

University of Central Missouri — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2024

Complete Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice.

Group 1 - Core Requirements: All Majors Take All Courses

Engineering students take all Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice. Math prerequisites: While they are not part of Missouri S&T engineering degree requirements, algebra and trigonometry skills are critical to success in calculus. To prepare for entry into calculus, students should follow math placement testing and advising recommendations at their college.

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MATH 1151	Calculus I	5	MATH 1214	Calculus I <small>Grade of C or better is required.</small>	4
MATH 1152	Calculus II	5	MATH 1215	Calculus II <small>Grade of C or better is required.</small>	4
MATH 2153	Calculus III	3	MATH 2222	Calculus III <small>Grade of C or better is required.</small>	4
MATH 3151	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHYS 2121	University Physics I	5	PHYSICS 1135	Engineering Physics I <small>Grade of C or better is required.</small>	4
PHYS 2122	University Physics II	5	PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4
CHEM 1131	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
ENGT 1000	Principles of Engineering	3	FR ENG 1100	Study and Careers in Engineering and Computing	1
ENGL 1020	Composition I	3	ENGLISH 1120	Exposition and Argumentation	3
ECON 1011 or ECON 1010	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		40	Total Hours		35

Group 2 - Major Requirements: Take All Courses for Major of Choice

Engineering students take all Group 1 - Core Requirements (above) and Group 2 - Major Requirements for chosen major from list below. See course requirements on following pages.

Aerospace Engineering
Architectural Engineering
Biomedical Engineering/Biomufacturing or Biomaterials
Ceramic Engineering
Chemical Engineering and Biochemistry Emphasis
Civil Engineering
Computer Engineering
Electrical Engineering

Engineering Management
Environmental Engineering
Geological Engineering
Mechanical Engineering
Metallurgical Engineering
Mining Engineering
Nuclear Engineering
Petroleum Engineering

Engineering Major Requirements are detailed on the following pages.

Free Electives: Some programs allow Free Electives as indicated within each major. Free Electives should be selected in consultation with your advisor and may not include remedial/deficiency courses, algebra, trigonometry, pre-calculus, or extra credits in required courses.

Humanities/Social Science (HSS) Electives: HSS electives may include any art, English and technical communication, etymology, foreign language, music, philosophy, speech and media studies, or theatre. Your campus may have additional acceptable options. Consult with your advisor or email transfer@mst.edu with questions. See Missouri S&T online catalog at <https://catalog.mst.edu/undergraduate/degreeprogramsandcourses/> for more information.

Aerospace Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
ENGT 2065	Computer Programming for Engineering Technology	3	CS 1971	Intro to Programming Method	2
PHYS 3311	Electric Circuit Theory	3	EE 2800	Electrical Circuits	3
PHYS 3211	Analytical Mechanics I	2	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	AERO ENG 2360	Dynamics	3
PHYS 4411	Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
MATH 3710 or	Linear Algebra	3	MATH 3108	Linear Algebra I <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>	3
	Literature Elective	3		Literature Elective	3
PHIL 2300	Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	PHILOS 1130	How Should I Live? An Introduction to Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	29		Group 2 Major Requirements	29
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	64

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Aerospace Engineering degree.

Architectural Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 1350 or HIST 1352	History of the US to 1877 or History of the US from 1877	3	HISTORY 1300 or HISTORY 1310	American History to 1877 or American History since 1877	3
PHYS 3211	Analytical Mechanics I	2	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
PHYS 4411	Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENGL 1030, CTE 3060, COMM 1000.	3	Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENGLISH 1160, 1600, 3560 or SPMS 1185.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	18		Group 2 Major Requirements	17
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	58		Total Hours*	52

*S&T advisor permission is required to transfer more than 69 credits toward the S&T Architectural Engineering degree.

Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 1000	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CTE 2060	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHEM 3342 or BIOL 1500 or BIOL 1510, 1510L or BIOL 2510	Organic Chemistry II (4) or General Biology I-Essentials of Molecular and Cellular Biology (4) or Investigative Biology and Lab (4) or Basic Genetics (3)	4	CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry II and Lab or General Biology and Lab or General Genetics <small>Applies to degree as Track Elective.</small>	4
BIOL 2512	Cell Biology	3	BIO SCI 2213	Cell Biology	3
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
PHYS 4411	Thermodynamics	3	MECH ENG 2519*	Thermodynamics* <small>*The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the biomedical engineering department. Students must complete both courses to receive credit.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	34		Group 2 Major Requirements	32
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	74		Total Hours*	67

*S&T advisor permission is required to transfer more than 68 credit hours toward the degree.

Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 1000	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CTE 2060	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
CHEM 3342	Organic Chemistry II	4	CHEM 2220, 2229*	Organic Chemistry II and Lab* <small>CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
BIOL 1500 or BIOL 1510, 1510L	General Biology I-Essentials of Molecular and Cellular Biology (4) or Investigative Biology and Lab	4	BIO SCI 1113*, 1219*	General General Biology* and Lab* <small>*Applies to degree as Track Elective (Non-engineering).</small>	4
BIOL 2512	Cell Biology	3	BIO SCI 2213	Cell Biology	3
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
PHYS 3211	Analytical Mechanics I	2	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3311	Electric Circuit Theory	3	EE 2100*	Circuits I *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100. Applies to the degree as a Track Elective (Engineering).	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	37		Group 2 Major Requirements	36
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	77		Total Hours*	71

*S&T advisor permission is required to transfer more than 65 credits toward the S&T Biomedical Engineering degree.

Ceramic Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219*	Organic Chemistry I (3) and Lab (1) <small>CHEM 2210 will satisfy the advanced chemistry elective requirement. *CHEM 2219 is not an S&T degree requirement, will transfer as general elective credit.</small>	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
PHYS 3511	Modern Physics	4	PHYS 2305	Intro to Modern Physics	3
ENGL 1030 or COMM 1000 or HSS Elective	Composition II or Public Speaking or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Principles of Speech or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	68		Total Hours*	59

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.

Chemical Engineering or Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 1000	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CTE 2060	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</small>	4
CHEM 3342 or BIOL 2512 or BIOL 3611	Organic Chemistry II (4) or Cell Biology (3) or Microbiology and Lab (4) <small>Select up to 8 hours from these options.</small>	8	CHEM 2220 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Cell Biology and Lab (4) or Microbiology and Lab (5) <small>Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.</small>	8
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
PHYS 4411	Thermodynamics	3	MECH ENG 2519*	Thermodynamics* <small>*The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	35		Group 2 Major Requirements	33
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	75		Total Hours*	68

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Chemical Engineering degree.

Civil Engineering Group 2 Major Requirements

	<u>University of Central Missouri</u>	<u>Semester</u>		<u>Missouri S&T</u>
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3		ENGLISH 1160 or SPMS 1185 or ENGLISH 3560
				Writing and Research or Principles of Speech or Technical Writing
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3		HISTORY 1300 or HISTORY 1310 or POL SCI 1200
				American History to 1877 or American History since 1877 or American Government
GEOS 1004	Intro to Geology	4		GEOLOGY 1110 (GEO ENG 1150)
				Physical and Environmental Geology
PHYS 3211	Analytical Mechanics I	3		CIV ENG 2200
				Engineering Mechanics-Statics
PHYS 3212	Analytical Mechanics II	3		MECH ENG 2350
				Engineering Mechanics-Dynamics
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3		Humanities or Social Science
				Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	19		Group 2 Major Requirements
	Group 1 Core Requirements	40		Group 1 Core Requirements
	Total Hours	59		Total Hours*
				0 17 35 52

*S&T advisor permission is required to transfer more than 69 credits toward the S&T Civil Engineering degree.

Computer Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 1000	Public Speaking	3	SPMS 1185	Principles of Speech	3
ENGL 1030 or CTE 2060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CS 2400 or MATH 2410	Discrete Structures or Discrete Mathematics	3	CS 1200	Discrete Math for Computer Science	3
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* <small>*Will be substituted for CS 1500.</small>	3
PHYS 3211 or PHYS 3212 or PHYS 4411 or PHYS 3511 or CHEM 3341 or BIOL 2512 or BIOL 3511	Analytical Mechanics I (3) or Analytical Mechanics II (3) or Thermodynamics (3) or Modern Physics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (4)	3	CIV ENG 2200 or MECH ENG 2350 or MECH ENG 2519 or PHYSICS 2305 or CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Thermodynamics (3) or Intro to Modern Physics (3) or Organic Chemistry I (3) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective. *CHEM 2219 is not an S&T degree requirement, will transfer as general elective credit.</small>	3
PHYS 3311	Electric Circuit Theory	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MATH 3710	Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy a required math elective.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	65

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.

Electrical Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 1000	Public Speaking	3	SPMS 1185	Principles of Speech	3
ENGL 1030 or CTE 2060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* <small>*Will be substituted for CS 1500.</small>	3
PHYS 3211 and PHYS 3212 <small>BOTH of the courses above or ONE of the courses below.</small> OR PHYS 4411 or CHEM 3341 or BIOL 2512 or BIOL 3511	Analytical Mechanics I (3) and Analytical Mechanics II (3) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Thermodynamics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (4)	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small> OR MECH ENG 2519 or PHYSICS 2305 or CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Thermodynamics (3) or Intro to Modern Physics (3) or Organic Chemistry I (3) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>*CHEM 2219 is not an S&T degree requirement, will transfer as general elective credit.</small>	3
PHYS 3311	Electric Circuit Theory	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MATH 3710	Linear Algebra	3	MATH 3108	Linear Algebra	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	67		Total Hours*	62

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Electrical Engineering degree.

