Mechanical Engineering
M.S.M.E. (Thesis)

Admission Requirements

Regular
1. Completed requirements for the bachelor’s degree or the equivalent in the proposed or closely related field of study in Mechanical Engineering.
2. A 2.75 (4.0 scale) cumulative grade point average or higher on courses in undergraduate work, or equivalent.
3. International students must meet College of Graduate Studies English Proficiency requirements (6.0 IELTS or 80 on TOFEL).

Provisional
A student may be granted provisional admission based upon the recommendation of the Master of Science in Mechanical Engineering Graduate Coordinator and department chair.

Non-Degree
Non-degree students are accepted on an individual basis as space is available.

Degree Requirements: 30 Credit Hours (Thesis) ¹

<table>
<thead>
<tr>
<th>Credit Hours</th>
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Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENG 7137</td>
<td>Principles of Modeling and Simulation</td>
<td>3</td>
</tr>
<tr>
<td>MENG 7530</td>
<td>Research in Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TMAE 7136</td>
<td>Mechatronics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Restricted Elective courses at or above the 5000G level as contracted with the faculty advisor and degree coordinator. Any appropriate course outside of the department approved by both the graduate program director and the department chair.

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<tr>
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<tr>
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<td>3</td>
</tr>
<tr>
<td>EENG 5342G</td>
<td>Computer Systems Design w/Lab</td>
<td>3</td>
</tr>
<tr>
<td>EENG 5431G</td>
<td>Control Systems with Lab</td>
<td>3</td>
</tr>
<tr>
<td>EENG 5532G</td>
<td>Wireless Communications</td>
<td>3</td>
</tr>
<tr>
<td>EENG 5540G</td>
<td>Communication Systems w/Lab</td>
<td>3</td>
</tr>
<tr>
<td>MATH 5335G</td>
<td>Intermediate Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5530G</td>
<td>Mathematics for Scientists and Engineers</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5194G</td>
<td>Vehicle Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5135G</td>
<td>Vibration and Preventive Maintenance</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5136G</td>
<td>Introduction to Finite Element Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5137G</td>
<td>Mechanical System Design</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5138G</td>
<td>Composite Materials: Manufacturing, Analysis, and Design</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5233G</td>
<td>Wind Energy</td>
<td>3</td>
</tr>
<tr>
<td>MENG 5234G</td>
<td>Heating, Ventilating, and Air Conditioning</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional restricted electives as approved by the graduate program coordinator and/or department chair.

Capstone Activity
(Thesis) 6

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>MENG 7999</td>
<td>Thesis</td>
<td>6</td>
</tr>
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</table>

Other Thesis Track Requirements: Comprehensive Exam
Comprehensive Exam

Total Credit Hours 30

¹ A minimum of 50% of courses for the Master of Science in Mechanical Engineering degree must be taken at or above the 6000 level.

Thesis
Each candidate for the Master of Science in Mechanical Engineering Thesis Track degree must complete a thesis on a subject approved by the adviser. The major professor supervises the research, directs the writing of the thesis, and approves the thesis in its final form. Prior to the final approval, the thesis is read by thesis committee. The thesis must be presented and defended in an oral examination before committee of at least three members prior to final approval and sign-off.

The style and format for the completed thesis shall follow that prescribed by the Director for the Master of Science in Mechanical Engineering degree. Procedural steps in the preparation of the thesis are as follows:
• The prospectus for the thesis shall be submitted to the major professor and thesis committee for approval.
• The student must prepare the thesis for electronic submission following the latest version of the Electronic Thesis and Dissertation (ETD): Student Guide to Preparation and Processing manual.
• The thesis must be electronically submitted to the ETD site for format check by the ETD format check submission deadline as stated in the University Calendar.
• The final corrected thesis must be electronically submitted to the ETD site by the ETD format check submission deadline as stated in the University Calendar. The final document must be electronically approved by the Thesis Committee.
• Thesis will be announced and defended by calendar.


Other Program Requirements (Thesis)

1. Each candidate in the Thesis Track of MSME Program must have accomplished the following by the end of their second academic semester in the MSME program to maintain program eligibility:
   • Identify a research adviser (thesis committee chair) and form a thesis committee.
   • Determine a research topic for their thesis, and present a research proposal to their thesis committee for topic approval.
2. Each candidate must receive approval from the Graduate Director or Department Chair of the Mechanical Engineering to take courses that are taught outside of the Mechanical Engineering Program and/or specifically identified in M.S. in Mechanical Engineering degree program.
3. Each candidate of the MSME must complete a thesis on a subject approved by his/her thesis committee.
   • The thesis defense must be announced to the public one week prior to the defense. The thesis must be submitted to Thesis Committee, and presented at a public seminar.
   • The thesis must be defended before the thesis committee.
   • The thesis defense is a comprehensive oral examination that may include questions on the thesis, and subject matter related to the thesis, and course work.
   • In addition to the thesis, the student must provide the faculty research adviser with all forms data that was collected, including: electronic files, and a written document detailing the contents of the data.
   • The degree is conferred at the end of the semester, after the student has passed the thesis defense and the final written version of the thesis has been approved by the College of Graduate Studies.

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

This Accelerated Bachelor's to Masters Degree Program is intended for current undergraduate students in the Department of Mechanical 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, 120 unique credit hours are required in a Bachelor's degree program, and at least 30 unique credit hours are required for a Masters degree program. The MSME-ABM program combines 130 hours from the BSME program and 30 hours from the MSME program, exceeding the required 150 unique hours between undergraduate and graduate degree programs by 10 hours. The Jack N.

