

THE MISSION of the Quality and Engineering Management (QEM) program is to provide a pathway for employees who hold degrees in technical and non-technical areas to acquire the knowledge and skills necessary to be successful in improving processes in manufacturing and service industries. The master's program is 30 hours long and has the option of either a thesis or non-thesis track.

The program is 100% on-line with emphasis on providing critical skills for advancing into manufacturing and service industry leadership positions.

Specific benefits of the program are:

- Designed to provide individuals with baccalaureate degrees in engineering, technology and other fields with an in-depth study of the organizational, technical, and strategic tools commonly used to improve quality and productivity
- Targeted to working professionals and other individuals who have a background in one of these fields, but are seeking to expand their knowledge across these disciplines
- Emphasizes the applications of these tools to address quality, technology implementation and productivity issues in manufacturing and service industries to help standardize procedures, measure performance, improve customer satisfaction and manage resources more wisely

Because the degree is 100% on-line and designed for working professionals, students can continue to be employed while going through the program. Working on a master's degree is a great way to signal to an employer that you are preparing yourself to move up and take on more responsibility. Students at graduation find a natural point to either advance in their current jobs or transition to a better opportunity.

Core Requirements (18 Hours)

ENGT 5303 Engineering Economy and Decision Analysis

ENGT 5324 Statistics for Engineering Management

ENGT 5325 Advanced Concepts in Six Sigma

ENGT 5332 Financial Risk for Project Management

ENGT 5368 Quality Management

ENGT 5385 Advanced Concepts in Project Management

Concentration Options:

Engineering Management (12 hours)

ENGT 5336 Production and Inventory Control

ENGT 5345 Systems Engineering

ENGT 5362 Supply Chain Management

ENGT 5398 Engineering Economy

Construction (12 hours)

CNST 5313 Building Information Modeling

CNST 5320 Contract and Legal Issues in Construction

CNST 5322 Sustainability in Construction

CNST 5326 Advanced Construction Materials, Methods, and Equipment Operations

Industrial Distribution (12 hours)

ENGT 5336 Production and Inventory Control

ENGT 5362 Supply Chain Management

ENGT 5365 Basics of Logistics, Transportation, and Distribution

ENGT 5303 Engineering Economy

TESTIMONIALS

"Soon after starting my first job in manufacturing, I knew I wanted to pursue a master's degree that was more technically focused than my undergraduate business degree. The QEM program taught me business processes with an analytical perspective. Because of the program, I got a better job position with higher pay and benefits."

OR YACOBI, QEM 2021, Product Portfolio Manager, Allied Electronics and Automation

Getting my MS in QEM benefited my career. Less than a year after earning the degree, I was promoted to a position in quality management. The coursework in the program directly pertained to my work and gave me the knowledge and confidence to excel in this new position.

W.F., QEM 2014, Aerospace Industry

APPLICATION REQUIREMENTS

- Online application
- 600 word personal statement
- \$50 application fee waiver for Tarleton students

WHY TARLETON?

- Affordable tuition
- Minimum GPA 2.5
- GRE not required
- Online classes available to fit your busy lifestyle
- Thesis or non-thesis tracks offered
- Exceptional professors
- Small class sizes

HOW TO APPLY

tarleton.edu/engtech/degreesprograms/QEM.html

TUITION CALCULATOR

tarleton.edu/scripts/tuitioncal

FOR MORE INFORMATION

Jeff Cunion, PhD, Program Coordinator
254-968-9765 | cunion@tarleton.edu

<https://www.tarleton.edu/engtech/graduate/>

APPLY TODAY



Mayfield
College of Engineering
TARLETON STATE UNIVERSITY

QUALITY AND ENGINEERING MANAGEMENT (QEM)



**TARLETON
STATE UNIVERSITY**
Member of The Texas A&M University System
QUALITY AND ENGINEERING
MANAGEMENT (QEM)

EXCELLENCE, INTEGRITY AND RESPECT

ABBREVIATED COURSE DESCRIPTIONS

CNST 5313 Building Information Modeling

Introduces techniques for applying building information models in design and construction process. Working with 3D, 4D, 5D, and 6D modeling representations of building components and geometries to produce models used in architectural design, construction planning and documentation, rendering and visualization, simulation, and analysis. The course also focuses on clash detection in determining project issues and constraints; project team communication and collaboration. **No prerequisite.**

CNST 5320 Contract and Legal Issues in Construction

Exploration of contractual relationships, legal roles and responsibilities, and contract types and address issues of contract law, legal issues, and insurance. Course will focus on disputes that typically arise in project performance and options that exist to resolve potential liabilities that typically arise. Alternative dispute resolution, and litigation of disputes will be studied. **No prerequisite.**

