

Department of Industrial Management and Technology

Contact Information

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Industrial Management and Applied Engineering Technology is a field that integrates management, engineering, and technical expertise. The program emphasizes fundamental engineering principles, project management, safety, industrial processes, production management, quality assurance, and lean production. Its goal is to ensure high-quality outcomes while achieving organizational and economic objectives across business, manufacturing, construction, education, and government sectors.

Educational Objectives

The program aims to:

1. Prepare students for technology-related careers in industry, education, business, and government.
2. Provide a strong academic foundation for advanced studies and lifelong learning.
3. Instill a sense of ethics and professional responsibility to society.
4. Offer students the opportunity to take classes taught by industry professionals.
5. Enable students to earn certifications such as OSHA 30, AutoCAD, and a digital badge in Principles of Lean Production.
6. Allow students to pursue a minor in Construction Management or Business Administration alongside their bachelor's degree.
7. Provide opportunities to earn a certificate in Business Administration concurrently with the bachelor's degree.
8. Students are expected to develop essential soft skills, encompassing communication, teamwork, problem-solving, adaptability, leadership, time management, and emotional intelligence.

Departmental Certificates

The program offers a broad technical background with departmental certificates in:

- Industrial Safety
- Oil Field Service
- Construction Management
- Manufacturing Management

Additionally, students receive a built-in certificate in Business Administration and have the opportunity to earn minors in Business Administration and Construction Management.

Career Opportunities

Graduates are prepared for a variety of professional roles, including:

- Production Supervisor
- Safety Manager/Supervisor
- Field Specialist
- Field Engineer
- Cost Estimator
- Procurement Manager
- Project Scheduler
- Quality Manager/Supervisor
- Project Manager

Professional Organizations

The Department of Industrial Management and Technology encourages students to participate in professional organizations relevant to their degree and interests. One notable option is the **Association of Technology, Management, and Applied Engineering (ATMAE)**, which hosts the Student Division Robotics Competition and other professional development activities.

Construction Management (CMGT)

CMGT 1318 Construction Methods & Safety **3 SCH (3-0)**

This course bridges the gap between technical construction knowledge and the behavioral, ergonomic, and psychological aspects of safety management, and integrates construction methods with human factors, to provide students with a holistic understanding of risk, allowing students to anticipate and mitigate hazards from both engineering and human performance perspectives.

CMGT 2318 Construction Bldg Systems **3 SCH (3-0)**

This course introduces the fundamentals of mechanical (HVAC), electrical, and plumbing systems (MEP) used in building construction. Emphasis is placed on interpreting construction documents, understanding system components, layout and coordination, energy efficiency, and relevant building codes and standards. Students will learn to collaborate with MEP subcontractors and manage MEP scopes effectively in the field. Prerequisites: Math 1314 or any university MATH course except MATH 1334, Math 1350, or MATH 1351.

CMGT 2346 Construction Law **3 SCH (3-0)**

This course introduces students to the legal principles and frameworks that govern the construction industry. Students will learn construction contracts, risk allocation, dispute resolution, professional liability, labor laws, and regulatory compliance. The course emphasizes real-world applications of construction law and legal best practices in managing projects, avoiding disputes, and protecting stakeholders.

CMGT 2360 Intro to Construct Surveying **3 SCH (3-0)**

This course introduces the principles, techniques, and equipment used in construction surveying. Students will learn to measure distances, angles, and elevations; use instruments such as total stations and levels; establish control points; perform site layout and stakeout; calculate earthwork quantities; and interpret maps and property descriptions. Prerequisite: Math 1314

CMGT 3350 Construction Prod & Inv Ctrl **3 SCH (3-0)**

This course covers production and inventory control in construction, including forecasting materials, just-in-time delivery, procurement, and warehouse management to support project schedules, cost control, and quality through practical case studies. Prerequisite: MATH 1324 Math for Bus and Econ 1 and CMGT 1318 Construction Methods and Human Factors in Construction

CMGT 3370 Construction Risk & Safety **3 SCH (3-0)**

This course covers key concepts in construction risk management and occupational safety. Students learn to identify and manage risks, apply OSHA standards, develop safety plans, and implement accident prevention strategies to ensure safe and efficient construction operations. Prerequisite: CMGT 2346 Construction Law

CMGT 3380 Constr Matls Handling **3 SCH (3-0)**

This course introduces students to the properties, selection, and sustainable use of construction materials, including concrete, steel, wood, masonry, and composites. The course emphasizes safe and efficient material transportation and handling, covering logistics, equipment, storage, and safety practices. Prerequisite: CMGT 1318 Construction Methods and Human Factors in Construction

CMGT 4345 Prin of Ops Mgmt in Construct **3 SCH (3-0)**

Principles of Operations Management in Construction focuses on planning, coordinating, and controlling daily construction activities. Key topics include resource management, labor and equipment use, workflow planning, productivity, safety, quality, and cost control. Emphasis is on productivity methods such as work measurement, time studies, workflow optimization, and performance monitoring to improve efficiency and support successful project delivery. Prerequisite: CMGT 3380 Construction Materials, Transportation of Materials, and Material Testing.