Engineering Management Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSY 1100	General Psychology	3	PSYCH 1101	General Psychology	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
COMM 1000	Public Speaking	3	SPMS 1185	Principles of Speech	3
ENGL 1030 or CTE 2060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
ENGT 2065	Computer Programming for Engineering Technology	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 3311	Electric Circuit Theory	3	EE 2800	Electrical Circuits	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
PHYS 4411	Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	3	Electives	Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	29
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	73		Total Hours*	61

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Engineering Management degree.

Environmental Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HIST 1350 or HIST 1352	History of the US to 1877 or History of the US from 1877	3	HISTORY 1300 or HISTORY 1310	American History to 1877 or American History since 1877	3
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
BIOL 1110 or BIOL 1510 or BIOL 1500	Principles of Biology (3) or Investigative Biology (3) or General Biology I-Essentials of Molecular and Cellular Biology (4)	3	BIO SCI 1113	General Biology	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	67		Total Hours*	58

*S&T advisor permission is required to transfer more than 69 credits toward the S&T Environmental Engineering degree.

Geological Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
CTE 2060	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
CIS 1625 or CS 1030 or CS 2030 or CS 2300 or ENGT 2065*	Programming with Visual C# or Python Programming I or Python Programming II or Data Structures or Computer Programming for Engineering Technology*	3	CS 1500 or CS 1971, 1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
GEOS 1004	Intro to Geology	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	65		Total Hours*	58

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Geological Engineering degree.

Mechanical Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
ENGT 2065	Computer Programming for Engineering Technology	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 3311	Electric Circuit Theory	3	EE 2800	Electrical Circuits	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2360	Dynamics	3
PHYS 4411	Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
MATH 3710 or Literature Elective	Linear Algebra Literature Elective	3	MATH 3108	Linear Algebra I Will satisfy the Advanced Math/Comp Sci elective requirement. Literature Elective	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	65

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mechanical Engineering degree.

Metallurgical Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 1132	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 3341 or PHYS 3311 or PHYS 3511	Organic Chemistry I (4) or Electric Circuit Theory (3) or Modern Physics (4)	3	CHEM 2210 or EE 2800 or PHYSICS 2305	Organic Chemistry I (3) or Electrical Circuits (3) or Intro to Modern Physics (3) <small>Not specifically required for the degree but will satisfy out-of-department technical elective requirement</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	26		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	66		Total Hours*	59

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Metallurgical Engineering degree.

Mining Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 1030 or CTE 2060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
PHYS 4411	Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	65		Total Hours*	58

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mining Engineering degree.

Nuclear Engineering Group 2 Major Requirements

	<u>University of Central Missouri</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENGL 1030 or COMM 1000 or CTE 2060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
ENGT 2065	Computer Programming for Engineering Technology	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 3710	Linear Algebra	3	MATH 3108	Linear Algebra	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 3311	Electric Circuit Theory	3	EE 2800	Electrical Circuits	3
PHYS 4411	Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
PHYS 3511	Modern Physics	4	PHYSICS 2305	Intro to Modern Physics	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6
	Group 2 Major Requirements	37		Group 2 Major Requirements	36
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	77		Total Hours*	71

*S&T advisor permission is required to transfer more than 68 credits toward the S&T Nuclear Engineering degree.

Petroleum Engineering Group 2 Major Requirements

	<u>University of Central Missouri</u>	<u>Semester</u>		<u>Missouri S&T</u>	
CTE 2060 or ENGL 1030	Technical Writing (preferred) or Composition II	3	ENGLISH 3560 or ENGLISH 1160	Technical Writing (preferred) or Writing and Research	3
HIST 1350 or HIST 1352 or POLS 1510	History of the US to 1877 or History of the US from 1877 or American Government	3	HISTORY 1300 or HISTORY 1310 or POL SCI 1200	American History to 1877 or American History since 1877 or American Government	3
GEOS 1004	Intro to Geology	4	CS 1972, 1982	Intro to MATLAB Programming and Lab	3
PHYS 3211	Analytical Mechanics I	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 3212	Analytical Mechanics II	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 4411	Thermodynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
			MECH ENG 2527	Thermal Analysis	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	26
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	65		Total Hours*	61

*S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.