

MECHANICAL ENGINEERING

Bachelor of Science in Mechanical Engineering (BSME)



NATURE OF THE WORK

Mechanical engineers research, design, develop, manufacture, and test tools, engines, machines, and other mechanical devices. Mechanical engineering is one of the broadest engineering disciplines. Engineers in this discipline work on power-producing machines such as electric generators, internal combustion engines, and steam and gas turbines. Mechanical engineers also work on power-using machines such as refrigeration and air-conditioning equipment, machine tools, material-handling systems, elevators and escalators, industrial production equipment, and robots used in manufacturing. Some mechanical engineers design tools that other engineers need for their work. In addition, mechanical engineers work in manufacturing or agriculture production, maintenance, or technical sales; many become administrators or managers.

(compiled from U.S. Dept. of Labor Occupational Outlook Handbook 2010-2011)

USF DEPARTMENT OF MECHANICAL ENGINEERING EXPERTISE

Biomedical and Tissue Engineering	MEMS
Biosensors & Biofluids	Nano Materials & Manufacturing
Clean Energy Technologies	Rehabilitation Engineering
Compliant Mechanisms	Robotics
Composite Materials	Sustainable Design & Manufacturing
Engineering Education	System Dynamics & Vibrations
Heat Transfer & Thermo-fluids	

The University of South Florida Bachelor of Science degree programs in Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Industrial Engineering and Mechanical Engineering are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology. The Bachelor of Science in Computer Science program at the University of South Florida is accredited by the Computing Accreditation Commission of the Accreditation Board for Engineering and Technology. ABET 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 telephone: (410) 347-7700.

> EDUCATION REQUIREMENTS > JOB OUTLOOK > SALARY

- A bachelor's degree in mechanical engineering is required for most entry-level jobs, but some research positions may require a graduate degree.
- Continuing education is critical for engineers in order to keep up with improvements in technology.
- Overall job opportunities for engineers are expected to be good.
- Average starting salary - \$60,739 (NACE spring 2011)

REAL WORLD OPPORTUNITIES

Co-ops and Internships – These programs offer students numerous opportunities to engage with the broader-based engineering, technology and science community.

Engineering EXPO – This student-run event exposes school children to science and engineering principles in a two-day, on campus event.

Research Experiences for Undergraduates – The program gives undergraduate students an opportunity to participate. Students work as Research Assistants with professors and graduate students on a variety of exciting and interdisciplinary research projects.

Scholarships – More than 100 scholarships are awarded to USF engineering students totaling more than \$150,000 to provide financial support and recognizing their exceptional efforts.

STUDENT ORGANIZATIONS

American Society of Mechanical Engineers
American Society of Heating, Refrigerating, and A/C Engineers
Society of Automotive Engineers

Engineers Without Borders
Engineers for Sustainable World
Student Chapter of the Florida Engineering Society
National Society of Black Engineers
Society of Hispanic Engineers
Society of Women Engineers
Tau Beta Pi The Engineering Honor Society
Theta Tau



For more information
<http://outreachrequest.eng.usf.edu>
www.eng.usf.edu

UNIVERSITY OF SOUTH FLORIDA COLLEGE OF ENGINEERING

2011-12 CURRICULUM

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING 128 hours

Department of Mechanical Engineering Admissions Requirements

Students entering the Mechanical Engineering department must have completed the equivalent USF Engineering Calculus sequence, one year equivalent USF General Physics and one semester equivalent USF General Chemistry with a 2.5 GPA [based upon all attempts (USF grade forgiveness honored) in these courses] and minimum grade of C in each courses; and must have an overall and USF GPA of 2.0 or better.

The schedule that follows indicates how a diligent student who can devote full time to coursework can satisfy requirements in four academic years. Students without a solid foundation or those who cannot devote full time to academics should plan a slower pace. The following sequence is intended to facilitate registration planning and is subject to change based upon course availability. The sequence may also vary based upon individual considerations. Registration assistance will be provided by academic advisors.

FALL SEMESTER - YEAR 1

ENC 1101 Composition I	3
MAC 2281 Engineering Calculus I.....	4
CHS 2440 Chemistry for Engineers	3
CHS 2440L Chemistry for Engineers Lab.....	1
EGN 3000 Foundations of Engineering	1
FKL Humanities Elective	3
Total.....	15

SPRING SEMESTER - YEAR 1

ENC 1102 Composition II	3
MAC 2282 Engineering Calculus II	4
PHY 2048 General Physics I.....	3
PHY 2048L General Physics I Lab	1
FKL Fine Arts Elective	3
Total.....	14

FALL SEMESTER - YEAR 2

MAC 2283 Engineering Calculus III	4
PHY 2049 General Physics II.....	3
PHY 2049L General Physics II Lab	1
EGN 3311 Statics.....	3
FKL Social and Behavioral Sciences Elective.....	3
Total.....	14

SPRING SEMESTER - YEAR 2

EGN 3321 Dynamics	3
EGN 3365 Materials Engineering I.....	3
EGN 3373 Electrical Systems I	3
EML 3035 Programming Concepts for ME	1
EGN 3433 Modeling & Analysis of Engineering Systems or MAP 2302 Differential Equations	3
FKL Social & Behavioral Science Elective	3
Total.....	16

SUMMER SEMESTER

EGN 3343 Thermodynamics I.....	3
EGN 3443 Probability & Statistics for Engineers.....	3
EML 3500 Mechanics of Solids.....	3
EML 3022 Computer Aided Engineering (CAD)	3
Total.....	12

FALL SEMESTER - YEAR 3

EML 3041 Computational Methods.....	3
EML 3701 Fluid Systems.....	3
EML 3262 Kinematics and Dynamics of Machinery	3
EML 4325 Mechanical Manufacturing Processes.....	3
ENC 3246 Communication for Engineers (6A WI).....	3
Total.....	15

SPRING SEMESTER - YEAR 3

EML 4501 Machine Design.....	3
EML 3303 Mechanical Engineering Lab I.....	3
EML 4124 Heat Transfer.....	3
Approved Technical/Design/Science Elective.....	3
FKL Human/Diversity & Global Elective	3
Total.....	15

FALL SEMESTER - YEAR 4

EML 4106C Thermal Systems	3
EML 4302 Mechanical Engineering Lab II.....	3
EML 4220 Vibrations.....	3
Approved Technical/Design/Science Elective.....	3
FKL Humanities Elective.....	3
Total.....	15

SPRING SEMESTER - YEAR 4

EML 4312 Mechanical Controls	3
EML 4551 Capstone Design (CD)	3
Approved Technical/Design/Science Elective.....	3
Approved Technical/Design/Science Elective.....	3
Total.....	12

C- is the minimum acceptable grade in an engineering course, but a minimum of 2.0 GPA in the following categories must be maintained at all times: Overall, USF, Math/Science, Engineering and Specialization.

Gordon Rule (6A) is fully met through the mathematics courses above, ENC1101, ENC1102, ENC 3246 and by selecting one technical or general education elective that is an approved 6A communication course. Gordon Rule communication requirement is met for any student entering USF with 60 or more hours.

Exit Requirements: Exit requirements must be taken at USF. The Capstone Design Requirements (CD) and Writing Intensive (WI) exit requirements are met through ENC3246 and EML 4551.

Course sequence: Courses in bold should be taken in sequence as early as possible in preparation for your major. Foundation of Knowledge Learning (FKL) courses may be taken in any order.