

**INDUSTRIAL TECHNOLOGY CURRICULUM**  
**Manufacturing option**  
**(2012-2013 Catalog)**  
**129 credits required for graduation**

**Interpersonal and Public Communication Skills (13 credits)**

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|---|---------------------|---|
| 3 | ENGL 150 (F.S.SS.)  | Critical Thinking and Communications                                    |
| 3 | ENGL 250 (F.S.SS.)  | Written, Oral, Visual, and Electronic Composition                       |
| 3 | ENGL 302 (F.S.SS.)  | Business Communication, <b>or</b>                                       |
|   | ENGL 309 (F.S.)     | Report and Proposal Writing, <b>or</b>                                  |
|   | ENGL 314 (F.S.SS.)  | Technical Communication, <b>or</b>                                      |
|   | AGEDS 327 (F.S.)    | Advanced Communication for Agriculture and Life Sciences                |
| 3 | SP CM 212 (F.S.SS.) | Fundamentals of Public Speaking, <b>or</b>                              |
|   | AGEDS 311 (F.S.)    | Presentation and Sales Strategies for Agricultural Audiences, <b>or</b> |
|   | COMST 214 (F.S.)    | Professional Communications   |
| 1 | LIB 160 (F.S.SS.)   | Information Literacy  |

**Mathematical, Physical, and Life Sciences (26-29 credits)**

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|---|---------------------|--|
| 3 | MATH 142 (F.S.SS.)  | Trigonometry and Analytic Geometry <b>and</b>  |
| 4 | MATH 160 (F.S.)     | Survey of Calculus; <b>or</b>  |
| 4 | MATH 165 (F.S.SS.)  | Calculus I   |
| 4 | PHYS 111 (F.S.SS.)  | General Physics  |
| 4 | PHYS 112 (F.S.SS.)  | General Physics  |
| 3 | STAT 104 (F.S.SS.)  | Introduction to Statistics   |
| 4 | CHEM 163 (F.S.SS.)  | General Chemistry  |
| 1 | CHEM 163L (F.S.SS.) | Laboratory in General Chemistry  |
| 3 | BIOL 101 (F.S.SS.)  | Introductory Biology <b>or</b>   |
|   | BIOL 211 (F.S.)     | Principles of Biology I  |
| 3 | Life Sciences       | (College of Agriculture and Life Science list)<br><a href="http://www.agstudent.iastate.edu/agricultureservices/life_science.htm">www.agstudent.iastate.edu/agricultureservices/life_science.htm</a> |

**Humanities, Ethics and Social Sciences (15 credits)** Certain courses in this section may be double counted to fulfill more than one academic requirement. Check with your advisor and this link for more details:

<http://www.abe.iastate.edu/undergraduate-students/advising-for-ast-i-tech/>

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|---|-----------------------------|--|
| 3 | ECON 101 (F.S.SS.)          | Principles of Microeconomics   |
|   | <b>From approved lists:</b> |  |
| 3 | Humanities                  | (College of Agriculture and Life Science list)<br><a href="http://www.agstudent.iastate.edu/agricultureservices/humanities.htm">www.agstudent.iastate.edu/agricultureservices/humanities.htm</a> |
| 3 | Ethics Course               | Required course TSM 370 will meet this requirement   |
| 3 | International Perspectives  | (University list)<br><a href="http://www.iastate.edu/%7eregistrar/courses/ip-list.html">www.iastate.edu/%7eregistrar/courses/ip-list.html</a>  |
| 3 | U.S. Diversity              | (University list)<br><a href="http://www.iastate.edu/~registrar/courses/diversity-list.html">www.iastate.edu/~registrar/courses/diversity-list.html</a>  |

