

Southwestern Illinois College — Missouri S&T

General Engineering Transfer Guide

Effective as of Fall 2017

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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MATH 203 and MATH 204*	Analytical Geometry and Calculus I and Analytical Geometry and Calculus II	10	MATH 1214 and MATH 1215*	Calculus for Engineers I and Calculus for Engineering II <small>Grade of C or better is required.</small>	8
<small>*Must take SWIC's MATH 203 and MATH 204 to earn credit for S&T's MATH 1214 and 1215.</small>					
MATH 205	Analytical Geometry and Calculus III	4	MATH 2222	Calculus with Analytic Geometry III <small>Grade of C or better is required.</small>	4
MATH 290	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHYS 204 and PHYS 205	Physics - Mechanics and Physics - Heat, Elec & Magnetism <small>Both SWIC PHYS 204 and 205 are required to receive credit for S&T PHYSICS 1135.</small>	8	PHYSICS 1135	Engineering Physics I <small>Grade of C or better is required.</small>	4
PHYS 204 and PHYS 205 and PHYS 206	Physics - Mechanics and Physics - Heat, Elec, & Magnetism and Physics - Light & Modern Physics <small>PHYS 204, 205, and 206 are required to receive credit for both S&T PHYSICS 1135 and 2135.</small>	12	PHYSICS 1135 and PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4
CHEM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
ENG 101	Rhetoric and Composition I	3	ENGLISH 1120	Exposition and Argumentation	3
ECON 202 or ECON 201	Principles of Economics II (Micro) or Principles of Economics I (Macro)	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		48	Total Hours		34

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>Southwestern Illinois College</u>	<u>Semester</u>	<u>Missouri S&T</u>	
HIST 180 or HIST 181 or HIST 102 or POLS 150 ENG 102 or SPCH 151 or ENG 103	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to American Government Rhetoric and Composition II or Fundamentals of Public Speaking or Technical Communication	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 ENGLISH 1160 or SPMS 1185 or ENGLISH 3560
MATH 210 or MATH 170 ENGR 271 ENGR 263 ENGR 275 MATH 292	Computer Programming for Engineers or Computer Science I- C++ Electrical Circuits Analytical Mechanics-Statics Mechanics of Solids Linear Algebra	3 3 3 3 3 3	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government Writing and Research or Principles of Speech or Technical Writing Intro to Programming Method and Lab (C++) or Intro to Programming (C++) Circuit Analysis I Engineering Mechanics-Statics Mechanics of Materials Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)
	See your advisor for course options.		Literature Elective
	See your advisor for course options.		Ethics Elective
	No free electives applied to the degree.		Maximum Free Electives
	Group 2 Major Requirements	21	Group 2 Major Requirements
	Group 1 Core Requirements	48	Group 1 Core Requirements
	Total Hours	69	Total Hours*
			27 34 61

*S&T advisor permission is required to transfer more than 66 credits toward the S&T Aerospace Engineering degree.

Architectural Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>	<u>Semester</u>	<u>Missouri S&T</u>	
HIST 102 or HIST 180 or HIST 181	World Civilization II or US History to 1865 or US History 1865 to Present	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)
ENGR 263 ENGR 264 ENGR 275 ENGR 251	Analytical Mechanics-Statics Analytical Mechanic- Dynamics Mechanics of Solids Surveying	3 3 3 3	Modern Western Civilization* (or American History to 1877 or American History since 1877) *HISTORY 1200 is preferred; 1300 or 1310 will also be accepted. CIV ENG 2200 MECH ENG 2350 CIV ENG 2210 CIV ENG 2401 ENGLISH 1160 or SPMS 1185 or HSS Elective
ENGR 102 or SPCH 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	Engineering Mechanics-Statics Engineering Mechanics-Dynamics Mechanics of Materials Fundamentals of Surveying Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language Intro to Physical Geology or Introductory Astronomy (or other chemistry, geology, biology, physics, or astronomy course that is not otherwise required for the degree) Applies to the degree as a basic science elective
ES 102 or ATY 101	Physical Geology or Astronomy	4	Maximum Free Electives
	No free electives applied to the degree.		Group 2 Major Requirements
	Group 2 Major Requirements	22	Group 2 Major Requirements
	Group 1 Core Requirements	48	Group 1 Core Requirements
	Total Hours	70	Total Hours*
			21 34 55

*S&T advisor permission is required to transfer more than 66 credits toward the S&T Architectural Engineering degree.

