The Master of Science in Mechanical and Aerospace Engineering degree program offers a rigorous course of study through which students are prepared for leadership careers in government and industry. Students have the opportunity to work across disciplines in emerging areas of technology. The program is designed to build a solid background on the fundamentals of the related discipline, and at the same time it can be tailored to meet individual needs under the guidance of an academic advisor. Students can tailor their program to meet their interests and goals by choosing from offered focus areas.

Specific admission requirements are shown on the Graduate Program Finder. (http://www.gwu.edu/all-graduate-programs)

More information can be found on the departmental website (http://www.graduate.seas.gwu.edu/programs/mechanical-and-aerospace-engineering/admissions-requirements).

REQUIREMENTS

The following requirements must be fulfilled: non-thesis option—a minimum of 33 credits, including the required focus area curriculum; thesis option—27 credits, including the required focus area curriculum and 6 credits in thesis research.

Aerospace Engineering

Required
- APSC 6212  Analytical Methods in Engineering II
- or APSC 6213  Analytical Methods in Engineering III
- MAE 6286  Numerical Solution Techniques in Mechanica land Aerospace Engineering

One of the following:
- MAE 6207  Theory of Elasticity I
- MAE 6221  Fluid Mechanics
- MAE 6276  Mechanics of Space Flight

Electives
Remaining credits in aeroacoustics, aeronautics, astronautics, propulsion, or space systems elective courses

Design of Mechanical Engineering Systems

Required
- MAE 6243  Advanced Mechanical Engineering Design

Fluid Mechanics, Thermal Sciences, and Energy

Required
- APSC 6213  Analytical Methods in Engineering III
- MAE 6221  Fluid Mechanics
- MAE 6286  Numerical Solution Techniques in Mechanica land Aerospace Engineering

Electives
Remaining credits in elective courses

Industrial Engineering

Required
- EMSE 6755  Quality Control and Acceptance Sampling
- EMSE 6770  Techniques of Risk Analysis and Management
- MAE 6201  Intro to Manufacturing
- MAE 6252  Projects in Computer-Integrated Design and Manufacturing

One of the following:
- MATH 2233  Multivariable Calculus
- APSC 3115  Engineering Analysis III
- CSCI 1041  Introduction to FORTRAN Programming
- CSCI 1121  Introduction to C Programming
- CSCI 1131  Introduction to Programming with C

Electives
Remaining credits in elective courses in two approved three-course sequences, one in the Department of Mechanical and Aerospace Engineering, the other in a cooperating department in SEAS
### Solid Mechanics and Materials Science

**Required**

<table>
<thead>
<tr>
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<th>Title</th>
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<tr>
<td>APSC 6213</td>
<td>Analytical Methods in Engineering III</td>
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Two of the following:

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<tr>
<td>MAE 6210</td>
<td>Continuum Mechanics</td>
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<tr>
<td>MAE 6238</td>
<td>Biomaterials</td>
</tr>
<tr>
<td>MAE 6239</td>
<td>Computational Nanosciences</td>
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</table>

**Electives**

Remaining credits in elective courses

### Structures and Dynamics

**Required**

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<td>MAE 6286</td>
<td>Numerical Solution Techniques in Mechanica and Aerospace Engineering</td>
</tr>
</tbody>
</table>

**Electives**

Remaining credits in elective courses

### Robotics, Mechatronics, and Controls

**Required**

<table>
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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>MAE 6245</td>
<td>Robotic Systems</td>
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<tr>
<td>MAE 6246</td>
<td>Electromechanical Control Systems</td>
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One of the following:

<table>
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<tr>
<td>MAE 6240</td>
<td>Kinematic Synthesis</td>
</tr>
<tr>
<td>MAE 6242</td>
<td>Advanced Mechanisms</td>
</tr>
<tr>
<td>MAE 6243</td>
<td>Advanced Mechanical Engineering Design</td>
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</table>

**Electives**

Remaining credits in elective courses