

# BS in Civil Engineering

A program of 132 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-.
- 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 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 also complete **GEOL 1001A** , General Geology as part of the pre-engineering requirements (3 Hours).

### 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
<b>Total Hours</b>		<b>18</b>

<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

<del>J CMP SC 1002</del>	<del>Introduction To Computing Tools: Matlab Skills</del>	<del>1</del>
CMP SCI 1250	Introduction To Computing	3
J E COMM 2000	Engineering Studio I	1
J E MATH 3170	Engineering Mathematics	4
ENGL 3130	Technical Writing	3
<b>Total Hours</b>		<b>11</b>

## Civil Engineering Major Requirements

J C ENGR 2160	Surveying	3
J C ENGR 3410	Structural Analysis	3
J C ENGR 3420	Structural Design	3
J C ENGR 3360	Civil Engineering Materials Lab	1
J C ENGR 3460	Transportation Engineering	3
J C ENGR 3760	Hydraulic Engineering	3
J C ENGR 4190	Soil Mechanics	3
J C ENGR 4200	Soil Exploration And Testing	1
J C ENGR 4600	Highway and Traffic Engineering	3
J C ENGR 4640	Foundation Engineering	3
J C ENGR 4670	Structure Design Projects	3
or J C ENGR 4910	Water Hydrology and Hydraulic Design Project	
J C ENGR 4730	Construction Operations And Management	3
J C ENGR 4740	Economic Decisions In Engineering	3
J C ENGR 4730	Construction Operations And Management	3
J C ENGR 4740	Economic Decisions In Engineering	3
J C ENGR 4950	Fundamentals Of Engineering Review	1
J C ENGR 4990	Senior Civil Engineering Seminar	1
J M ENGR 1413	Introduction To Engineering Design: CAD	2
J M ENGR 2410	Mechanics Of Deformable Bodies	3
J M ENGR 3360	Material Science For J C ENGR	3
J M ENGR 3700	Fluid Mechanics	3
J M ENGR 3721	Fluid Mechanics Laboratory	1
MATH 1320	Applied Statistics I	3

Civil Engineering Electives	6
<b>Total Hours</b>	<b>58</b>

### Electrical Engineering Major Requirements

J CMP SC 1002	Introduction To Computing Tools: Matlab Skills	1
J E ENGR 2320	Introduction To Electronic Circuits	3
J E ENGR 2300	Introduction To Electrical Networks	3
J E ENGR 2330	Electrical And Electronic Circuits Laboratory	3
J E ENGR 2600	Introduction To Digital Logic And Computer Design	3
J E ENGR 3300	Engineering Electro Magnetic Principles	3
J E ENGR 3310	Electronics Laboratory	3
J E ENGR 3320	Power, Energy And Polyphase Circuits	3
J E ENGR 3510	Signals And Systems	3
J E ENGR 4350	Electrical Energy Laboratory	3
J E ENGR 4410/J M ENGR 4310	Control Systems I	3
J E ENGR 4980	Electrical Engineering Design Projects	3
J E MATH 3260	Probability And Statistics For Engineering	3
J M ENGR 3200	Thermodynamics	3
Electrical Engineering Electives 3000-4990		12
<b>Total Hours</b>		<b>52</b>

### Mechanical Engineering Major Requirements

J C ENGR 4950	Fundamentals Of Engineering Review	1
---------------	------------------------------------	---

J CMP SC 1002	Introduction To Computing Tools: Matlab Skills	1
J E ENGR 2300	Introduction To Electrical Networks	3
J E ENGR 2340	Electrical Laboratory for Mechanical Engineers	1
J E MATH 3260	Probability And Statistics For Engineering	3
J M ENGR 1413	Introduction To Engineering Design: CAD	2
J M ENGR 1414	Introduction To Engineering Design: Project	2
J M ENGR 2410	Mechanics Of Deformable Bodies	3
J M ENGR 3200	Thermodynamics	3
J M ENGR 3221	Mechanical Design And Machine Elements	4
J M ENGR 3250	Material Science For J M ENGR	4
J M ENGR 3700	Fluid Mechanics	3
J M ENGR 3710	Principles Of Heat Transfer	3
J M ENGR 3721	Fluid Mechanics Laboratory	1
J M ENGR 3722	Heat Transfer Laboratory	1
J M ENGR 4041	Current Topics In Engineering Design	1
J M ENGR 4120	Design of Thermal Systems	3
J M ENGR 4170	Dynamic Response Of Physical Systems	2
J M ENGR 4180	Dynamic Response Laboratory	1
J M ENGR 4110	Mechanical Engineering Design Project	4
J M ENGR 4310/J E ENGR 4410	Control Systems I	3
Mechanical Engineering Electives		12
<b>Total Hours</b>		<b>61</b>

Sign-offs from other departments affected by this proposal

None

Rationale Civil Engineering students will never use Mat Lab in their courses or in their work. Required for Electrical Engineering majors. Required for Mechanical Engineering majors.