Bachelor of Science in Industrial Management and Technology (MTEN) 
With a Certificate in Business Administration (2014)

<table>
<thead>
<tr>
<th>General Education (32 hr)</th>
<th>Mathematics (6 hr)</th>
<th>Industrial Management &amp; Tech (51 or 57 hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1301 Rhet &amp; Comp ......(3 hr)</td>
<td>MATH4 ......................... (3 hr)</td>
<td>ITEN 1311 Technical CAD ..................(3 hr)</td>
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<tr>
<td>ENGL 1302 Rhet &amp; Comp ......(3 hr)</td>
<td>MATH4 ......................... (3 hr)</td>
<td>ITEN 1315 Intro to Manuf Processes ........(3 hr)</td>
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<tr>
<td>HIST 1301 US History ..........(3 hr)</td>
<td>Science (7-8 hrs)</td>
<td>ITEN 2301 Industrial Electronics ...........(3 hr)</td>
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<tr>
<td>HIST 1302 US History ..........(3 hr)</td>
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<td>ITEN 2320 Industrial Materials ............(3 hr)</td>
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<tr>
<td>POLS 2301 US Govt ............(3 hr)</td>
<td>Any CHEM1 ....................(3-4 hr)</td>
<td>ITEN 2330 OSHA for General Industrial.....(3 hr)</td>
</tr>
<tr>
<td>POLS 2302 Texas Govt..........(3 hr)</td>
<td>Any PHYS2 .....................(3-4 hr)</td>
<td>ITEN 3306 Manufacturing Processes ........(3 hr)</td>
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<tr>
<td>A Cultural Elective ............(3 hr)</td>
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<td>ITEN 3313 Energy Systems .................(3 hr)</td>
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<tr>
<td>A Creative Arts Elective........(3 hr)</td>
<td></td>
<td>ITEN 3323 Cost Estimating..................(3 hr)</td>
</tr>
<tr>
<td>A Communication Elective.......(3 hr)</td>
<td>Business Component (12 or 18 hrs)</td>
<td>ITEN 3331 Construction Technology ........(3 hr)</td>
</tr>
<tr>
<td>ISYS 1301 Computer Apps ......(3 hr)</td>
<td>ISYS 2302 Computer Info Sys ......(3 hr)</td>
<td>ITEN 3349 Lean Production..................(3 hr)</td>
</tr>
<tr>
<td>UNIV 1101 Student Success…(1 hr)</td>
<td>ECON 2301 Principles of Econ I........(3 hr)</td>
<td>ITEN 4332 Haz Waste &amp; Fire Safety .......(3 hr)</td>
</tr>
<tr>
<td>UNIV 1102 Student Success…(1 hr)</td>
<td>MGMT 3322 Principles of Mgmt ......(3 hr)</td>
<td>ITEN 4336 Industrial Employ Research.......(3 hr)</td>
</tr>
</tbody>
</table>

Free Electives (6 hr)
Elective ..........................(3 hr) Note: Choice of six credit hours in 
Adv. Business or Adv. ITEN 
Elective ..........................(3 hr)

Minimum GPAs to Graduate
Overall ≥ (2.00) Math/Science ≥ (2.25) 
MTEN ≥ (2.50) Business ≥ (2.25)
Total Hours: 120 (At least 45 semester hours must be advanced courses)

Additional Notes:
* For courses listed under Core Curriculum "General Education with A indicator" see "General Requirements for Graduation with a Baccalaureate Degree" of the 2012-2014 catalog or backside of this handout.
1 Any chemistry course with a laboratory will meet this requirement provided 4 credit hours are obtained.
2 Any physics course with a laboratory will meet this requirement excluding Astronomy and PHYS 1471. Example: PHYS 1375, combined lecture / lab (3 credit hrs) or PHYS 1301 and PHYS 1101, separate lecture and lab courses (4 credit hrs).
3 Chosen from, depending on selected ITEN emphasis:
   ITEN 3310 Fluid Power  ITEN 3311 Manufacturing Facilities  ITEN 3336 Industrial Hygiene 1
   ITEN 3333 Industrial Scheduling  ITEN 3315 CAD/CAM  ITEN 3338 Industrial Hygiene 2
   ITEN 3324 Industrial Controls  ITEN 3319 Industrial Internship  ITEN 3345 Graphics and Modeling
   ITEN 4330 Manufacturing Systems  ITEN 4320 Safety Program Admin

4 Any university MATH course except MATH 1350 and MATH 1351
5 ITEN majors must complete at least 6 credit hours of program specific Math/Science courses and possesses a Math/Science GPA of 2.0 before any ITEN 3000 - 4000 level courses can be scheduled.
6 ITEN majors must complete the following four courses to earn Certificate in Business Administration and meet degree program requirements: ISYS 2302; ECON 2301; ACCT 2301; MGMT 3322.
7 ITEN majors who elect to complete two advanced level business electives instead of two advanced level ITEN electives need to complete ANY two of the following four courses: MKTG 3324; MGMT 3325; MGMT 4324; BUAD 3355.

