### University Core and Graduation Requirements

#### University Core Requirements:

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Classes</th>
<th>Hours</th>
<th>Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religion Cornerstones</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>REL A 250</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td>1</td>
<td>2.0</td>
<td>REL C 225</td>
</tr>
<tr>
<td>The Eternal Family</td>
<td>1</td>
<td>2.0</td>
<td>REL C 200</td>
</tr>
<tr>
<td><strong>The Individual and Society</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>1</td>
<td>3.0</td>
<td>ENG T 231*</td>
</tr>
<tr>
<td><strong>Skills</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Writing</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td>1</td>
<td>3.0</td>
<td>ENGL 316*</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112* or ACT</td>
</tr>
<tr>
<td>Languages of Learning (Math or Language)</td>
<td>1</td>
<td>4.0</td>
<td>MATH 112*</td>
</tr>
<tr>
<td><strong>Arts, Letters, and Sciences</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Civilization 1</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization 2</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Letters</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Biological Science</td>
<td>1</td>
<td>3.0</td>
<td>BIO 100*</td>
</tr>
<tr>
<td>Physical Science</td>
<td>1-2</td>
<td>3.0-7.0</td>
<td>CHEM 105* and PHSCS 121*</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>ENG T 231*</td>
</tr>
<tr>
<td><strong>Core Enrichment: Electives</strong></td>
<td></td>
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<tr>
<td>Religion Electives</td>
<td>3-4</td>
<td>6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Open Electives</td>
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</tbody>
</table>

FOR UNIVERSITY CORE QUESTIONS CONTACT THE ADVISEMENT CENTER in 242 CB
FOR PROGRAM QUESTIONS, CONTACT ADVISOR IN 250 SNLB

*These classes fill both University Core and Program Requirements (17 hours overlap)

#### Graduation Requirements:

- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

### Suggested Sequence of Courses

#### Freshman Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>15.0</td>
</tr>
<tr>
<td>2nd</td>
<td>15.0</td>
</tr>
</tbody>
</table>

#### Sophomore Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd</td>
<td>17.0</td>
</tr>
<tr>
<td>4th</td>
<td>16.0</td>
</tr>
</tbody>
</table>

#### Junior Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th</td>
<td>15.5</td>
</tr>
</tbody>
</table>

#### Senior Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Total Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>7th</td>
<td>16.0</td>
</tr>
<tr>
<td>8th</td>
<td>15.0-16.0</td>
</tr>
</tbody>
</table>

*Your faculty advisor can assist you in choosing electives to meet your total hour requirement.

**Note:** Students are encouraged to complete an average of 15–16 credit hours each semester or 30–31 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.

Note: 123 credit hours are required to graduate with this degree.
BS in Manufacturing Engineering Technology (396541)
2018-2019 Program Requirements (94 - 95 Credit Hours)

**REQUIREMENT 1 Complete 12 courses**

**MANUFACTURING CORE COURSES:**
- MFG 130 - Modern Manufacturing
- MFG 220 - Material Removal
- MFG 230 - Computer-Aided Manufacturing
- MFG 291 - Manufacturing Leadership
- MFG 331 - Metals Processes
- MFG 333 - Industrial Automation
- MFG 340 - Quality Systems in Manufacturing
- MFG 355 - Plastics Materials and Processing
- MFG 381 - Lean Manufacturing & System Design
- MFG 391 - Junior Seminar
- MFG 401 - Data Analysis
- MFG 491 - Senior Seminar

**REQUIREMENT 2 Complete 1 hour from the following course(s)**
- MFG 399R - Academic Internship

You may take up to 3 credit hours.

**REQUIREMENT 3 Complete 14 courses**

**SUPPORTING COURSES:**
- *BIO 100 - Principles of Biology* 3.0
- C S 142 - Introduction to Computer Programming 3.0
- CE EN 103 - Engineering Mechanics--Statics 3.0
- CHEM 105 - General College Chemistry 1 with Lab (Integrated) 4.0
- *ENG T 231 - Foundations of Global Leadership* 3.0
- *ENGL 316 - Technical Communication* 3.0
- *MATH 112 - Calculus 1* 4.0
- MATH 313 - Elementary Linear Algebra 3.0
- ME EN 250 - Science of Engineering Materials 3.0
- ME EN 272 - Engineering Graphics--Principles and Applications 3.0
- PHSCS 121 - Introduction to Newtonian Mechanics 3.0
- STAT 201 - Statistics for Engineers and Scientists 3.0
- TECH 112 - Exploration in Innovation Design Techniques 1.0

