

# University of Central Missouri — Missouri S&T

## General Engineering Transfer Guide

Effective as of Fall 2020

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&amp;T</u>			
MATH 1151	Calculus I	5	MATH 1214	Calculus for Engineers I	Grade of C or better is required.	4	
MATH 1152	Calculus II	5	MATH 1215	Calculus for Engineers II	Grade of C or better is required.	4	
MATH 2153	Calculus III	3	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required.	4	
MATH 3151	Differential Equations	3	MATH 3304	Elementary Differential Equations		3	
PHYS 2121	University Physics I	5	PHYSICS 1135	Engineering Physics I	Grade of C or better is required.	4	
PHYS 2122	University Physics II	5	PHYSICS 2135	Engineering Physics II	Grade of C or better is required.	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**  
**Ceramic Engineering**  
**Chemical Engineering**  
**Chemical Engineering/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 history, economics, political science, sociology, psychology, philosophy, fine art, literature, or foreign language. Missouri S&T approved HSS courses are listed at [ugs.mst.edu](http://ugs.mst.edu). Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions.

## Aerospace Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government
ENGL 1030 or COMM 1000 or CTE 3060	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
PHYS 3311	Electric Circuit Theory	3	EE 2800	Circuit Analysis I
PHYS 3211	Analytical Mechanics I	2	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 3212	Analytical Mechanics II	3	AERO ENG 2360	Dynamics
PHYS 4411	Thermodynamics	3	MECH ENG 2519	Thermodynamics
MATH 3710 or ACST 3311	Linear Algebra or Intro to Probability and Statistics	3	MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>
	Literature Elective	3		Literature Elective
	Ethics Elective	3		Ethics Elective
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	26		Group 2 Major Requirements
	Group 1 Core Requirements	40		Group 1 Core Requirements
	Total Hours	66		Total Hours*
				62

\*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&amp;T</u>	
HIST 1401 * (or HIST 1350 or HIST 1352)	History of the Early Modern World* (or History of the US to 1877 or History of the US from 1877)	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>
PHYS 3211	Analytical Mechanics I	2	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 3212	Analytical Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>
ENGL 1030 or COMM 1000 or HSS Elective	Composition II or Public Speaking or Humanities/Social Science Elective: 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 Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology
PHYS 4411	Thermodynamics	3	MECH ENG 2527	Thermal Analysis
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	21		Group 2 Major Requirements
	Group 1 Core Requirements	40		Group 1 Core Requirements
	Total Hours	61		Total Hours*
				56

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

## Ceramic Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 3341 or CHEM 4531 or CHEM 4532	Organic Chemistry I or Phys Chem: Thermodynamics and Kinetics or Phys Chem: Quantum Mechanics & Spectroscopy	4	CHEM 2210 or CHEM 3410 or CHEM 3420 or	Organic Chemistry I (4) or Chemical Thermodynamics I (3) or Intro to Quantum Chemistry (3) or (Not a specific requirement. Will satisfy the advanced chemistry elective requirement.)	3
CHEM 1132	General Chemistry Ii	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis* (2) <small>*CHEM 1510 is not a degree requirement; course transfers as elective credit.</small>	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics (or any statistics course 3000-level or higher. Satisfies statistics elective requirement.)	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 Humanities/Social Science Elective: 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 Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	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 Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization 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 a degree requirement; course transfers as elective credit.</small>	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHEM 3342 or BIOI 2512 or BIOL 3611 or CHEM 4532	Organic Chemistry II (4) or Cell Biology (3) or Microbiology and Lab (4) or Physical Chemistry: Quantum Mechanics and Spectroscopy (4) <small>(Will satisfy science elective requirement. Select up to 8 hours from these options.)</small>	8	CHEM 2220 or BIO SCI 2213 or SCI 3313, 3319 or CHEM 3420, 3429	Organic Chemistry II (3) or Cell Biology (3) or Microbiology and Lab (5) or Intro to Quantum Chem and Phys Chem Lab <small>(Will satisfy science elective requirement. Select up to 8 hours from these options.)</small>	8
CS 2300 or CS 3110 or ET 2065	Data Structures or Applications Programming in C# and .NET or Computer Programming for Electronics Technology	3	CS 1500	Computational Problem Solving	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</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&amp;T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.</small>	3
COMM 1000	Public Speaking	3	SP&MS 1185	Principles of Speech	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	38		Group 2 Major Requirements	36
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	78		Total Hours*	71

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

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

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization 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 a degree requirement; course transfers as elective credit.</small>	3
CHEM 3341	Organic Chemistry I	4	CHEM 2210, 2219 CHEM 2220 or BIO SCI 2213 or SCI 3313, 3319 or CHEM 3420, 3429	Organic Chemistry I and Lab Organic Chemistry II (3) or Cell Biology (3) or Microbiology and Lab (5) or Intro to Quantum Chem and Phys Chem Lab <small>(Will satisfy science elective requirement. Select up to 8 hours from these options.)</small>	4 8
CS 2300 or CS 3110 or ET 2065	Data Structures or Applications Programming in C# and .NET or Computer Programming for Electronics Technology	3	CS 1500	Computational Problem Solving	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</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&amp;T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.</small>	3
COMM 1000	Public Speaking	3	SP&MS 1185	Principles of Speech	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	38		Group 2 Major Requirements	36
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	78		Total Hours*	71

\*S&T advisor permission is required to transfer more than 71 credits toward the S&T Chemical/Biochemical Engineering degree.