For more information,
Contact: Dr. Marsh @ 361-522-0111 or 361-593-2608 or bruce.marsh@tamuk.edu or 
Visit: http://www.tamuk.edu/engineering/departments/iten/index.html
INDUSTRIAL SAFETY
ITEN 2330 OSHA for General Industry core fall
ITEN 4332 Hazardous Waste & Fire Safety core spring
ITEN 4340 Leadership and Supervision core fall & spring

Any two of the three below
ITEN 3336 Industrial Hygiene 1 elective fall
ITEN 3338 Industrial Hygiene 2 elective spring
ITEN 4320 Safety Program Admin elective as needed

CONSTRUCTION MANAGEMENT
ITEN 3321 Architectural CAD core spring
ITEN 3323 Cost Estimating core fall
ITEN 3331 Construction Technology core fall
ITEN 3333 Industrial Scheduling elective spring
ITEN 4332 Hazard Materials and Fire Safety core spring
ITEN 4353 Construction Management elective spring

OIL FIELD SERVICE
ITEN 3313 Energy Systems core spring
ITEN 3323 Cost Estimating core fall
ITEN 4332 Hazardous Waste & Fire Safety core spring
ITEN 3310 Fluid Power elective fall

Any one of the three below
ITEN 3333 Industrial Scheduling elective spring
MGMT 3325 Human Resource Management elective fall
ITEN 3324 Industrial Controls elective not presently offered

MANUFACTURING MANAGEMENT
ITEN 3306 Manufacturing Processes core spring
ITEN 3349 Lean Production core spring and fall
ITEN 4332 Hazardous Waste and Fire Safety core spring

Any two of the four below
ITEN 3345 Advanced Graphics and Modeling elective spring
ITEN 3315 CAD/CAM elective spring
ITEN 3310 Fluid Power elective fall
ITEN 3311 Facility Layout elective not presently offered

BUSINESS ADMINISTRATION CERTIFICATE (built-in)
ISYS 2302 Computer Info Systems core year round
ACCT 2301 Principles of Accounting I core year round
ECON 2301 Principles of Economics I core year round
MGMT 3322 Principles of Management core year round

Optional Minor in Business Administration
MKTG 3324 Principles of Marketing elective year round
MGMT 3325 HR Management elective year round

Course Descriptions: Department of Industrial Management and Technology (MTEN)
ITEM 1311. Technical CAD.  
An introduction to a variety of mechanical drafting applications and techniques, including orthographic projection, pictorials, and geometric dimensioning and tolerancing in pencil, and Computer Assisted Drafting and Design.  
3 hr credit (2 hr lec - 2 hr lab)

ITEM 1315. Introduction to Manufacturing Processes.  
An introduction to 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  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 2301. Industrial Electronics.  
Industrial applications of electronics, including passive components, power utilization, solid state devices and electronic production techniques.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 2320. Industrial Materials.  
An introduction to the sources, properties and testing of a variety of industrial materials.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 2330. OSHA for General Industry.  
An introduction to OSHA's general industry standards and an overview of the requirements of the more frequently referenced standards.  
3 hr credit (2 hr lec - 2 hr lab)

ITEM 3301. Industrial Electronics.  
A survey of traditional and nontraditional manufacturing processes used in product development and production.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 3310. Fluid Power.  
Systems, instruments, and concepts utilized in the area of fluid power. Course emphasizes fundamental theories of operation, system design, component selection, maintenance, and safety considerations. Includes an overview of fluid logic and electrical controls.  
3 hr credit (3 hr lec)

ITEM 3311. Manufacturing Facilities.  
Study of principles, methods, and techniques utilized in planning, operating, and maintaining manufacturing and industrial facilities.  
3 hr credit (3 hr lec)

An introduction to the basic principles of energy and power transmission for industrial technologists and non-engineers.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 3315. CAD/CAM.  
Application, economics, and programming of Computer Numerical Control (CNC) machine tools.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 3321. Architectural CAD.  
Planning, design and drafting of residential and commercial buildings.  
3 hr credit (3 hr lec - 1 hr lab)

A survey of practical methods used in the development of cost estimates in all areas of industrial management and technology with an emphasis on the software used within the construction industry.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 3324. Industrial Controls.  
Digital electronics and the application of microprocessors to industrial control.  
3 hr credit (3 hr lec)