**REQUIREMENT 4 Complete 2 courses**

**TECHNICAL ELECTIVE COURSES:**
- IT 318 - Electronics, Computers, and Manufacturing 3.0
- MFG 372 - Design for X 3.0
- MFG 431 - Tool Design 3.0

**REQUIREMENT 5 Complete 3 courses**

**MATH, SCIENCE, AND STATISTICS SUPPORTING COURSES:**
- CHEM 106 - General College Chemistry 2 3.0
- CHEM 351M - Organic Chemistry 1 - Majors 3.0
- CHEM 357 - Industrial Organic Chemistry 3.0
- MATH 113 - Calculus 2 4.0
- MATH 334 - Ordinary Differential Equations 3.0
- PHSCS 123 - Introduction to Waves, Optics, and Thermodynamics 3.0
- STAT 462 - Quality Control and Industrial Statistics 3.0
- STAT 466 - Introduction to Reliability 3.0
- STAT 511 - Statistical Methods for Research 1 3.0
- STAT 512 - Statistical Methods for Research 2 3.0

**REQUIREMENT 6 Complete 2 courses**

- ME EN 475 - Integrated Product and Process Design 1 3.0
- ME EN 476 - Integrated Product and Process Design 2 3.0

**REQUIREMENT 7 Complete department packet and exit interview.**

**THE DISCIPLINE:**

Manufacturing is an exciting and rewarding discipline that has significant impact on a society’s standard of living and economic independence. At BYU the manufacturing program is specifically oriented toward creating leaders in the industry. Students in manufacturing learn creative and analytical skills that will enable them to quickly diagnose and solve manufacturing problems with insight from both engineering and management perspectives. They also develop interpersonal and communication skills that will prepare them to work as part of an engineering team and effectively interact with vendors, management, and production personnel. In addition, they receive hands-on training in modern lab facilities and learn to use computers to design, analyze, implement, and control manufacturing operations.

Manufacturing professionals are knowledgeable and skilled in the management, methods, technologies, equipment, and tooling needed to produce affordable products of high quality. They are able to effectively coordinate the procurement, installation, and start-up of production equipment as well as improve the productivity of existing operations. They are also able to coordinate manufacturing and supply-chain operation in a global setting.

Graduates may further their technical and managerial skills by pursuing either a master of science in technology or a master of business administration.

**RESEARCH OPPORTUNITIES:**

Students can work on a variety of industry-sponsored and related projects, often working directly with manufacturing engineers in industry. Manufacturing classes sometimes integrate these projects into the course work, but other industrial projects can be done outside of class, usually for pay. The excellent equipment and facilities in the department provide the resources where industry projects can be effectively accomplished.

**INTERNSHIPS:**

Professional training in actual companies is required and the advisor in the department can help students who desire to complete an internship. Both domestic and international internship opportunities are available for credit (and usually some pay). Many internships lead to permanent employment with the sponsoring company. Internships also offers a great chance for students to understand how their education is actually applied and to investigate further career directions and potential focus areas in their education.

**PROFESSIONAL AND HONOR SOCIETIES:**

The department sponsors strong student chapters of national societies associated with manufacturing and materials including the Society of Manufacturing Engineers (SME) and the Society of the Advancement of Materials and Process Engineering (SAMPE). Students may also participate in the national engineering technology honor society, Tau Alpha Pi and other honor societies.

**FINANCING:**

Many students can receive financial aid from department-sponsored scholarships or part time employment. The employment can be as teaching/lab assistants, apprentice engineers working on an industri-sponsored project, or research assistants under the direction of a faculty member.

**CAREERS:**

Career opportunities in manufacturing are plentiful and rewarding.
Typical entry-level job titles include manufacturing engineer, quality manager, process engineer, tool engineer, product engineer, quality engineer, production supervisor, and account manager (technical sales). New graduates are typically hired into technical positions but have the opportunity to quickly move into management. The job outlook for manufacturing graduates is bright and should continue to be strong in the future. When one considers that everything that does not exist as part of nature is the product of some form of manufacturing, it is easy to see that manufacturing is an integral part of society and generates an ever-growing workforce. Progressive companies worldwide seek qualified individuals who can provide leadership in improving the quality and productivity of their manufacturing operations.

MAP DISCLAIMER

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION

Manufacturing Engineering Technology
School of Technology
265 Crabtree Building
Brigham Young University, Provo, UT 84602
Telephone: 801-422-6300

ADVISEMENT CENTER INFORMATION

Rachel Terry, Academic Advisor, School of Technology
250 Snell Building
Brigham Young University Provo, UT 84602
Telephone: 801-422-1818
sot_advisement@byu.edu