

UMSL/Washington University Joint Engineering Undergraduate General Requirements

A program of 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 as their major. Math 1800 must be completed successfully within two attempts. [Pre-Engineering Requirements](#)

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
Total Hours		42

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 ¹		3

<u>HIST 1001</u>	American Civilization To 1865	3
or <u>HIST 1002</u>	American Civilization 1865 To Present	
or <u>HIST 1004</u>	The History Of Women In The United States	
Two additional Social Science courses ¹		6

¹ **Once 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

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

¹ Required for electrical and mechanical engineering majors only.

Sign-offs from other departments affected by this proposal

None

Rationale **Better student retention.**

Doctor of Optometry Curriculum

First Year

Fall Semester

Semester	Credit Hours	Lecture	Lab
8010 Anatomy, Physiology and Disease Processes I	5	4	2 1
8020 Basic and Clinical Optics I	4	3	2 1
8030 Introduction to Optometry	1	1	
8040 Neuroanatomy	4	3	2 1
8060 Biochemistry	3	3	
8090 Case Based Discovery for the Developing Clinician	1	1	
8350 Epidemiology	2	2	

Spring Semester

Semester	Credit Hours	Lecture	Lab
8090, Case-Based Discovery for the Developing Clinician	1	1	
8110 Anatomy, Physiology and Disease Processes II	5	4	1
8120 Basic and Clinical Optics II	5	4	1
8160 Anatomy and Physiology of the Eye	5	4	1
8180 Clinical Optometry I	5	3	2
8190 Introduction to Clinical Diagnostic Reasoning	4	4	

Second Year

Fall Semester

Semester	Credit Hours	Lecture	Lab
8220 Ophthalmic Optics	4	3	2 1
8230 Interpersonal Communications	2	2	
8240 Ocular Motility	2	2	
8250 Monocular Sensory Processes	5	4	2 1
8260 Foundations of Ocular and Systemic Disease and Management I	4	3	2 1
8280 Clinical Optometry II	5	3	4 2

Spring Semester

Semester	Credit Hours	Lecture	Lab
8320 Ophthalmic Dispensing	1		2 1
8340 Binocular Vision and Space Perception	4	3	2 1
8370 Foundations of Ocular and Systemic Disease and Management II	7	6	2 1
8380 Clinical Optometry III	2	1	2 1
8390 Specialty Clinic Laboratory	1		2 1
8391 Clinical Topics in Contact Lenses	1	1	
8392 Clinical Topics in Binocular Vision and Pediatric Optometry	1	1	
8393 Clinical Topics in Low Vision	1	1	
8560 Public Health	2	2	

Third Year

Fall Semester

Semester	Credit Hours	Lecture	Lab
8500 Primary Care Clinic I	6		4 2 6
8520 Contact Lenses I	3	2	2 1
8540 Binocular Vision Anomalies	4	3	2 1
8550 Low Vision	2	1	2 1
8570 Advanced Topics in Ocular and Systemic Disease and Management	6	5	2 1
8650 Geriatric Optometry	2	2	

Spring Semester

Semester	Credit Hours	Lecture	Lab
8600 Primary Care Clinic II	6		12 6
8610 Environmental Vision	2	2	
8620 Contact Lenses II	2	2	
8630 Practice Management III	3	3	
8640 Pediatric Optometry	2	2	
8645 Neurologic Disorders of the Eye and Visual System	2	2	
8660 Contact Lens Specialty Clinic	1		2 1
8670 Comprehensive Case Review and Analysis	1	1	
8680 Ophthalmic Lasers	1	1	
8690 Pediatric /Binocular Vision Specialty Clinic I	1		2 1

Fourth Year

Category 1 UMSL

Note: Must enroll in 8700, 8710 and 8720 concurrently

Semester	Credit Hours	Lecture	Lab
8700 UMSL Pediatric/Binocular Vision Patient Care	3		6
8710 UMSL Contact Lens Patient Care	3		6
8720 UMSL Eye Health Management Patient Care	1		2

Category 2 Institutional

Semester	Credit Hours	Lecture	Lab
8780 External Rotation in Institutional Patient Care	7		14

Category 3 Ocular Disease

Semester	Credit Hours	Lecture	Lab
8790 External Rotation in Ocular Disease Patient Care	7		14

Category 4 Intern

Semester	Credit Hours	Lecture	Lab
8730 Community Service Patient Care Rotation A	7		14
8750 Community Service Patient Care Rotation B	7		14
8760 Harvester Eye Center Patient Care	7		14
8770 Community Service Patient Care Rotation C	7		14

Category 5 Specialty

Semester	Credit Hours	Lecture	Lab
8800 External Rotation in Pediatric/Binocular Vision Patient Care	7		14
8810 External Rotation in Contact Lens Patient Care	7		14
8811 External Rotation in Ophthalmic Surgical Patient Care	7		14
8812 External Rotation in Geriatric Patient Care	7		14
8813 External Rotation in Ophthalmic Sports vision	7		14
8814 External Rotation In Primary Care	7		14
8815 External Rotation in Pathology and Treatment	7		14
8816 External Rotation in Ophthalmic Laser Treatment	7		14
8817 External Rotation in Rehabilitative Patient Care	7		14
8820 External Rotation in Low Vision Patient Care	7		14

Category 6 Elective

Semester	Credit Hours	Lecture	Lab
8830 External Rotation in General Patient Care	7		14
8840 External Supplementary Rotation in General Patient Care	7		14
8850 Supplementary Rotation in General Patient Care	7		14

Required Courses

Semester	Credit Hours	Lecture	Lab
8870 Practice Management IV	2	2	
8880 Clinical Seminar	1	1	

Due to advances in the optometric profession, sequencing of courses may change. The courses listed above are subject to change through normal academic procedures.

Elective Courses in the College of Optometry

<u>OPTOM 8400</u>	Directed Readings	1-3
<u>OPTOM 8410</u>	Directed Research	1-3
<u>OPTOM 8420</u>	<u>Course OPTOM 8420 Not Found</u>	2
<u>OPTOM 8470</u>	<u>Course OPTOM 8470 Not Found</u>	4
<u>OPTOM 8910</u>	<u>Course OPTOM 8910 Not Found</u>	3
<u>OPTOM 8970</u>	Geriatric Patient Care Delivery	3-6

~~Graduate Vision Science Courses Approved for Elective Credit*~~

<u>OPTOM 6400</u>	<u>Course OPTOM 6400 Not Found</u>	3
<u>OPTOM 6401</u>	<u>Course OPTOM 6401 Not Found</u>	3
<u>OPTOM 6402</u>	<u>Course OPTOM 6402 Not Found</u>	3
<u>OPTOM 6403</u>	<u>Course OPTOM 6403 Not Found</u>	3
<u>OPTOM 6404</u>	<u>Course OPTOM 6404 Not Found</u>	3
<u>OPTOM 6470</u>	<u>Course OPTOM 6470 Not Found</u>	2
<u>OPTOM 6490</u>	<u>Course OPTOM 6490 Not Found</u>	4-15
<u>OPTOM 6497</u>	<u>Course OPTOM 6497 Not Found</u>	2
<u>OPTOM 6499</u>	<u>Course OPTOM 6499 Not Found</u>	4

Sign-offs from other departments affected by this proposal

None

Rationale

A course in neurologic disorders is being added to the spring semester of the third year effective in spring semester 2015.