CMGT 4360 Construction Project Mgmt **3 SCH (3-0)**

This course covers the fundamental principles and practices of construction project management with a focus on construction projects. Students will learn project planning, scheduling, budgeting, resource management, communication, risk assessment, and the use of project management software. Prerequisite: CMGT 3380 Construction Materials, Transportation of Materials, and Material Testing

CMGT 4370 Construc Analytics & Lean (WI) **3 SCH (3-1)**

This course explores the integration of construction data analytics with lean project delivery methods to improve efficiency and project outcomes. Students will learn to apply data-driven decision-making alongside lean techniques such as the Last Planner System (LPS), Value Stream Mapping (VSM), and Target Value Design (TVD). Through hands-on projects, learners will analyze construction workflows, identify waste, optimize scheduling, and enhance productivity using analytics tools and lean frameworks, enabling measurable improvements in cost, time, and quality. Prerequisites: BUAD 3355 Business Statistics (3) This course is a writing-intensive course.

CMGT 4380 Construction Capstone Project **3 SCH (1-5)**

This course involves planning and managing the construction of a project. Students integrate key aspects of construction management, including scheduling, budgeting, resource allocation, and safety. The course provides hands-on experience applying classroom knowledge to a real-world construction scenario, preparing students for professional practice. Prerequisite: CMGT 4360 Construction Project Management

CMGT 4390 Advanced Cost Estimating 3 SCH (3-0)

This course covers advanced techniques and methodologies in cost estimating, particularly for construction management and engineering projects. The course builds on foundational cost estimating principles and introduces sophisticated approaches for accurate and reliable cost prediction. Prerequisite: CMGT 4360 Construction Project Management

Industrial Management and Applied Engineering Technology (ITEN)**ITEN 1311 Technical CAD 3 SCH (3-1)**

An introduction to a variety of mechanical drafting applications and techniques, including orthographic projection, pictorials, geometric dimensioning and tolerancing in pencil and Computer Assisted Drafting and Design.

Fee: \$5.00

ITEN 1315 Intro to Manufacturing Process 3 SCH (3-1)

Manufacturing processes of products using metal, plastic and wood. Laboratory experiences include projects related to machine tool operations, injection molding, thermoforming, CNC lathe and milling machining.

Fee: \$5.00

ITEN 2301 Industrial Electronics 3 SCH (3-1)

Industrial applications of electricity and electronics, including passive components, power utilization, solid state devices and electronic production techniques. Prerequisites: MATH 1314.

Fee: \$5.00

ITEN 2322 Measurements and Materials 3 SCH (3-1)

An introduction into measurement terms, concepts, and instruments along with characteristics and properties of basic materials used within industry. Laboratory experiences include contact and noncontact gaging and material testing. Prerequisites: CHEM 1405 or equivalent and PHYS 1375 or equivalent.

ITEN 2330 OSHA for General Industry 3 SCH (3-0)

An introduction to OSHA's general industry standards and an overview of the requirements of the more frequently referenced standards. Standards will be reinforced with laboratory exercises and related problems.

ITEN 3306 Manufacturing Processes 3 SCH (3-1)

A survey of traditional and nontraditional manufacturing processes used in product development and production. Prerequisite: ITEN 1315.

ITEN 3310 Fluid Power 3 SCH (3-1)

Systems, instruments, and concepts utilized in the area of fluid power with emphasis on fundamental theories of operation, system design, component selection, maintenance and safety considerations. Includes an overview of fluid logic and electrical control circuits. Prerequisite: 3 SCH of PHYS counting toward degree.

Fee: \$5.00

ITEN 3313 Energy Systems 3 SCH (3-1)

An introduction to the basic principles of energy and power transmission for industrial technologists and non-engineers. Prerequisite: 3 SCH of PHYS counting toward degree.

ITEN 3321 Architectural CAD 3 SCH (3-1)

Planning, design and drafting of residential and commercial buildings. Prerequisite: ITEN 1311 or consent of instructor.

Fee: \$5.00

ITEN 3323 Cost Estimating 3 SCH (3-0)

Practical methods used in development of cost estimates in industrial management and technology, with emphasis on software used in the construction industry. Prerequisite: junior standing.

ITEN 3331 Construction Technology 3 SCH (2-2)

Systems, materials and equipment utilized in residential and commercial construction. Includes regulatory and economic analysis of construction projects.

Fee: \$5.00

ITEN 3333 Industrial Scheduling 3 SCH (3-0)

Planning, scheduling and monitoring of construction projects including development of critical path networks (CPM & PERT), GANTT bar charts and construction cost control and reporting practices. Prerequisite: credit or registration in ITEN 3323.

ITEN 3336 Industrial Hygiene I 3 SCH (3-0)

An introduction to industrial hygiene and recognition of industrial hazards. Prerequisite: ITEN 2330.

