## 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>Credit Hours</th>
<th>General Requirements (Core Areas A-E)</th>
<th>Additional Requirements</th>
<th>Area F - Courses Appropriate to Major</th>
<th>Specific Requirements</th>
<th>Major Requirements</th>
<th>Free Elective</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>CHEM 1310 Comprehensive General Chemistry</td>
<td>4</td>
<td>MENG 2139 Numerical Methods in Engineering</td>
<td>Carryover from Area A2</td>
<td>ENGR 1133 Engineering Graphics</td>
<td>Select 3 credit hours of Free Electives</td>
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<td>3</td>
<td>PHYS 2212K Principles of Physics II</td>
<td></td>
<td>MFGE 2239 Engineering Modeling and Mathematical Analysis</td>
<td>STAT 2231 Introduction to Statistics I</td>
<td>MENG 2421 Introduction to Additive Manufacturing Studio</td>
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<tr>
<td>3</td>
<td>MFGE 2531 Materials Science Studio for Manufacturing Engineering</td>
<td></td>
<td>MFGE 2533 Manufacturing Processing 2 Studio</td>
<td>MFGE 2531 Materials Science Studio for Manufacturing Engineering</td>
<td>MFGE 2531 Materials Science Studio for Manufacturing Engineering</td>
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<tr>
<td>3</td>
<td>MFGE 3131 Design for Manufacturability, Assembly, Sustainability</td>
<td></td>
<td>MFGE 3132 Quality and Statistical Process Control for Engineers</td>
<td>MFGE 3132 Quality and Statistical Process Control for Engineers</td>
<td>MFGE 3132 Quality and Statistical Process Control for Engineers</td>
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<td>3</td>
<td>MFGE 3337 Hydraulics and Electro-mechanical Systems</td>
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<td>MFGE 3421 Industrial Controls and Networking Studio</td>
<td>MFGE 3423 Facilities Design</td>
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<td>2</td>
<td>MFGE 3424 Energy Science Studio</td>
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<td>MFGE 3431 Advanced Materials Processing</td>
<td>MFGE 3431 Advanced Materials Processing</td>
<td>MFGE 3431 Advanced Materials Processing</td>
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<td>3</td>
<td>MFGE 4135 Lean MFG Principals and Engineering Project Management</td>
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<td>MFGE 4135 Lean MFG Principals and Engineering Project Management</td>
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<td>2</td>
<td>MFGE 4321 Manufacturing Engineering Capstone I</td>
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<td>MFGE 4322 Manufacturing Engineering Capstone II</td>
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<tr>
<td>3</td>
<td>MFGE 4533 Industrial Robotics and Automation</td>
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<td>MFGE 4534 Additive Manufacturing Studio</td>
<td>MFGE 4534 Additive Manufacturing Studio</td>
<td>MFGE 4534 Additive Manufacturing Studio</td>
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<tr>
<td>1</td>
<td>MFGE 4614 Senior Seminar: Professional Skills and Leadership</td>
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<td>Select 9 hours from one of the following Specialization Areas:</td>
<td>Select 9 hours from one of the following Specialization Areas:</td>
<td>Select 9 hours from one of the following Specialization Areas:</td>
<td>9</td>
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</tbody>
</table>

### Lean and Six Sigma
- MFGE 5131 Lean and Six Sigma 1
- MFGE 5132 Lean and Six Sigma 2

### Materials Process
- MENG 5131 Advanced CNC Machining and Programming
- MFGE 5131 Advanced Robotics for Manufacturing
- MFGE 5132 Introduction to MEMS
- MFGE 5134 Additive Manufacturing Studio
- MFGE 5136 Characterization of Advanced Manufacturing Materials
- MFGE 5137 Lean World Class Manufacturing

### Manufacturing Automation
- MENG 5331 Automation and Computer Integrated Manufacturing Systems
- MFGE 5328 Facilities Maintenance
- MFGE 5331 Advanced Robotics for Manufacturing
- MFGE 5332 Manufacturing Floor Control
- MFGE 5333 Additive Manufacturing Studio
- MFGE 5334 Additive Manufacturing of Lightweight Structures

### SAP
- 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
- 3 MATH 2242 Calculus II and PHYS 2211 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.
- 4 The SAP Specialization requires additional prerequisite courses. Consult with your academic advisor.

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   - student scores 80% or above overall in the course and
   - an approval of the PLTW affiliate director faculty member at Georgia Southern.
4. 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.

Advisement
Allen E. Paulson College of Engineering and Computing
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Telephone: (912) 478-4877