# Manufacturing Engineering B.S.Mfg.E.

## Degree Requirements: 130 Credit Hours

See Core Curriculum for required courses in Area A1 through Area E.

<table>
<thead>
<tr>
<th>General Requirements (Core Areas A-E)</th>
<th>42</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional Requirements</td>
<td>4</td>
</tr>
<tr>
<td>Area F - Courses Appropriate to Major</td>
<td>18</td>
</tr>
<tr>
<td>CHEM 1310 Comprehensive General Chemistry</td>
<td></td>
</tr>
<tr>
<td>MENG 2139 Numerical Methods in Engineering</td>
<td></td>
</tr>
<tr>
<td>MFGE 2142 Fundamentals of Engineering Mechanics</td>
<td></td>
</tr>
<tr>
<td>MFGE 2534 Applied Computing in Manufacturing Engineering</td>
<td></td>
</tr>
<tr>
<td>PHYS 2212K Principles of Physics II</td>
<td></td>
</tr>
<tr>
<td><strong>Specific Requirements</strong></td>
<td>11</td>
</tr>
<tr>
<td>Carryover from Area A2</td>
<td>2</td>
</tr>
<tr>
<td>Carryover from Area D</td>
<td></td>
</tr>
<tr>
<td>ENGR 2131 Electronics and Circuit Analysis</td>
<td></td>
</tr>
<tr>
<td>MFGE 2239 Engineering Modeling and Mathematical Analysis</td>
<td></td>
</tr>
<tr>
<td><strong>STAT 1401 Elementary Statistics</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Major Requirements</strong></td>
<td>43</td>
</tr>
<tr>
<td>ENGR 1133 Engineering Graphics</td>
<td>3</td>
</tr>
<tr>
<td>MENG 1310 Manufacturing Processes Lab</td>
<td></td>
</tr>
<tr>
<td>MFGE 2421 Introduction to Additive Manufacturing Studio</td>
<td></td>
</tr>
<tr>
<td>MFGE 2531 Materials Science Studio for Manufacturing Engineering</td>
<td></td>
</tr>
<tr>
<td>MFGE 2533 Manufacturing Processing 2 Studio</td>
<td></td>
</tr>
<tr>
<td>MFGE 3131 Design for Manufacturability, Assembly, Sustainability</td>
<td></td>
</tr>
<tr>
<td>MFGE 3132 Quality and Statistical Process Control for Engineers</td>
<td></td>
</tr>
<tr>
<td>MFGE 3337 Hydraulics and Electro-mechanical Systems</td>
<td></td>
</tr>
<tr>
<td>MFGE 3421 Industrial Controls and Networking Studio</td>
<td></td>
</tr>
<tr>
<td>MFGE 3423 Facilities Design</td>
<td></td>
</tr>
<tr>
<td>MFGE 3531 Advanced Materials Processing</td>
<td></td>
</tr>
<tr>
<td>MFGE 3541 Energy Science Studio</td>
<td></td>
</tr>
<tr>
<td>MFGE 4135 Lean MFG Principals and Engineering Project Management</td>
<td></td>
</tr>
<tr>
<td>MFGE 4321 Manufacturing Engineering Capstone I</td>
<td></td>
</tr>
<tr>
<td>MFGE 4322 Manufacturing Engineering Capstone II</td>
<td></td>
</tr>
<tr>
<td>MFGE 4533 Industrial Robotics and Automation</td>
<td></td>
</tr>
<tr>
<td>MFGE 4614 Senior Seminar: Professional Skills and Leadership</td>
<td></td>
</tr>
<tr>
<td><strong>Specialization Area</strong></td>
<td>9</td>
</tr>
<tr>
<td>Select 9 credit hours from the following Specialization Areas</td>
<td></td>
</tr>
<tr>
<td>Lean Manufacturing:</td>
<td></td>
</tr>
<tr>
<td>MFGE 5131 Lean and Six Sigma 1</td>
<td></td>
</tr>
<tr>
<td>MFGE 5132 Lean and Six Sigma 2</td>
<td></td>
</tr>
</tbody>
</table>