ITEM 3331. Construction Technology.  
Materials and equipment utilized in residential and commercial construction. Includes regulatory and economic analysis of construction projects.  
3 hr credit (2 hr lec - 2 hr lab)

ITEM 3333. Industrial Scheduling.  
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.  
3 hr credit (3 hr lec)

ITEM 3336. Industrial Hygiene 1.  
Materials and equipment utilized in residential and commercial construction. Includes regulatory and economic analysis of construction projects.  
3 hr credit (3 hr lec)

ITEM 3338. Industrial Hygiene 2.  
Materials and equipment utilized in residential and commercial construction. Includes regulatory and economic analysis of construction projects.  
3 hr credit (3 hr lec)

ITEM 3343. Manufacturing Systems.  
A survey of the latest manufacturing processes that are used in order to produce products that cannot be produced with conventional manufacturing processes.  
3 hr credit (3 hr lec)

Advance graphics with an emphasis in 3D design and solid modeling.  
3 hr credit (3 hr lec)

ITEM 3349. Lean Production.  
Planning and developing benchmarks for manufacturing operations; measuring, assessing and enhancing productivity within industrial settings, including an overview of Lean Production concepts.  
3 hr credit (3 hr lec)

ITEM 3350. Leadership and Supervision.  
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.  
3 hr credit (3 hr lec)

ITEM 3352. Quality Assurance.  
Methods used to insure quality production through the measurement and maintenance of desired product characteristics in manufacturing processes.  
3 hr credit (3 hr lec - 1 hr lab)

ITEM 3353. Construction Management.  
Study of management techniques to solve the unique problems associated with a construction project. Emphasis on the management of manpower, materials, money, and machinery.  
3 hr credit (2 hr lec - 2 hr lab)
GENERAL EDUCATION REQUIREMENTS FOR GRADUATION WITH A BACCALAUREATE DEGREE

The university has established General Education requirements for all baccalaureate degrees. A general education results in the acquisition of a common body of essential knowledge and skills that together facilitate the development of students as individuals and as members of communities. Students are strongly advised to consult their individual degree plans and academic advisers for any specific requirements for their majors within the General Education curriculum. Students are also advised to consult the online catalog for any additions to the course offerings. Some courses are listed in two areas; a student may count such a course in either area, but not both. Note: this listing has been modified slightly to reflect ITEN degree program requirements.

Component Option (090):
A. Communication (Communication)
Required: 3 semester credit hours of oral communications
Select one course from:
COMM 1307; or COMS 1311, COMS 1315, COMS 1336, COMS 2374; or ENGL 2374
Preferred by COE and ITEN: COMS 2374, ENGL 2374

B. Component Option (SCH).

ISYS 1301; required within degree plan

Language, Philosophy and Culture, (040) (Lang/Phil/Cultural Elective):
Required: 3 semester credit hours
Select one course from:
ANTH 2302; or ENGL 2331, 2342, ENGL 2362; or FREN 1311, FREN 1312, FREN 2311, FREN 2312;
or HIST 2321, HIST 2322; or PHIL 1301;
or SPAN 1313, SPAN 1314, SPAN 1373, SPAN 2301, SPAN 2302, SPAN 2311, SPAN 2312.

Creative Arts, (050) (Arts Elective)
Required: 3 semester credit hours
Select one course from:
ARTS 1303; or COMM 2304; or MUSI 2306, MUSI 2308, MUSI 2310; or THEA 2310.

Mathematics (Logic, college-level algebra equivalent or above) (Mathematics):
Required: Degree program requires 6 semester credit hours
Select two choices from:
MATH 1314, MATH 1316, MATH 1324, MATH 1325
or any other math course for which one of these courses is a prerequisite

Natural Sciences: Required: 6 to 8 semester credit hours with laboratory experience
Select two choices from:
* Courses with separate laboratories (both lecture and laboratory required for each choice):
CHEM 1311/1111, CHEM 1312/1112;
or PHYS 1301/1101, PHYS 1302/1102, PHYS 1303/1103, PHYS 1304/1104, PHYS 1305/1105,
PHYS 1307/1107, PHYS 2325/2125, PHYS 2326/2126.
PHYS 1375 listed on the degree plan
** Courses with embedded laboratories:
CHEM 1376, CHEM 1405, CHEM 1407; or PHYS 1375, PHYS 1471. CHEM 1405 listed on the degree plan

Social and Behavioral Sciences, divided into three areas:
A. U.S. History (legislatively mandated); Required: 6 semester credit hours
HIST 1301 and HIST 1302.
A. Political Science (legislatively mandated); Required: 6 semester credit hours
POLS 2301 and POLS 2302.
C. Social/Behavioral Science (ITEN program requirement); Required: 3 semester credit hours
ECON 2301 required on the degree plan