## Civil Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
ENGL 1030 or COMM 1000 or CTE 3060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	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	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	62		Total Hours*	56

\*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&amp;T</u>		
COMM 1000	Public Speaking	3	SPMS 1185	Public Speaking	3
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CS 2400	Discrete Structures	3	CS 1200	Discrete Math for Computer Science	3
CS 2300 or CS 3110 or ET 2065	Data Structures or Applications Programming in C# and .NET or Computer Programming for Electronics Technology	3	CS 1500	Computational Problem Solving	3
PHYS 3211 and PHYS 3212 (BOTH of the courses above or ONE of the courses below.) OR PHYS 4411 or CHEM 3341 or BIOL 2512 or BIOL 3511	Analytical Mechanics I (3) and Analytical Mechanics II (3) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (4)	3	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR MECH ENG 2519 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (3)	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 (Will satisfy a required math elective.)	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3117.)	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	0		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	33
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	68

\*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&amp;T</u>		
COMM 1000	Public Speaking	3	SPMS 1185	Public Speaking	3
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CS 2300 or CS 3110 or ET 2065	Data Structures or Applications Programming in C# and .NET or Computer Programming for Electronics Technology	3	CS 1500	Computational Problem Solving	3
PHYS 3211 and PHYS 3212 (BOTH of the courses above or ONE of the courses below.) OR PHYS 4411 or CHEM 3341 or BIOL 2512 or BIOL 3511	Analytical Mechanics I (3) and Analytical Mechanics II (3) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (4)	3	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR MECH ENG 2519 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (3)	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
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3117.)	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	3		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 Electrical Engineering degree.

## Engineering Management Group 2 Major Requirements

<u>University of Central Missouri</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
PSY 1100	General Psychology	3	PSYCH 1101	General Psychology	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
ENGL 1030 or COMM 1000 or CTE 3060	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
PHYS 3311	Electric Circuit Theory	3	EE 2800	Circuit Analysis I	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	3
PHYS 4411	Thermodynamics	3	MECH 2527	Thermal Analysis	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	<b>Total Hours</b>	<b>70</b>		<b>Total Hours*</b>	<b>65</b>

\*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&amp;T</u>		
ENGL 1030 or COMM 1000 or CTE 3060	Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	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 a degree requirement; course transfers as elective credit.</small>	3
BIOL 1111	Biology I	4	BIO SCI 1113	General Biology	4
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	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	28
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	<b>Total Hours</b>	<b>71</b>		<b>Total Hours*</b>	<b>63</b>

\*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&amp;T</u>	
ENGL 1030 or COMM 1000 or CTE 3060	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	3
GEOS 1004	4	GEO ENG 1150 (GEOLOGY 1110)	3
PHYS 3211	3	CIV ENG 2200	3
PHYS 3212	3	MECH ENG 2350	3
BIOL 1111 or CHEM 1132 or CHEM 3341	4	BIO SCI 1113 or CHEM 1320 or CHEM 2210	3
		<small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</small>	
<i>See your advisor for course options.</i>	3	Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>	3	Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>	0	Maximum Free Electives	0
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 Geological Engineering degree.

## Mechanical Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	3
ENGL 1030 or COMM 1000 or CTE 3060	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	3
PHYS 3311	3	EE 2800	3
PHYS 3211	3	CIV ENG 2200	3
PHYS 3212	3	MECH ENG 2360	3
PHYS 4411	3	MECH ENG 2519	3
MATH 3710 or ACST 3311	3	MATH 3108 or STAT 3115	3
		<small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	
Literature Elective	3	Literature Elective	3
Humanities/Social Science Elective	3	Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>	0	Maximum Free Electives	0
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 Mechanical Engineering degree.

## Metallurgical Engineering Group 2 Major Requirements

<u>University of Central Missouri</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
ENGL 1030 or COMM 1000 or CTE 3060	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	3
PHYS 3211	3	CIV ENG 2200	3
ACST 3311	3	STAT 3115	3
CHEM 1132	5	CHEM 1320, 1510*	3
CHEM 3341 or CHEM 4531 or PHYS 3311 or EASC 3320 or PHYS 3511	3	CHEM 2210 or CHEM 3410 or EE 2800 or GEOLOGY 2610 or PHYSICS 2305	3
		*CHEM 1510 is not a degree requirement; course transfers as elective credit.	
		Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.	
	3	Humanities/Social Science Elective	3
	3	Humanities/Social Science Elective	3
	5	Maximum Free Electives	5
	31	Group 2 Major Requirements	29
	40	Group 1 Core Requirements	35
Total Hours	71	Total Hours*	64

\*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&amp;T</u>	
ENGL 1030 or CTE 3060	3	ENGLISH 1160 or ENGLISH 3560	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	3
ACST 3311	3	STAT 3115	3
PHYS 3211	3	CIV ENG 2200*	3
PHYS 3212	3	MECH ENG 2350	3
PHYS 4411	3	MECH ENG 2527	3
GEOS 1004	4	GEOLOGY 1110 (GEO ENG 1150)	3
	3	Humanities/Social Science Elective	3
	3	Humanities/Social Science Elective	3
	0	Maximum Free Electives	0
	28	Group 2 Major Requirements	27
	40	Group 1 Core Requirements	35
Total Hours	68	Total Hours*	62

\*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&amp;T</u>		
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
MATH 3710	Linear Algebra	3	MATH 3108	Linear Algebra	3
PHYS 3211	Analytical Mechanics I	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ACST 3311	Intro to Probability and Statistics	3	STAT 3115	Engineering Statistics	3
PHYS 3511	Modern Physics	4	PHYSICS 2305	Intro to Modern Physics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	6		Maximum Free Electives	6
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	65

\*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&amp;T</u>		
ENGL 1030 or CTE 3060	Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 1350 or HIST 1352 or HIST 1401 or POLS 1510	History of the US to 1877 or History of the US from 1877 or History of the Early Modern World or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
GEOS 1004	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	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	3
PHYS 4411	Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	65		Total Hours*	59

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