CNST 5322 Sustainability in Construction

Sustainable materials and methods in meeting the needs of construction projects without compromising future generations; overview of international, national, and local programs promoting sustainable construction; examination of current policies and requirements for sustainable construction such as LEED and NGBS. **No prerequisite.**

CNST 5326: Advanced Construction Materials, Methods, and Equipment Operations

Emphasis on the design and construction process; includes structural steel and other metals, foundation materials, precast and tilt-up wall concrete, concrete reinforcement including pre-stressing, wood dimension lumber framing, and heavy timber framing; Equipment operation and selections. **No prerequisite.**

ENGT 5300 Engineering Management Survey -

Leveling Course

Explores the concepts of the time value of money, project definition and control, and uncertainty in project evaluation. The course is intended for students who do not have the required backgrounds in engineering economics, project management, and statistics needed for the QEM program and does not count towards the degree requirements. **No prerequisite.**

ENGT 5303 Engineering Economics and Decision Analysis

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. **Prerequisite is ENGT 5300 or equivalent**

ENGT 5324 Statistics for Engineering Management

Introduction to decision making using quantitative methods. Exploratory data analysis, basic probability, distribution theory and statistical inference is covered, along with experimental design, regression, and acceptance sampling. **Prerequisite is ENGT 5300 or equivalent.**

ENGT 5325 Advanced Concepts in Six Sigma

Statistical methods that enable improvements for enhanced operational performance are identified and applied. Six Sigma knowledge and skills enhance a student's ability to identify and implement process variation resolution. The Define, Measure, Analyze, Improve and Control process is studied in detail. Use of data driven measures through Design of Experiments, Measures of Variation, and Data Analysis is emphasized. **Prerequisites are ENGT5368 and ENGT5324.**

ENGT 5332 Financial Risk for Engineering Project Management

Addresses process used to identify potential project financial risks. Focus is on impacts to quality, operational, and financial issues. Risks are identified, analyzed, and responded to. Activities are accomplished through application of American National Standards Institute (ANSI)

31004 and International Standards Organization (ISO) 3100 methods. **Prerequisite is ENGT5303.**

ENGT 5336 Production and Inventory Control

Planning and control systems and processes that operate within a typical factory or service organization are explored. Topics include demand management, forecasting, sales and operations planning, scheduling, material requirements planning, and capacity management. Enterprise Resource Planning, Just-in-Time, and supply chains are introduced. Course helps prepare students for the APICS Certified in Production and Inventory Management certification exams. **No prerequisite.**

ENGT 5345 Systems Engineering

Covers the methodology used in systems engineering, including concept exploration and development, product/service development, system design/production, maintenance and support, and system domains definition and implementation. **No prerequisite.**

ENGT 5362 Supply Chain Management

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. Course helps prepare students for the APICS Certified Supply Chain Professional certification exam. **No prerequisite.**

ENGT 5365 Basics of Logistics, Transportation, and Distribution

Provides understanding of how logistics, transportation, and distribution systems operate across an enterprise and how they can be made more efficient. Topics include: Strategy, order management, inventory and warehouse management, packaging, materials handling, transportation, global logistics basics, reverse logistics, and sustainability. This course helps prepare students for the APICS Certified in Logistics, Transportation, and Distribution (CLTD) certification exam. **No prerequisite.**

ENGT 5368 Quality Management

Focuses on the practical application of process improvement tools and reduction of variation in production and operations processes. Statistical process control charts are created, and process capabilities are determined using problems and case studies that cross multiple industries. Emphasis is placed on the interpretation, understanding and use of quality principles and concepts throughout the problem-solving process. **Prerequisites are ENGT5324 or concurrent enrollment.**

ENGT 5385 Advanced Concepts in Project Management

Tasks and techniques required to manage a project through each phase of a project's life cycle. Additional concepts such as: Earned Value Analysis, Critical Path Management, Project Requirements Analysis, Risk Assessment, and Monte Carlo Analysis will be explored in depth. **Prerequisite is ENGT5300 or equivalent.**

ENGT 5398 Research in Engineering Management Topics

Exposes students to the complexities and realities of completing in-depth research on a topic of real-world technology needs. Students will review current literature in the topic field and write a comprehensive report on the topic. **Course is typically taken during the students last semester.**

THESIS OPTION

ENGT 5088 Thesis

The thesis option replaces 6 hours of the above courses and requires department approval.