Manufacturing Engineering B.S.Mfg.E.

Degree Requirements: 130 Credit Hours

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

			Credit Hours
General Requirements (Core Areas A-E) [1]			**42**
Additional Requirements			**4**
Area F - Courses Appropriate to Major			**18**
CHEM	1310	Comprehensive General Chemistry	
MFGE	2132	Computational Fundamentals for Manufacturing Engineering	
MFGE	2142	Fundamentals of Engineering Mechanics	
MFGE	2534	Applied Computing in Manufacturing Engineering	
PHYS	2212K	Principles of Physics II	
Specific Requirements			**11**
Carryover from Area A2 [2]			
Carryover from Area D [3]			
ENGR	2131	Electronics and Circuit Analysis	
MFGE	2239	Engineering Modeling and Mathematical Analysis	
STAT	1401	Elementary Statistics	
Major Requirements			**43**
ENGR	1133	Engineering Graphics [4]	
MENG	1310	Manufacturing Processes Lab	
MFGE	2421	Introduction to Additive Manufacturing Studio	
MFGE	2531	Materials Science Studio for Manufacturing Engineering	
MFGE	2533	Manufacturing Processing 2 Studio	
MFGE	3131	Design for Manufacturability, Assembly, Sustainability	
MFGE	3132	Quality and Statistical Process Control for Engineers	
MFGE	3337	Hydraulics and Electro-mechanical Systems	
MFGE	3421	Industrial Controls and Networking Studio	
MFGE	3423	Facilities Design	
MFGE	3531	Advanced Materials Processing	
MFGE	3541	Energy Science Studio	
MFGE	4135	Lean MFG Principals and Engineering Project Management	
MFGE	4321	Manufacturing Engineering Capstone I	
MFGE	4322	Manufacturing Engineering Capstone II	
MFGE	4533	Industrial Robotics and Automation	
MFGE	4614	Senior Seminar: Professional Skills and Leadership	
Specialization Area			**9**
Select 9 credit hours from the following Specialization Areas			
Lean Manufacturing:			
MFGE	5131	Lean and Six Sigma 1	
MFGE	5132	Lean and Six Sigma 2	
MFGE	5133	Advanced Engineering Project Management	
MFGE	5134	Reliability Engineering	
MFGE	5135	Lean World Class Manufacturing	
Manufacturing Automation:			
MFGE	5331	Advanced Robotics for Manufacturing	
MFGE	5332	Manufacturing Floor Control	
MFGE	5333	Additive Manufacturing Studio	
MFGE	5334	Additive Manufacturing of Lightweight Structures	
MFGE	5335	Machine Vision	
MFGE	5336	Smart and Sustainable Manufacturing	
MFGE	5339	Manufacturing Standards and Standardization	
Materials Processing:			
MENG	5138	Composite Materials: Manufacturing, Analysis, and Design	
MFGE	5531	Advanced CNC Machining and Programming	
MFGE	5532	Introduction to MEMS	
MFGE	5533	Heat Treatment and Microstructure of Metal	
MFGE	5534	Packaging	
MFGE	5535	NanoManufacturing	
MFGE	5536	Characterization of Advanced Manufacturing Materials	
MFGE	5537	Design for Environment and Green Manufacturing	
MFGE	5538	Nondestructive Testing and Evaluation Techniques	
SAP: [5]			
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:			
MFGE	5338	Industrial Hygiene and Ergonomics	
TSEC	5331	Occupational Safety	
TSEC	5334	Hazardous Waste Management	
TSEC	5335	Systems Safety in Manufacturing	
TSEC	5336	Environmental Law	
General Manufacturing Engineering:			
MFGE	4091	Manufacturing Engineering Co-Op [6]	
MFGE	5230	International Manufacturing	
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] Area D Science elective is 4 credit hours including laboratory.

[4] 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.

[5] The SAP Specialization requires additional prerequisite courses. Consult with your academic advisor.

[6] 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 MFGE 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.

4. An undergraduate student enrolled in graduate classes is limited to 6 credit hours of graduate coursework per semester.

5. A minimum of 50% of courses for the Master of Science in Applied Engineering degree must be taken at or above the 6000 level.

Advisement

Undergraduate Academic Advisement at Georgia Southern is provided to all degree-seeking undergraduate students by professional advisors. Academic Advisors are located on all three Georgia Southern University campuses. Students are required to meet with their assigned Academic Advisor at least once a semester. For more information visit the Academic Advisement (http://catalog.georgiasouthern.edu/undergraduate/academic-resources/programs-requirements/advisement/) catalog page.