### Recommended Industrial Management and Technology Course sequence

**Undergraduate Catalog - 2016/2017**

**Total undergraduate credits: 120**

#### Freshman (Fall)
- 3 TECH 211 - Computer-Aided-Design
- 3 MATH155 - Trigonometry
- 3 CHEM 110 - General Chemistry I
- 1 CHEM 111 - General Chemistry I Lab
- 3 ENGL103 - Composition I
- 3 General Education Requirement 1

#### Freshman (Spring)
- 3 COMST00 - Communications
- 3 ENGL203 - Composition I
- 3 PHYS 150 - Physics
- 1 PHYS 151 - Physics Lab
- 3 General Education Requirement 2
- 3 General Education Requirement 3

#### Sophomore (Fall)
- 3 Technology Area of Study 1
- 3 TECH 265 - Basic Manufacturing Processes
- 3 STAT 208 - Basic Statistics or STAT 301 - Elementary Statistics
- 1 TECH175 - Electricity and Electrical Fund. Lab
- 3 TECH 434 - Human Factors in Accident Prevention

#### Sophomore (Spring)
- 3 General Education Requirement 4
- 3 TECH 404 - Supervision in Industry
- 3 ACCY 288 - Fund of Acctg or ACCY 206 - Intro Financial Acctg
- 3 Technology Area of Study 2
- 1 Ind Mgmt & Tech Elective 1

#### Junior (Fall)
- 3 TECH 391 - Industrial Quality Control
- 3 TECH 429 - Plant location, Layout, and Materials Handling
- 3 Technology Area of Study 3
- 3 General Education Requirement 5
- 3 General Elective

#### Junior (Spring)
- 3 TECH 406 - Facilities Management Technology
- 3 TECH 415 - Applied Industrial Experimental Analysis
- 3 Engl 308 - Tech Writing or Mgmt 346 - Business Comms
- 3 Technology Area of Study 4
- 3 Technology Area of Study 5

#### Senior (Fall)
- 3 TECH 492 - Manufacturing Distribution Applications
- 3 Technology Area of Study 6
- 3 Ind Mgmt & Technology Elective 2
- 3 Technology Area of Study 7
- 3 Technology Elective 1

#### Senior (Spring)
- 3 Technology Elective 2
- 3 Technology Area of study 8
- 3 Technology Area of Project Management
- 3 General Elective

**Industrial Management and Technology Electives (Choose 2)**

### Areas of Concentration within the Industrial Management & Technology Program

#### Computer-Aided-Design (CAD)
- TECH 262 - Machine Production Processes
- TECH 311 - Computer-Aided Modeling
- TECH 312 - Design Dimensioning and Tolerancing
- TECH 313 - Product Design and Development for Manufacturability
- TECH 365 - Metrology
- TECH 414 - Computer-Aided Machine Design
- Two of the following
  - TECH 260 - Metal Fabrication Processes
  - TECH 314 - Tool and Die Design
  - TECH 344 - Materials and Processes in the Plastics Industry
  - TECH 345 - Plastic Molding Processes
  - TECH 417 - Design for Energy Efficient and Green Materials
  - TECH 420 - Computer-Integrated Manufacturing
  - TECH 427 - Testing Methods, Procedures, & Selection of Sustainable Plastics

#### Environmental Health and Safety
- TECH 231 - Safety Programs
- TECH 245 - Pollution Prevention & Sustainable Production
- TECH 437 - Fundamentals of Industrial Hygiene
- TECH 441 - Hazard Control in Industrial Operations
- TECH 481 - Ergonomics
- Two of the following
  - TECH 409 - Internship
  - TECH 411 - Env Sustainability Practics for Ind Ops
  - TECH 432 - Disaster Preparedness
  - TECH 433 - Toxicology for Industry
  - TECH 435 - Legal Aspects of Safety
  - TECH 438 - Safety in Transportation systems
  - TECH 485 - Risk Management

#### Manufacturing Technology
- TECH 260 - Metal Fabrication Processes
- TECH 262 - Machine Production Processes
- TECH 311 - Computer-Aided Modeling
- TECH 313 - Product Design and Development for Manufacturability
- TECH 365 - Metrology
- TECH 420 - Computer-Integrated Manufacturing
- Two of the following
  - TECH 312 - Design Dimensioning and Tolerancing
  - TECH 314 - Tool and Die Design
  - TECH 344 - Materials and Processes in the Plastics Industry
  - TECH 409 - Internship
  - TECH 417 - Design for Energy Efficient and Green Materials
  - TECH 427 - Testing Methods, Procedures, & Selection of Sustainable Plastics