ITEN 3338 Industrial Hygiene II 3 SCH (3-0)

Industrial hazard evaluation and control methods, duties of safety professionals and government regulations. Prerequisites: ITEN 2330, credit in ITEN 3336 recommended.

ITEN 3345 Advanced Graphics and Modeling 3 SCH (3-0)

Advanced graphics with an emphasis in 3D design and solid modeling. Prerequisite: credit or registration in ITEN 3300.

ITEN 3349 Lean Production (WI) 3 SCH (3-0)

Planning and developing benchmarks for manufacturing operations; measuring, assessing, and enhancing productivity within industrial settings, including an overview of Lean Production concepts. Prerequisite: junior standing.

ITEN 4330 Manufacturing Systems 3 SCH (3-0)

A holistic overview of manufacturing; design and solid modeling, robotics, CAD/CAM principles and tradition and nontraditional manufacturing concepts with an emphasis in design analysis and production enhancement. Prerequisites: ITEN 3306 and ITEN 3315 or ITEN 3345.

ITEN 4332 Hazardous Waste and Fire Safe 3 SCH (3-0)

Study of fire prevention and hazardous substances. Hazard mitigation and containment polities will be reviewed. Prerequisites: CHEM 1405 or CHEM 1311/CHEM 1111.

ITEN 4336 Industrial Employment Research 3 SCH (3-0)

Survey of career opportunities in construction, manufacturing, and oil field service through class discussion, field trips and independent research. Includes job hunting skills development, resume development, and mock interviews. Prerequisite: junior standing.

ITEN 4340 Leadership and Supervision 3 SCH (3-0)

Supervision in industrial settings; ways and means to assess, motivate and train technical employees to help meet production goals and safety guidelines. Emphasis on the supervisor's functional and essential areas of knowledge, relations with others and personal development. Prerequisites: ITEN 3300 and ITEN 3331.

ITEN 4352 Quality Assurance 3 SCH (3-1)

Methods used to ensure quality production through the measurement and maintenance of desired product characteristics in manufacturing processes. Prerequisite: MATH 1316 or equivalent.

Fee: \$5.00

ITEN 4353 Construction Management 3 SCH (3-0)

Study of management techniques to solve the unique problems associated with a construction project. Emphasis on the management of manpower, materials, money and machinery. Prerequisite: ITEN 3331 or equivalent.

Majors

- Construction Management, B.S.
- Industrial Management and Applied Engineering Technology, B.S. with a Certificate in Business Administration

Minors

- Construction Management, Minor

Planned Course Offerings

This section provides a comprehensive list of courses offered by the Department of Industrial Management and Technology, along with a three-year schedule indicating when each course is expected to be available. Please note that course offerings and scheduling are subject to change based on faculty availability and student demand. It is recommended that students consult with their academic advisor to plan their course schedule accordingly.

Industrial Management and Applied Engineering Technology (ITEN)

Course	Fall 2026	Spring 2027	Fall 2027	Spring 2028	Fall 2028	Spring 2029
ITEN 1311	X		X		X	
ITEN 1315	X	X	X		X	
ITEN 2301	X		X		X	
ITEN 2322	X	X	X		X	
ITEN 2330	X		X		X	
ITEN 3306		X		X		X
ITEN 3310	X		X		X	
ITEN 3313		X		X		X
ITEN 3321		X		X		X
ITEN 3323	X		X		X	
ITEN 3331	X		X		X	
ITEN 3333		X		X		X
ITEN 3336	X		X		X	
ITEN 3338		X		X		X
ITEN 3345		X		X		X
ITEN 3349		X		X		X

ITEN 4330		X		X		X
ITEN 4332	X		X		X	
ITEN 4336		X		X		X
ITEN 4340		X		X		X
ITEN 4352	X		X		X	
ITEN 4353		X		X		X

Marketable Skills

Texas A&M University-Kingsville is committed to preparing students for success beyond the classroom by helping them develop marketable skills. These are the interpersonal, cognitive, and applied abilities that today's employers value most. Our academic programs are designed to help students build these essential competencies through a blend of academic coursework, hands-on learning, research opportunities, internships, and extracurricular involvement.

Below are the marketable skills provided by the department's academic program.

Knowledge-Based Skills

- Understand different areas of the applied engineering technology discipline
- Apply basic principles of project management, project scheduling, and cost estimation

Managerial and Leadership Skills

- Understand the roles and responsibilities of a manager
- Distinguish between a supervisor, a manager, and a leader
- Critical thinking and problem-solving in a managerial setting
- Effective teamwork and collaboration
- Effective communication skills

Professional and Interpersonal Skills

- Social, cultural, and global competence
- Professionalism and work ethics
- Safety awareness and regulatory compliance

Technical and Applied Skills

- Lean production and process optimization
- Quality assurance and continuous improvement
- Technical software proficiency

Together, these skills prepare graduates to excel in business, manufacturing, construction, education, and government sectors by combining technical knowledge, managerial expertise, and professional competencies.