| TMAE 5134 Lean World Class Manufacturing |   |
| MFGE 5331 Advanced Robotics for Manufacturing |   |
| MFGE 5332 Manufacturing Floor Control |   |
| MFGE 5333 Additive Manufacturing Studio |   |
| MFGE 5334 Additive Manufacturing of Lightweight Structures |   |
| **Materials Processing:**                |   |
| MENG 5138 Composite Materials: Manufacturing, Analysis, and Design |   |
| MFGE 5531 Advanced CNC Machining and Programming |   |
| MFGE 5532 Introduction to MEMS |   |
| MFGE 5534 Packaging |   |
| MFGE 5535 NanoManufacturing |   |
| MFGE 5536 Characterization of Advanced Manufacturing Materials |   |
| MFGE 5537 Design for Environment and Green Manufacturing |   |
| **SAP:**                                 | 4  |
| CISM 3333 ERP Systems Using SAP         |   |
| CISM 4237 Business Intelligence        |   |
| CISM 4333 Human Resource Information Systems |   |
| CISM 4335 Advanced Business Applications Programming (ABAP) for the SAP/ERP System |   |
| CISM 4336 ERP and Enterprise Performance |   |
| CISM 4434 Enterprise System Configuration |   |
| CISM 4435 ERP Web Portal Customization and Collaboration using SAP NetWeaver |   |
| **Occupational Health and Safety:**     |   |
| TSEC 5331 Occupational Safety           |   |
| TSEC 5333 Industrial Hygiene and Ergonomics |   |
| TSEC 5334 Hazardous Waste Management    |   |
| TSEC 5335 Systems Safety in Manufacturing |   |
| TSEC 5336 Environmental Law             |   |
| **General Manufacturing Engineering:**  |   |
| MFGE 4091 Manufacturing Engineering Co-Op |   |
| MFGE 5238 Facilities Maintenance        |   |
| TMAE 5133 Production Planning and Facilities Design |   |
| **Free Elective**                       | 3  |
| Select 3 credit hours of Free Electives |   |

Total Credit Hours: 130

1. Calculus II (MATH 2242) and Principles of Physics I (PHYS 2211K) are recommended in Area D.
2. While Calculus I (MATH 1441) is 4 credit hours, only 3 credit hours will count toward fulfilling Area A2. The remaining credit hour will be applied toward Specific Requirements.
3. College credits can be given for high school pre-engineering program Project Lead The Way’s (PLTW’s) Introduction to Engineering Design (IED) course as a possible substitution for Engineering Graphics (ENGR 1133), if the following three conditions are satisfied:
   - student scores 80% or above overall in the course and
   - an approval of the PLTW affiliate director faculty member at Georgia Southern.
   - student scores 70% or above on a Georgia Southern administered competency exam.
The SAP Specialization requires additional prerequisite courses. Consult with your academic advisor.

Manufacturing Engineering Co-Op (MFGE 4091) (1 credit) may also be used to satisfy elective credit(s) and taken for repeat credit with an established co-op rotation of the same employer with advanced approval of the department chair.

Other Program Requirements

At least 33 semester hours of approved Engineering courses must be taken at Georgia Southern.

Accelerated Bachelor's to Master's (ABM) Degree

The Accelerated Bachelor's to Master's Degree Program is intended for the current undergraduate students in the Department of Manufacturing Engineering at the Georgia Southern University. It will produce a pathway to earn both a Bachelor's and a Master's Degree within five years.

In accordance with SACSCOC requirements, students admitted to the MSAE-ABM may use up to 9 credit hours of graduate-level courses offered in the MSAE curriculum in meeting the requirements of both the BSMfgE and MSAE degree programs. SACSCOC requires 150 unique credit hours between the two programs. Because the MSAE-ABM program contains the required 150 unique hours between BSMfgE and MSAE degree programs, MSAE-ABM students may share a maximum of 9 credit hours of graduate level courses (5000G) in satisfying the requirements of both degree programs.

Admission Requirements

Regular

For regular admission to the Accelerated Bachelor's to Master's of Science in Applied Engineering (ABM-MSAE) degree program, the applicant must:

1. Be enrolled in the undergraduate manufacturing engineering program (BS-MFGE) in the Department of Manufacturing Engineering at the Georgia Southern University.
2. Have completed at least 25 credit hours of undergraduate coursework in MFGE discipline including MFGE 2531, MFGE 2142, MFGE 2533, MFGE 2239, and MFGE 2534.
3. Have a 3.0 or higher Georgia Southern Institutional GPA.

ABM programs do not allow provisional admission. ABM programs are designed for students who have demonstrated a high level of undergraduate academic performance that validates their ability to be a successful graduate student. Students who do not meet the minimum requirements for regular admission may be granted admission to the program upon approval of an admissions committee consisting of at least the Department Chair and the Graduate Program director.

ABM Degree Requirements: 30 Credit Hours (Thesis and Non-Thesis)

1. A student in the ABM program will be allowed to use up to 9 credits MFG 5000G level courses offered within the Manufacturing Engineering program in meeting the requirements of both a bachelor's degree and a master's degree.
2. Maintain a cumulative graduate GPA of 3.0 (grade of "B" or better) in their graduate degree course work (including the 9 credits of graduate course work shared with the undergraduate degree).
3. Meet all requirements for both the BS-MFGE and M.S.A.E. degrees.