**Technology Core (30 credits)**

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|---|-------------------|---|
| 1 | TSM 110 (F.)      | Introduction to Technology                                  |
| 1 | TSM 111 (S.)      | Experiencing Technology                                     |
| 3 | TSM 115 (F.S.)    | Solving Technological Problems                              |
| 3 | TSM 116 (F.S.)    | Introduction to Design in Technology                        |
| 1 | TSM 201 (F.S.)    | Preparing for Workplace Seminar                             |
| 3 | TSM 210 (F.S.)    | Fundamentals of Technology                                  |
| 3 | TSM 270 (F.)      | Principles of Injury Prevention                             |
| 3 | TSM 310 (S.)      | Total Quality Improvement                                   |
| 4 | TSM 363 (S.)      | Electric Power and Electronics for Agriculture and Industry |
| R | TSM 397 (F.S.SS.) | Internship in Technology                                    |
| 2 | TSM 399 (F.S.SS.) | Work Experience in Technology                               |
| 3 | TSM 415 (F.S.)    | Technology Capstone I                                       |
| 3 | TSM 416 (F.S.)    | Technology Capstone II                                      |

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**Business Core** (6 credits)

3	ACCT 284 (F.S.SS.)	Financial Accounting
3	ECON 230 (F.S.)	Farm Business Management <b>or</b>
	ECON 334 (F.S.)	Entrepreneurship in Agriculture <b>or</b>
	ECON 336 (F.)	Agricultural Selling <b>or</b>
	ECON 355 (F.S.)	International Trade and Finance <b>or</b>
	MGMT 370 (F.)	Management and Organization <b>or</b>
	MGMT 414 (F.)	International Management <b>or</b>
	SCM 301	Supply Chain Management <b>or</b>
	SCM 437	Project Management <b>or</b>
	TSM 408 (odd F. even S.)	Interdisciplinary Problem Solving <b>or</b>
	TSM 409 (odd F. even SS.)	Interdisciplinary Systems Effectiveness

**Option Core** (33 credits)

3	TSM 216 (F. S.)	Advanced Technical Graphics, Interpretation, and CAD
3	TSM 240 (F.S.)	Introduction to Manufacturing Processes
3	TSM 337 (S.)	Fluid Power Systems Technology
3	TSM 340 (F.S.)	Advanced Automated Manufacturing Processes
3	TSM 370 (S.)	Occupational Safety
3	TSM 440 (F.S.)	Cellular Lean Manufacturing Systems
3	TSM 443 (S.)	Statics and Strength of Materials for Technology
3	TSM 444 (F.)	Facility Planning
3	TSM 465 (S.)	Automation Systems
6	Technical Electives	See Departmental List

**Departmental Technical Elective List for Manufacturing Option (M):**

**Accounting**

3	ACCT 285	Managerial Accounting
3	ACCT 316	Business Law

**Aerospace Engineering**

3	AER E 381	Introduction to Wind Energy
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**Agricultural Engineering**

1	A E 271	Engineering Applications of Parametric Solid Modeling
1	A E 272	Parametric Solid Models, Drawings, and Assemblies Using Pro/ENGINEER

**Economics**

3	ECON 230	Farm Business Management
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**Entomology**

3	ENT 283	Pesticide Application Certification
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**Forestry**

3	FOR 485	Conversion of Lignocellulosic Materials
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**Management Information Systems**

3	MIS 330	Management Information Systems
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**Management**

3	MGMT 371	Organizational Behavior
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**Material Engineering**

3	MAT E 273	Principles of Materials Science and Engineering
3	MAT E 362	Principles of Nondestructive Testing
1	MAT E 362L	Nondestructive Testing Laboratory

**Mathematics**

4	MATH 166	Calculus II
3	MATH 266	Elementary Differential Equations

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**Psychology**

- 3 PSYCH 250 Psychology of the Workplace
- 3 PSYCH 450 Industrial Psychology

**Supply Chain Management**

- 3 SCM 301 Supply Chain Management
- 3 SCM 422 Manufacturing Planning and Control
- 3 SCM 424 Process Management, Analysis, and Improvement
- 3 SCM 428 Special Topics in Operations Management
- 3 SCM 437 Project Management
- 3 SCM 440 Supply Chain Information Systems
- 3 SCM 460 Decision Tools for Logistics and Operations Management
- 3 SCM 461 Principles of Transportation
- 3 SCM 462 Transportation Carrier Management
- 3 SCM 466 International Transportation and Logistics
- 3 SCM 485 Demand Planning and Management
- 3 SCM 486 Principles of Purchasing and Supply Management
- 3 SCM 487 Strategic Supply Chain Management

**Technology**

**Any 300 level or higher TSM and AE course not required in the technology or option cores.**