Ceramic Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
CHEM 201	Organic Chemistry I	5	CHEM 2210/2219	Organic Chemistry I and Lab (Not a specific requirement. Will satisfy technical elective requirement.)	5
CHEM 106	General Chemistry II	5	CHEM 1320	General Chemistry II	3
ENG 102 or SPCH 151	Rhetoric and Composition II or Fundamentals of Public Speaking	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 Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	0
	<i>No free electives applied to the degree.</i>			Group 2 Major Requirements	23
	Group 2 Major Requirements	22		Group 1 Core Requirements	34
	Group 1 Core Requirements	48		Total Hours*	57
	Total Hours	70		<small>*S&T advisor permission is required to transfer more than 65 credits toward the S&T Ceramic Engineering degree.</small>	

Chemical Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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 106	General Chemistry II	5	CHEM 1320	General Chemistry II	5
CHEM 201	Organic Chemistry I	5	CHEM 2210	Organic Chemistry I	3
CHEM 202	Organic Chemistry II	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
MATH 210 or MATH 170	Computer Programming for Engineers or Computer Science I- C++	3	CS 1971, 1981 or CS 1570	Intro to Programming Method and Lab (C++) or Intro to Programming (C++)	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	24		Group 2 Major Requirements	26
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	72		Total Hours*	60
	<small>*S&T advisor permission is required to transfer more than 69 credits toward the S&T Chemical Engineering degree.</small>				

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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 106	General Chemistry II	5	CHEM 1320	General Chemistry II	5
CHEM 201	Organic Chemistry I	5	CHEM 2210	Organic Chemistry I	3
CHEM 202	Organic Chemistry II	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
MATH 210 or MATH 170	Computer Programming for Engineers or Computer Science I- C++	3	CS 1971, 1981 or CS 1570	Intro to Programming Method and Lab (C++) or Intro to Programming (C++)	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	24		Group 2 Major Requirements	26
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	72		Total Hours*	60
	<small>*S&T advisor permission is required to transfer more than 71 credits toward the S&T Chemical/Biochemical Engineering degree.</small>				

Civil Engineering Group 2 Major Requirements

	<u>Southwestern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENG 102 or SPCH 151 or ENG 103	Rhetoric and Composition II or Fundamentals of Public Speaking or Technical Communication	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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
ES 102	Physical Geology	4	GEO 1110/GE 1150	Intro to Physical Geology	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
ENGR 251	Surveying	3	CIV ENG 2401	Fundamentals of Surveying	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	22		Group 2 Major Requirements	24
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	70		Total Hours*	58

*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>Southwestern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
SPCH 151	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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 170	Computer Science I - C++	4	CS 1200	Discrete Math for Computer Science	3
MATH 270	Computer Science II - C++	4	CS 1570	Intro to Programming	4
			CS 1575	Data Structures	3
ENGR 263 and ENGR 264	Analytical Mechanics-Statics and Analytical Mechanica-Dynamic	3	CIV ENG 2200 and MECH ENG 2350	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	6
ENGR 271	Electrical Circuits	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 292	Linear Algebra	3	MATH 3108	Linear Algebra (Will satisfy a required math elective.)	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	3
	Group 2 Major Requirements	26		Group 2 Major Requirements	37
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	74		Total Hours*	71

*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>Southwestern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
SPCH 151	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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 170	Computer Science I - C++	4	CS 1570	Intro to Programming	4
ENGR 263 and ENGR 264	Analytical Mechanics-Statics and Analytical Mechanica-Dynamic	3	CIV ENG 2200 and MECH ENG 2350	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	6
ENGR 271	Electrical Circuits	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 292	Linear Algebra	3	MATH 3108	Linear Algebra	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	3
	Group 2 Major Requirements	22		Group 2 Major Requirements	31
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSYC 151	General Psychology	3	PSYCH 1101	General Psychology	3
HIS1 180 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or	
HIST 181 or	US History 1865 to Present or	3	HISTORY 1310 or	American History since 1877 or	
HIST 102 or	World Civilization II or		HISTORY 1200 or	Modern Western Civilization or	3
POLS 150	Intro to American Government		POL SCI 1200	American Government	
ENG 102 or	Rhetoric and Composition II or		ENGLISH 1160 or	Writing and Research or	
SPCH 151 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Principles of Speech or	3
ENG 103	Technical Communication		ENGLISH 3560	Technical Writing	
ENGR 271	Electrical Circuits	3	EE 2800	Circuit Analysis I	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
<i>See your advisor for course options.</i>					3
<i>See your advisor for course options.</i>					3
Group 2 Major Requirements		21	Group 2 Major Requirements		27
Group 1 Core Requirements		48	Group 1 Core Requirements		34
Total Hours		69	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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or	Rhetoric and Composition II or		ENGLISH 1160 or	Writing and Research or	
SPCH 151 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Public Speaking or	3
ENG 103	Technical Communication		ENGLISH 3560	Technical Writing	
HIST 180 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 (preferred) or	
HIST 181 or	US History 1865 to Present or	3	HISTORY 1310 or	American History since 1877 (preferred) or	3
HIST 102	World Civilization II		HISTORY 1200	Modern Western Civilization	
ES 102	Physical Geology	4	GEO 1110/GE 1150	Intro to Physical Geology	3
CHEM 106	General Chemistry II	5	CHEM 1320	General Chemistry II	3
BIOL 101	Principles of Biology I	4	BIO SCI 1113	General Biology	4
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
<i>See your advisor for course options.</i>					3
<i>No free electives applied to the degree.</i>					0
Group 2 Major Requirements		28	Group 2 Major Requirements		28
Group 1 Core Requirements		48	Group 1 Core Requirements		34
Total Hours		76	Total Hours*		62