Averitt College of Graduate Studies Handbook for Program Directors and Graduate Advisors permits a maximum of 9 shared credit hours between the undergraduate and graduate degree programs. Therefore, MSME-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 Masters Degree of Science in Mechanical Engineering (ABM-MSME) degree program, the applicant must:

1. Be enrolled in the undergraduate mechanical engineering program (B.S.M.E) in the Department of Mechanical Engineering at the Georgia Southern University.
2. Have completed no less than 25 and no more than 50 credits of ENGR and MENG courses, or permission of Department Chair.
3. Must have 3.0 or better 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 successful graduate students. 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.

Degree Requirements: 30 Credit Hours (Thesis)

1. Student in the ABM program will be allowed to use up to 9 credits MENG 5000G level courses offered within the Mechanical Engineering program in meeting the requirements of both a bachelor's degree and a master's degree.
2. The 9 credit hours that will be applied to both the bachelor's and master's degrees include: MENG 5811G, MENG 5822G, and two MENG 5000G level courses approved by each student's research advisor and the Mechanical Engineering Department's graduate program coordinator.
3. 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).
4. Meet all requirements for both B.S.M.E. and M.S.M.E. degrees.
5. A minimum of 50% of courses for the Master of Science in Mechanical Engineering degree must be taken at or above the 6000 level.

Thesis Track, 30 Credit Hours

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MATH 5335G Intermediate Linear Algebra
MATH 5430G Introduction to Mathematical Biology
MENG 5134G Vehicle Dynamics
MENG 5135G Vibration and Preventive Maintenance
MENG 5136G Introduction to Finite Element Analysis
MENG 5137G Mechanical System Design
MENG 5138G Composite Materials: Manufacturing, Analysis, and Design
MENG 5139G Wind Energy
MENG 5233G Heating, Ventilating, and Air Conditioning
MENG 5234G Applied Combustion
MENG 5237G Engine Development and Performance
MENG 5238G Biofuels Development and Testing
MENG 5239G Automation and Computer Integrated Manufacturing Systems
MENG 5331G Robot Dynamics, Design and Analysis
MENG 5332G Compressible Flow
MENG 5431G Applied Computational Fluid Dynamics
MENG 5432G Analysis of Energy Systems
MENG 5433G Heat Transfer Principles and Applications
MENG 5536G Mechanical Controls
MENG 5811G Introduction to Mechanical Engineering Research and Projects
MENG 5822G Research Project in Mechanical Engineering
MENG 7136G Mechatronics I
MENG 7138G Mechatronics II
MENG 7431G Mechanics of Deformable Solids
MENG 7432G Fracture Mechanics
MENG 7890G Selected Topics in Mechanical Engineering
MENG 7891G Special Problems in Mechanical Engineering
MFGE 5333G Additive Manufacturing Studio
TMAE 5139G Renewable Energy
TMAE 7431G Advanced Quality Control
TMAE 7432G Advanced Engineering Economy
TMFG 5133G Automated Manufacturing Systems
TMFG 5230G International Manufacturing
TMFG 5233G Manufacturing Applications in Information Technology

Additional restricted electives as approved by the graduate program coordinator and/or department chair

Capstone Activity
(Thesis)
MENG 7999 Thesis 6

Other Thesis Track Requirements: Comprehensive Exam
Comprehensive Exam
Total Credit Hours 30

Thesis

Each candidate for the Master of Science in Mechanical Engineering Thesis Track degree must complete a thesis on a subject approved by the adviser. The major professor supervises the research, directs the writing of the thesis, and approves the thesis in its final form. Prior to the final approval, the thesis is read by a thesis committee. The thesis must be presented and defended in an oral examination before committee of at least three faculty members prior to final approval and sign-off.

The style and format for the completed thesis shall follow that prescribed by the Director for the Master of Science in Mechanical Engineering degree. Procedural steps in the preparation of the thesis are as follows:

1. Identify a research adviser and form a thesis committee.
2. Determine a research topic for their thesis, and present research proposal to their thesis committee.
3. Each candidate of the ABM Thesis Track of MSME Program must complete a thesis on a subject approved by his/her thesis committee.

Other Program Requirements (Thesis)

1. Each candidate in the ABM Thesis Track of MSME Program must have accomplished the following:
   - Identify a research adviser and form a thesis committee.
   - Determine a research topic for their thesis, and present research proposal to their thesis committee.

2. Each candidate must receive approval from the Graduate Director or Department Chair of the Mechanical Engineering to take courses that are taught outside of the Mechanical Engineering Program and/or do not apply to the M.S. in Mechanical Engineering degree.

3. Each candidate of the ABM must complete a thesis on a subject approved by his/her thesis committee.
   - The thesis defense must be announced to the public one week prior to the defense. The thesis must be submitted to Thesis Committee, and presented at a public exit seminar.
   - The thesis defense is a comprehensive examination that may include questions on the thesis, and subject matter related to the thesis, and course work.
• In addition to the thesis, the student must provide the adviser with all forms of the data that were collected, including: electronic files, and a written document detailing the contents of the data.
• The degree is conferred at the end of the semester, after the student has passed the thesis defense and the final written version of the thesis has been approved by the College of Graduate Studies.

Advisement
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