#### Electronics Technology
- TECH 270 - Electrical Fundamentals and Circuit Analysis I
- TECH 270A - Electrical Fundamentals and Circuit Analysis Lab I
- TECH 276 - Electronics I
- TECH 276A - Electronics I Lab
- TECH 277 - Digital Logic Design
- TECH 277A - Digital Logic Design Lab
- TECH 295 - Manufacturing Computer Applications or CSCI 215 - Visual Basic
- TECH 377 - Microprocessors and Interfacing
- TECH 377A - Microprocessors and Interfacing Lab
- Two of the following
  - TECH 409 - Internship
  - TECH 425 - Programmable Electronic Controllers
  - TECH 426 - Electric Systems Applications for Alternative Energy
  - TECH 430 - Microcontrollers Interfacing and Application
  - TECH 473 - Advanced Digital Design

**Notes:**
- A Technical elective course may be any course offered within the Department of Technology, as determined with consent of the faculty advisor.
- A general elective course may be any course offered from any department on campus.
2016/2017 NIU Undergraduate Bulletin
Energy and Environmental Technology
Credits Required for Graduation

Note: Semester offering and prerequisites may change, the current bulletin and schedule should be consulted.
Legend - p prerequisite e-corequisite f fall semester s spring semester

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### Required Technology Courses

- **Engl 103**
  - Rhetoric and Composition I (f, s)
- **Engl 203**
  - Rhetoric and Composition II (f, s)
- **Coms 100**
  - Fundamentals of Oral Comm (f, s)
- **English 308 or Mgmt 346**
  - Technical Writing or Business Communications (f, s)
- **Chem 110 (or Chem 210T)**
  - General Chemistry I (f, s)
- **Chem 111 (or Chem 212)**
  - General Chemistry II (f, s)
- **Phys 150 or (Phys 210 - p: M155)**
  - Physics I (f, s)
- **Phys 151**
  - Physics Labs (f, s)
- **Tech 305**
  - Math 155, Chem 110
  - Green Technologies (f, s)
- **Tech 326**
  - Phys 150A or 210
  - Fluid Power Technology (f, s)
- **Tech 391**
  - Math 155, Stat 208
  - Industrial Quality Control (f, s)
- **Tech 406**
  - Math 155, Tech 211
  - Facilities Management Technology (f, s)
- **Tech 411**
  - Math 155; Tech 245 or Tech 305
  - Environ Sustain Practices for Ind Ops (f, s)
- **Tech 416**
  - Math 155, Phys 150/151 or 210
  - Heating, Ventilating, and Air Conditioning (f, s)
- **Tech 417**
  - Math 155, Phys 150/151 or 210
  - Design for Energy Efficiency & Green Materials (f, s)
- **Tech 421**
  - Math 155, Phys 150/151 or 210
  - Electric Sys Apps for Alternative Energy (f, s)
- **Tech 426**
  - Math 155; Tech 175 or Phys 211
  - Electric Sys Apps for Alternative Energy (f, s)
- **Tech 436**
  - Math 155
  - Engineering Economy (f, s)
- **Tech 443**
  - Math 155, Chem 110 or 210
  - Ind. Energy Utilization & Env Impacts (f, s)
- **Tech 445**
  - Math 308 or Mgmt 346; Senior Status;
  - Tech 419; Tech 416
- **Tech 496**
  - Math 155, Chem 110 or 210
  - Industrial Project Management (f, s)

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### Requirements outside Technology

**9 semester hours**

- **Envs 304**
  - Environmental Law, Policy, & Economics (f, s)
- **Geog 256**
  - Maps and Mapping (f, s)
- **Geog 359**
  - Geog 256 or Geog 352
  - Intro to Geographic Info System (f, s)
- **Elective (3 hrs)**
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### Technology Electives

Choose 2 courses (6 hrs required)

- **Envs 301**
  - Environmental Sciences: Physical Sys (f, s)
- **Envs 302**
  - Env 301
  - Environmental Sciences: Biological Sys (f, s)
- **Geog 455**
  - Land Use Planning (f, s)
- **Geog 459**
  - Geog 359
  - Geographic Information Systems (f, s)
- **Tech 311**
  - Tech 211 C or better
  - Computer-Aided Modeling (f, s)
- **Tech 409**
  - Math 155, Stat 208
  - Internship (f, s)
- **Tech 415**
  - Applied Industrial Experimental Analyses (f, s)
- **Tech 425**
  - Math 155, T175/A; T265; T295 or Csci 2
  - Micro Computlng in Engrg and Apps (f, s)
- **Tech 427**
  - Math 155, T175/A; T265; T295 or Csci 2
  - Micro Computlng in Engrg and Apps (f, s)
- **Tech 436**
  - Math 155, Tech 245 or Tech 305
  - Test Meth, Proc, & Select of Sustain Plastics (f, s)
- **Tech 479**
  - See My NIU
  - Special Topics in Egr Tch (f, s)

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### General Education Knowledge Domain Courses - See CEET website or online Undergraduate Catalog

**Creativity & Critical Analysis - 2 courses**

- One course must be from VPA

**Society & Culture - 2 courses**

**From any of the Knowledge Domain Areas**

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Legend - p prerequisite e-corequisite f fall semester s spring semester