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

Geological Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or	Rhetoric and Composition II or		ENGLISH 1160 or	Writing and Research or	
SPCH 151 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Public Speaking or	3
ENG 103	Technical Communication		ENGLISH 3560	Technical Writing	
HIS1 180 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or	
HIST 181 or	US History 1865 to Present or	3	HISTORY 1310 or	American History since 1877 or	3
HIST 102 or	World Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
POLS 150	Intro to American Government		POL SCI 1200	American Government	
ES 102	Physical Geology	4	GEO 1110/GE 1150	Physical and Environmental Geology	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
BIOL 101 or	Principles of Biology I or		BIO SCI 1113 or	General Biology or	
CHEM 106 or	General Chemistry II or	4	CHEM 1320 or	General Chemistry II or	
CHEM 201	Organic Chemistry		CHEM 2210	Organic Chemistry I	
<i>See your advisor for course options.</i>					3
<i>See your advisor for course options.</i>					3
<i>No free electives applied to the degree.</i>					0
Group 2 Major Requirements		23	Group 2 Major Requirements		24
Group 1 Core Requirements		48	Group 1 Core Requirements		34
Total Hours		71	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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIS1 180 or HIST 181 or HIST 102 or POLS 150 ENG 102 or SPCH 151 or ENG 103	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to American Government Rhetoric and Composition II or Fundamentals of Public Speaking or Technical Communication	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government Writing and Research or Principles of Speech or Technical Writing
MATH 210 or MATH 170	Computer Programming for Engineers or Computer Science I- C++	3	CS 1971, 1981 or CS 1570	Intro to Programming Method and Lab (C++) or Intro to Programming (C++)
ENGR 271	Electrical Circuits	3	EE 2800	Circuit Analysis I
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials
MATH 292	Linear Algebra	3	MATH 3108	Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)
				Literature Elective
				Humanities/Social Science Elective
				Maximum Free Electives
				Group 2 Major Requirements
				Group 1 Core Requirements
		Total Hours		Total Hours*
		12		18
		48		34
		60		52

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
ENG 102 or SPCH 151 or ENG 103	Rhetoric and Composition II or Fundamentals of Public Speaking or Technical Communication	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing
HIS1 180 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials
CHEM 106	General Chemistry II	5	CHEM 1320 CHEM 2210 or EE 2800	General Chemistry II Organic Chemistry I or Electrical Circuits
CHEM 201 or ENGR 271	Organic Chemistry I or Electrical Circuits	5		Electrical Circuits <i>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement</i>
				Humanities/Social Science Elective
				Humanities/Social Science Elective
				Maximum Free Electives
				Group 2 Major Requirements
				Group 1 Core Requirements
		Total Hours		Total Hours*
		22		29
		48		34
		70		63

*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>Southwestern Illinois College</u>	<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 181 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210*	Mechanics of Materials	3
*The combination of CIV ENG 2200 and MECH ENG 2350 will be substituted for MECH ENG 2340. The Combination of CIV ENG 22000 and 2210 and MECH ENG 2350 will be substituted for MI ENG 3812					
ES 102	Physical Geology	4	GEO 1110/GE 1150	Intro to Physical Geology	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	24
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	67		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>Southwestern Illinois College</u>	<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 181 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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 210 or MATH 170	Computer Programming for Engineers or Computer Science I- C++	3	CS 1971, 1981 or CS 1570	Intro to Programming Method and Lab (C++) or Intro to Programming (C++)	3 4
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Maximum Free Electives	6
	Group 2 Major Requirements	15		Group 2 Major Requirements	24
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	63		Total Hours*	58

*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>Southwestern Illinois College</u>	<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 103	Rhetoric and Composition II or Technical Communication	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 181 or HIST 181 or HIST 102 or POLS 150	US History to 1865 or US History 1865 to Present or World Civilization II or Intro to 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
ES 102	Physical Geology	4	GEO 1110/GE 1150	Physical and Environmental Geology	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	13		Group 2 Major Requirements	18
	Group 1 Core Requirements	48		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	52

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