materials, equipment, and design.
Container design, material handling, storage, packing and environmental
regulations, and material selection. (Cross-listed with ENGR 4600)
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. (Cross-listed with ENGR 4610)

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 Habilis
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): ENGR 4690 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. (Cross-listed with ENGR 4810)

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. (Cross-listed
with ENGR 4830)

ENGR 8910  SPECIAL TOPICS IN ENGINEERING MANAGEMENT (1-6
credits)
Subject matter in emerging areas of engineering management and closely
related areas not covered in other courses within the MEM curriculum.
Topics, activities, and delivery methods vary.

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 CQPO 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.