Volgenau School of Engineering

MECHANICAL ENGINEERING, B.S.

2015 - 2016

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.

MECHANICAL ENGINEERING, B.S.

Sample Schedule for Mechanical Engineering majors

First Semester	
CHEM 251 Chemistry for Engineers	4
ECON 103 Contemp. Microeconomic Prin.	3
ENGH 101 English Composition	3
MATH 113 Analytic Geom. and Calculus I	4
Total Hours	**14**

Second Semester	
CS 112 Introduction to Computer Programming	4
MATH 114 Analytic Geom. And Calculus II	4
ME 151 Practicum in Engineering	2
PHYS 160 University Physics I	3
PHYS 161 University Physics I Lab	1
Total Hours	**14**

Third Semester	
COMM 100 Introduction to Oral Communication	3
HIST 100 or HIST 125	3
MATH 213 Analytic Geom. and Calculus III	3
ME 211 Statics	3
PHYS 260 University Physics II	3
PHYS 261 University Physics II Lab	1
Total Hours	**16**

Fourth Semester	
Fine Arts Mason Core Elective	3
MATH 214 Elem. Differential Equations	3
ME 212 Solid Mechanics	3
ME 221 Thermodynamics	3
ME 231 Dynamics	3
Total Hours	**15**

Fifth Semester	
ECE 285 Electrical 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 Hours	**16**

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

Seventh Semester	
ENGH 302 Advanced Composition	3
ME 431 System Dynamics	3
ME 443 Mechanical Design I	3
ME 453 Senior Seminar	2
Technical Elective	3
Total Hours	**14**

Eighth Semester	
Global Understanding Mason Core Elective	3
ME 432 Control Engineering	4
ME 444 Mechanical Design II	3
Technical Elective	3
Technical Elective	3
Total Hours	**16**

For more information about this program:

Oscar Barton, Jr., Ph.D, P.E.
Professor and Program Director
Volgenau School of Engineering
George Mason University
4400 University Drive, MSN 4A3
1857 Nguyen Engineering Building
Phone: 703-993-4160
Email: obarton2@gmu.edu

Colin Reagle, Ph.D
Assistant Professor and
Senior Academic Adviser
Volgenau School of Engineering
George Mason University
4400 University Drive, MSN 4A3
1856 Nguyen Engineering Building
Phone: 703-993-1712
Email: creagle@gmu.edu

mechanical.gmu.edu
@MasonMECHE

Revised April 2015