

# UMSL/Washington University Joint Engineering Undergraduate General Requirements

A program of ~~132~~ ~~135~~ semester hours is required for the Bachelor of Science in Civil Engineering, a program of 122 semester hours is required for the Bachelor of Science in Electrical Engineering, and a program of 134 semester hours is required for the Bachelor of Science in Mechanical Engineering, as shown below:

- All majors must complete the University General Education requirements, the Pre-Engineering Requirements and the Core Engineering Requirements.
- All students must first complete J E MATH 3170, Engineering Mathematics, with a minimum grade of C-.
- Mechanical and Electrical Engineering majors must also complete J E ENGR 2300, Introduction to Electrical Networks with a minimum grade of C-.
- ~~Civil engineering majors must complete either J E ENGR 2300, Introduction to Electrical Networks, or J M ENGR 3200 Thermodynamics, with a minimum grade of C-.~~
- A minimum grade of C- is necessary to meet the prerequisite requirement for any course.

## Pre-Engineering Requirements

Students seeking to major in engineering are first designated as 'Undeclared with an interest in Engineering majors' until they have completed Math 1800 Analytical Geometry & Calculus I. Upon successful completion of Math 1800 with a grade of C or better, students will be allowed to declare ~~preengineering~~ ~~pre-engineering~~ as their major. Math 1800 must be completed successfully within two attempts.

MATH 1800	Analytic Geometry And Calculus I	5
MATH 1900	Analytic Geometry And Calculus II	5
MATH 2000	Analytic Geometry And Calculus III	5
MATH 2020	Introduction To Differential Equations	3
CHEM 1111	Introductory Chemistry I	5
PHYSICS 2111	Physics: Mechanics And Heat	5
PHYSICS 2112	Physics: Electricity, Magnetism, And Optics	5
ENGR 2310	Statics	3

ENGR 2320	Dynamics	3
ENGL 1100	First-Year Writing	3
<b>Total Hours</b>		<b>42</b>

Civil engineering majors must complete **GEOL 1001A** , General Geology as part of the pre-engineering requirements.

## General Education Requirements

PHIL 2259	Engineering Ethics	3
PHIL 3380	Philosophy Of Science	3
One additional Humanities course <sup>1</sup>		3
HIST 1001	American Civilization To 1865	3
or HIST 1002	American Civilization 1865 To Present	
or HIST 1004	The History Of Women In The United States	
Two additional Social Science courses <sup>1</sup>		6

<sup>1</sup> One course must meet the Cultural Diversity requirement, and one course must meet the engineering Valuing Skill requirement. Humanities and social sciences electives must meet both the University of Missouri-St. Louis General Education Requirements and the Humanities and Social Sciences Requirements of the Joint Undergraduate Engineering Program. Check with your advisor for details.

## Engineering Core Requirements

J CMP SC 1002	Introduction To Computing Tools: Matlab Skills	1
CMP SCI 1250	Introduction To Computing	3
J E MATH 3170	Engineering Mathematics	4
ENGL 3130	Technical Writing	3
J M ENGR 3200	Thermodynamics <sup>1</sup>	3
J M ENGR 4310/J E ENGR 4410	Control Systems I <sup>1</sup>	3
J E ENGR 2300	Introduction To Electrical Networks <sup>1</sup>	3
J E ENGR 2330	Electrical And Electronic Circuits Laboratory <sup>1</sup>	3
<b>Total Hours</b>		<b>23</b>

<sup>1</sup> Required for electrical and mechanical engineering majors only.

Sign-offs from other departments affected by this proposal

None

Rationale

Approved by the Engineering faculty; the course subjects are not part of the FE exam taken by students, therefore, not needed to graduate.