

Johnson County Community College — 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>Johnson County Community College</u>			<u>Semester</u>	<u>Missouri S&T</u>			
MATH 241 & MATH 242	Calculus I and Calculus II	10		MATH 1214 & MATH 1215	Calculus for Engineers I and Calculus II for Engineers Grade of C or better is required.	8	
MATH 243	Calculus III	5		MATH 2222	Calculus with Analytic Geometry III Grade of C or better is required.	4	
MATH 254	Differential Equations	4		MATH 3304	Elementary Differential Equations	3	
PHYS 220	Engineering Physics I	5		PHYSICS 1135	Engineering Physics I Grade of C or better is required.	4	
PHYS 221	Engineering Physics II	5		PHYSICS 2135	Engineering Physics II Grade of C or better is required.	4	
CHEM 124, 125	General Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5	
ENGR 121	Engineering Orientation	2		FR ENG 1100	Study and Careers in Engineering and Computing	1	
ENGL 121	Composition I	3		ENGLISH 1120	Exposition and Argumentation	3	
ECON 231 or ECON 230	Economics I or Economics II	3		ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3	
Total Hours			42	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. Your campus may have additional acceptable options. Consult with your advisor or email transfer@mst.edu with questions.

Aerospace Engineering Group 2 Major Requirements

<u>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing
CS 200	Concepts of Programming Algorithms Using C++	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
MATH 246	Elementary Linear Algebra	3	MATH 3108	Linear Algebra I <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>
ENGL 236 or ENGL 246 or ENGL 251 or ENGL 217	British Literature I or American Literature I or World Literature to 1620 or Literature by Women <small>(or other literature elective)</small>	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2242	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or Literature by Women <small>(or other literature elective)</small>
	<i>See your advisor for course options.</i>	3		Ethics Elective
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	22		Group 2 Major Requirements
	Group 1 Core Requirements	42		Group 1 Core Requirements
	Total Hours	64		Total Hours*
				56

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIST 126 (or HIST 140 or HIST 141)	Western Civ: Scientific Rev to Modern Age (or US History to 1877 or US History since 1877) <small>*HIST 126 is preferred; 140 or 141 will also be accepted.</small>	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>
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics
ENGL 122 or COMS 121 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 130	General Geology	5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology
	<i>No free electives applied to the degree.</i>			Maximum Free Electives
	Group 2 Major Requirements	17		Group 2 Major Requirements
	Group 1 Core Requirements	42		Group 1 Core Requirements
	Total Hours	59		Total Hours*
				50

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 220	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I (4) and Lab (1) <small>(CHEM 2210 will satisfy the advanced chemistry elective requirement; CHEM 2219 will transfer as elective credit.)</small>	3
CHEM 131	General Chemistry II	4	CHEM 1320	General Chemistry II	3
ENGL 122 or COMS 121 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	21		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	63		Total Hours*	53

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHEM 131	General Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 220	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I and Lab	5
CHEM 221 or BIOL 135 or BIOL 230,231	Organic Chemistry II (5) or Principles of Cell and Molecular Biology (4) or Microbiology and Lab (5) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9	CHEM 2220, 2219 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319	Organic Chemistry II and Lab (4 hours) or Cell Biology and Lab (4 hours) or Microbiology and Lab (5 hours) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9
CS 235 or CS 250 or CS 200	Object-Oriented Programming (C++) or Basic Programming Structure or Concepts of Programming Algorithms Using C++	4	CS 1500 or CS 1500 or CS 1971, 1981	Computational Problem Solving or Computational Problem Solving or Intro to Programming Method and Lab (C++)	3
COMS 121	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	34		Group 2 Major Requirements	32
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	76		Total Hours*	67

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHEM 131	General Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 220	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I and Lab	5
CHEM 221 or BIOL 135 or BIOL 230,231	Organic Chemistry II (5) or Principles of Cell and Molecular Biology (4) or Microbiology and Lab (5) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9	CHEM 2220, 2219* or BIO SCI 2213, 2219 or BIO SCI 3313, 3319	Organic Chemistry II (4) and Lab* (1) or Cell Biology and Lab (4 hours) or Microbiology and Lab (5 hours) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.) CHEM 2219 is not a degree requirement; will transfer as elective credit.)</small>	9
CS 235 or CS 250 or CS 200	Object-Oriented Programming (C++) or Basic Programming Structure or Concepts of Programming Algorithms Using C++	4	CS 1500 or CS 1500 or CS 1971, 1981	Computational Problem Solving or Computational Problem Solving or Intro to Programming Method and Lab (C++)	3
COMS 121	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	34		Group 2 Major Requirements	32
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	76		Total Hours*	67

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
GEOS 130	General Geology	5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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	20		Group 2 Major Requirements	18
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	62		Total Hours*	53

