

## Graduate Engineering Technology Courses

### **ENGT 5086. Problems. 1-3 Credit Hours (Lecture: 1-3 Hours, Lab: 0 Hours).**

This course is designed to meet the needs of Manufacturing Quality and Leadership students who have above average academic ability and who need to pursue subject matter that is not normally included in the Manufacturing Quality and Leadership curriculum. Approval for enrollment in this course shall be with the concurrence of the individual instructor and the department head.

### **ENGT 5088. Thesis. 1-6 Credit Hours (Lecture: 1-6 Hours, Lab: 0 Hours).**

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### **ENGT 5303. Engineering Economics and Decision Analysis. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Analysis of engineering costs and capital investments. Applications of classical optimization, mathematical programming, and the theory of production to the analysis of investment proposals. Evaluation and selection of individual projects and formulation of capital investment programs.

### **ENGT 5324. Statistics for Quality. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Introduction to decision making for technologists using quantitative methods. The emphasis will be on identifying opportunities for process/product improvement in manufacturing using statistical applications. Besides exploratory data analysis, basic probability, distribution theory and statistical inference will be covered. Special topics will include experimental design, regression, control charts and acceptance sampling.

### **ENGT 5325. Six Sigma and Design of Experiments. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Introduction to design and analysis of experiments. Applications in product and process design and development; process correction and quality improvement. Taguchi's loss-function approach to quality. Strategies for reliable data acquisition and validation will be addressed. Prerequisites: ENGT 5368, ENGT 5324.

### **ENGT 5332. Financial Risk for Engineering Project Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

This course will provide an understanding of the project financial risk impacts as they relate to Engineering Technology projects. The course will focus on the combination risks and impacts of quality and financial issues as they relate to other Manufacturing Quality and Engineering Technology Practices.

### **ENGT 5336. Manufacturing Planning. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Topics that will be covered include strategic issues such as the design of products and services, and the design of processes and facilities. Planning and controlling activities including capacity planning, quality control, inventory control, scheduling, and project planning are covered. The emphasis of this course will be on the development and application of analytical methods and techniques. Prerequisites: ENGT 5324 or concurrent enrollment.

### **ENGT 5346. Manufacturing Systems Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

A study of concepts and models used as a competitive advantage in the management of processes to produce and supply goods in the manufacturing/service industries. Topics will include operations management and strategy, product design and learning curves, project management, Manufacturing/Service process selection and design. Applications of Operations Research science techniques enable the development of the Manufacturing Systems Management methodologies.

### **ENGT 5362. Supply Chain Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

Exploration of the key issues associated with the design and management of industrial supply chains. Supply Chains are concerned with the efficient integration of suppliers, factories, warehouses and stores so that products are distributed to customers in the right quantity and at the right time. The course will focus on minimizing the total supply chain cost subject to various service requirements.

### **ENGT 5368. Quality Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

The course focuses on manufacturing related principles and best practices reflected in ISO 9000 Standards. Topics included are: manufacturing process improvement; process orientation; quality function deployment; process control and capability; role of inspection; economics of quality; and productivity measurement. Emphasizes role of ISO certification in the global market along with the contributions of Deming, Juran, and Crosby. Prerequisites: ENGT 5324 or concurrent enrollment.

### **ENGT 5376. Automated Manufacturing Systems. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

### **ENGT 5385. Project Management. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

This course explores major problems, tasks and techniques required to manage the technical program in each phase of the product life cycle. Organizational planning, decision-making, and internal external interface techniques for each phase of the project life cycle are addressed. Additional concepts such as: Earned Value Analysis (EVA), Critical Path Management (CPM), Project Requirements Analysis, and Schedule Task Analysis will be explored in depth. Prerequisite: ENGT 5368.

### **ENGT 5398. Seminar in Manufacturing Quality Topics. 3 Credit Hours (Lecture: 3 Hours, Lab: 0 Hours).**

This course guides the student toward an in-depth understanding of the principles, techniques and applications of quality in modern manufacturing companies. The student will review current literature in the field of quality management and write a comprehensive proposal or report on the topic. Prerequisites: ENGT 5325 or concurrent enrollment.