



Volgenau School of Engineering

MECHANICAL ENGINEERING, B.S.

2017- 2018

Today, the role of the mechanical engineer is ever expanding in order to find innovative solutions for contemporary problems, and to address problems yet to be identified. To meet the growing demands of worldwide energy needs spurred by population growth and dwindling supplies of fossil fuels, for instance, mechanical engineers seek innovations in nuclear energy, biofuels, wind, and tidal energies to build an energy portfolio that exploits these seemingly limitless resources. From design to manufacturing, an awareness of stealth threats to product realization – due to an ever present cyber threat – is in the minds of mechanical engineers. Now more mechanical engineers oversee the operations and management of large systems along with the fiscal and human resources needed to run them.

James Michener once said, “Scientists dream about doing great things. Engineers do them.” Mechanical engineers use science to advance technologies and to develop products for the benefit of society, in a discipline which dates back to the earliest of times in civilization. The major in mechanical engineering has three program education objectives, namely:

- Graduates have demonstrated success as a mechanical engineer or their chosen career field;
- Graduates have advanced their educational pursuits through graduate education, professional registration, or similar means;
- Graduates have advanced their careers by engaging in professional society participation and community service outreach

Admission Requirements

Admission to George Mason is competitive in that the number of qualified candidates for admission generally exceeds the number of new students who can be accommodated. Each candidate who presents sufficient admission qualifications is reviewed in the context of other qualified applicants. An offer of admission is valid only for the semester for which the student applied. Application for undergraduate admission can be made online at George Mason’s website <http://admissions.gmu.edu>. The Office of Admissions can also provide forms upon request.

Freshman Requirements

The following factors are considered when reviewing applications for admission:

- Cumulative high school grade point average for course work completed in grades 9 through 12.
- Level of difficulty of coursework elected throughout the high school years particularly in English, mathematics, laboratory science, and foreign language.
- Scores from the Scholastic Aptitude Test (SAT) and/or American College Test (ACT), and Test of English as a Foreign Language (TOEFL) if appropriate.

Degree Requirements

Degree requirements include 121 credits distributed in three main areas: mathematics and basic science, humanities and social sciences, and mechanical engineering. Students must complete all math, science and Volgenau School of Engineering courses presented as part of the required 121 credits for the degree with a grade of C or better.

Sample Schedule for Undergraduate Mechanical Engineering Majors

First Semester

CHEM 211& 213 OR CHEM 251 Gen.Chem/ Engr	4
ECON 103 Contemp. Microeconomic Prin.	3
MATH 113 Analytic Geometry and Calculus I	4
Mason Core*	3
Total	14

Second Semester

CS 112 Intro to Computer Programming	4
MATH 114 Analytic Geometry and Calculus II	4
ME 151 Practicum in Engineering	2
PHYS 160 University Physics I	3
PHYS 161 University Physics I Lab	1
Total	14

Third Semester

MATH 213 Analytic Geometry and Calculus III	3
ME 211 Statics	3
PHYS 260 University Physics II	3
PHYS 261 University Physics II Lab	1
Mason Core*	3
Mason Core*	3
Total	16

Fourth Semester

MATH 214 Elem. Differential Equations	3
ME 212 Solid Mechanics	3
ME 221 Thermodynamics	3
ME 231 Dynamics	3
Mason Core*	3
Total	15

Fifth Semester

ECE 285 Electric Circuit Analysis I	3
ME 311 Mechanical Experimentation I	1
ME 313 Material Science	3
ME 322 Fluid Mechanics	3
ME 341 or ME 342 Design Elective	3
ME 351 Analytical Methods in Engr	3
Total	16

Sixth Semester

ECE 286 Electric Circuit Analysis II	3
Math/Science Elective	3
ME 321 Mechanical Experimentation II	1
ME 323 Heat Transfer	3
ME 352 Entrepreneurship in Engineering	3
Mason Core*	3
Total	16

Seventh Semester

ENGH 302 Adv Comp (Nat Sci section) ***	3
ME 443 Mechanical Design I	3
ME 453 Developing the Societal Engineer	2
Technical Elective	3
Technical Elective	3
Total	14

Eighth Semester

ME 432 Control Engineering	4
ME 444 Mechanical Design II	3
Technical Elective	3
Technical Elective	3
Mason Core*	3
Total	16

* <http://catalog.gmu.edu/mason-core> Mason Core Categories: One course from each: Oral Communication, ENGH101, Arts, Global Understanding, Literature, Western Civilization/World History. VSE students do not need to seek out Science, Math, and IT categories as they are built into the major curriculum.

*** ENGH 101 and Mason Core-Literature must be completed before taking ENGH 302.

For more information about this program:

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