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMS 121	Public Speaking	3	SPMS 1185	Public Speaking	3
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POL S 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CS 210 or CS 211	Data Structures I or Data Structures II	3	CS 1200	Discrete Math for Computer Science	3
CS 235 or CS 250 or CS 200	Object-Oriented Programming (C++) or Basic Programming Structure or Concepts of Programming Algorithms Using C++	4	CS 1500 or CS 1500 or CS 1971, 1981	Computational Problem Solving or Computational Problem Solving or Intro to Programming Method and Lab (C++)	3
ENGR 251 and ENGR 254 <small>(BOTH of the courses above or ONE of the courses below.)</small> OR	Statics (3) and Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> OR		CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small> OR	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> OR	
CHEM 221 or BIOL 135 or BIOL 205	Organic Chemistry I (4) or Principles of Cell and Molecular Biology (4) or General Genetics (4)	4-6	CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Organic Chemistry I (4) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>*CHEM 2219 is not an S&T degree requirement; will transfer as elective credit.</small>	3-6
MATH 246	Elementary Linear Algebra	3	MATH 3108	Linear Algebra <small>(Will satisfy a required math elective.)</small>	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	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	62

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMS 121	Public Speaking	3	SPMS 1185	Public Speaking	3
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POL S 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
ENGR 251 and ENGR 254 <small>(BOTH of the courses above or ONE of the courses below.)</small> OR	Statics (3) and Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> OR		CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small> OR	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> OR	
CHEM 221 or BIOL 135 or BIOL 205	Organic Chemistry I (4) or Principles of Cell and Molecular Biology (4) or General Genetics (4)	4-6	CHEM 2210, 2219* or BIO SCI 2213 or BIO SCI 2223	Organic Chemistry I (4) and Lab* (1) or Cell Biology (3) or General Genetics (3) <small>*CHEM 2219 is not an S&T degree requirement; will transfer as elective credit.</small>	3-6
MATH 246	Elementary Linear Algebra	3	MATH 3108	Linear Algebra	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	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	64		Total Hours*	56

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSYC 130	Intro to Psychology	3	PSYCH 1101	General Psychology	3
HIST 126 or HIST 140 or HIST 141 or POL S 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CS 200	Concepts of Programming Algorithms Using C++	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	67		Total Hours*	59

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 126 or HIST 140 or HIST 141	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310	Modern Western Civilization or American History to 1877 or American History since 1877	3
GEOS 130	General Geology	5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 131	General Chemistry II	4	CHEM 1320	General Chemistry II	3
BIOL 121	Introductory Biology for Non-Majors	4	BIO SCI 1113	General Biology	4
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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	25
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	60

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
GEOS 130	General Geology	5	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
BIOL 121 or CHEM 131 or CHEM 220	Introductory Biology for Non-Majors (4) or General Chemistry II (4) or Organic Chemistry (5)	4-5	BIO SCI 1113 or CHEM 1320 or CHEM 2210,2219*	General Biology (3) or General Chemistry II (3) or Organic Chemistry I (4) and Lab* (1) <small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.*CHEM 2219 is not an S&T requirement; will transfer as elective credit.</small>	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	27		Group 2 Major Requirements	24
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	69		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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CS 200	Concepts of Programming Algorithms Using C++	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MATH 246	Elementary Linear Algebra	3	MATH 3108	Linear Algebra I <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	3
ENGL 236 or ENGL 246 or ENGL 251 or ENGL 217	British Literature I or American Literature I or World Literature to 1620 or Literature by Women <small>(or other literature elective)</small>	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2242	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or Literature by Women <small>(or other literature elective)</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	42		Group 1 Core Requirements	35
	Total Hours	64		Total Hours*	56

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
ENGL 122 or COMS 121 or ENGL 123	Composition II or Public Speaking or Technical Writing I	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	3
ENGR 251	Statics	3	CIV ENG 2200	3
CHEM 131	General Chemistry II	4	CHEM 1320	3
CHEM 220	Organic Chemistry I	5	CHEM 2210, 2219*	4
	<i>See your advisor for course options.</i>	3		3
	<i>See your advisor for course options.</i>	3		3
	<i>See your advisor for course options.</i>	5		5
	Group 2 Major Requirements	29		27
	Group 1 Core Requirements	42		35
	Total Hours	71		62

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	3
ENGR 251	Statics	3	CIV ENG 2200*	3
ENGR 254	Dynamics	3	MECH ENG 2350*	3
GEOS 130	General Geology	5	GEOLOGY 1110 (GEO ENG 1150)	3
	<i>See your advisor for course options.</i>	3		3
	<i>See your advisor for course options.</i>	3		3
	<i>No free electives applied to the degree.</i>	0		0
	Group 2 Major Requirements	23		21
	Group 1 Core Requirements	42		35
	Total Hours	65		56

*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>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
MATH 246	Elementary Linear Algebra	3	MATH 3108	Linear Algebra	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	42		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 Nuclear Engineering degree.

Petroleum Engineering Group 2 Major Requirements

<u>Johnson County Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 122 or ENGL 123	Composition II or Technical Writing I	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 126 or HIST 140 or HIST 141 or POLS 124	Western Civ: Scientific Rev to Modern Age or US History to 1877 or US History since 1877 or American National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
GEOS 130	General Geology	5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 251	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 254	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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	23		Group 2 Major Requirements	21
	Group 1 Core Requirements	42		Group 1 Core Requirements	35
	Total Hours	65		Total Hours*	56

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