

Southwestern Illinois 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>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 <small>Both SWIC MATH 203 and 204 are required to receive credit for both MATH 1214 and 1215</small>	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
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>All SWIC 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 I and Engineering Physics II <small>Grade of C or better is required.</small>	8
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	40		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 POL S 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
ENG 102 or COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing
MATH 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1971, 1981	Intro to Programming Method and Lab (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 <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	27		Group 2 Major Requirements
	Group 1 Core Requirements	40		Group 1 Core Requirements
	Total Hours	67		Total Hours*
				61

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIST 180 (or HIST 181 or HIST 102)	US History to 1865 (or US History, 1865 to Present or World Civilization II)	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 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
ENGR 264	Analytical Mechanic- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials
ENGR 251	Surveying	3	CIV ENG 2401	Fundamentals of Surveying
ENG 102 or COMM 151 or HSS Elective	Rhetoric and Composition II or Fundamentals of 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
ES 102	Physical Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology
	<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	40		Group 1 Core Requirements
	Total Hours	62		Total Hours*
				55

*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>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	Organic Chemistry I	4
CHEM 106	General Chemistry II	5	CHEM 1320	General Chemistry II	3
ENG 102 or COMM 151 or HSS Elective	Rhetoric and Composition II or Fundamentals of 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	25		Group 2 Major Requirements	22
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	56

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 104	Rhetoric and Composition II or Technical Writing	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	3
CHEM 201	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I (4) and Lab (1)	5
CHEM 202 or BIOL 250	Organic Chemistry II (5) or Microbiology (4) <small>(Select up to 9 hours from these options.)</small>	9	CHEM 2220, 2229 or BIO SCI 3313, 3319	Organic Chemistry II (4) and Lab (1) or Microbiology and Lab (5) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9
MATH 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
COMM 151	Fundamentals of 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	40		Group 1 Core Requirements	34
	Total Hours	74		Total Hours*	66

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 104	Rhetoric and Composition II or Technical Writing	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	3
CHEM 201	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I (4) and Lab (1)	5
CHEM 202 or BIOL 250	Organic Chemistry II (5) or Microbiology (4) (Select up to 9 hours from these options.)	9	CHEM 2220, 2229 or BIO SCI 3313, 3319	Organic Chemistry II (4) and Lab (1) or Microbiology and Lab (5) (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9
MATH 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
COMM 151	Fundamentals of 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	31		Group 2 Major Requirements	32
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	71		Total Hours*	66

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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 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	GEOLOGY 1110 (GEO ENG 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
ENGR 251	Surveying	3	CIV ENG 2401	Fundamentals of Surveying	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	34
	Total Hours	65		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>		
COMM 151	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 104	Rhetoric and Composition II or Technical Writing	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 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
ENGR 263 and ENGR 264 (BOTH of the courses above or ONE of the courses below.) OR CHEM 201 or BIOL 270	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 Organic Chemistry I (5) or General Genetics (4)	4-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR CHEM 2210 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 Organic Chemistry I (4) or General Genetics (3)	3-6
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
	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	28		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	68		Total Hours*	61

*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>		
COMM 151	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 104	Rhetoric and Composition II or Technical Writing	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
ENGR 263 and ENGR 264 (BOTH of the courses above or ONE of the courses below.) OR CHEM 201 or BIOL 270	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 Organic Chemistry I (5) or General Genetics (4)	4-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR CHEM 2210 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 Organic Chemistry I (4) or General Genetics (3)	3-6
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
	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	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	58

*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
HIST 180 or HIST 181 or HIST 102 or POL S 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
ENG 102 or COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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
MATH 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
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		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	27		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	64

*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 COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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 180 or HIST 181 or HIST 102	US History to 1865 or US History, 1865 to Present or World Civilization II	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
ES 102	Physical Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental 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		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	34
	Total Hours	71		Total Hours*	62

*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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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 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 ENG 1150 (GEOLOGY 1110)	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 CHEM 106 or CHEM 201	Principles of Biology I or General Chemistry II or Organic Chemistry	4	BIO SCI 1113 or CHEM 1320 or CHEM 2210	General Biology or General Chemistry II or Organic Chemistry I <small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</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	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		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 Geological Engineering degree.

Mechanical 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
ENG 102 or COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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
MATH 210 or MATH 170 or MATH 270 or CIS 250	Computer Programming for Engineers (3) or Computer Science I - C++ (4) or Computer Science II - C++ (4) C++ Programming (3)	3-4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
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 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
MATH 292	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
	<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	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	61

*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 COMM 151 or ENG 104	Rhetoric and Composition II or Fundamentals of 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 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 106	General Chemistry II	5	CHEM 1320	General Chemistry II	3
CHEM 201 or ENGR 271	Organic Chemistry I or Electrical Circuits	5	CHEM 2210 or EE 2800	Organic Chemistry I or Electrical Circuits	3
				<i>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement</i>	
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	5		Maximum Free Electives	5
	Group 2 Major Requirements	33		Group 2 Major Requirements	29
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	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 104 or ENG 103	Rhetoric and Composition II or Technical Writing or Intro to Technical Communication	3	ENGLISH 1160 or ENGLISH 3560 or ENGLISH 1600	Writing and Research or Technical Writing or Intro to Technical Communications	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
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
ES 102	Physical Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or ENG 104	Rhetoric and Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 180 or HIST 181 or HIST 102 or POL S 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 292	Linear Algebra	3	MATH 3108	Linear Algebra I	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
	<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	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	61

*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 104 or ENG 103	Rhetoric and Composition II or Technical Writing or Intro to Technical Communication	3	ENGLISH 1160 or ENGLISH 3560 or ENGLISH 1600	Writing and Research or Technical Writing or Intro to Technical Communications	3
HIST 180 or HIST 181 or HIST 102 or POL S 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	GEOLOGY 1110 (GEO ENG 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>	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	34
	Total Hours	65		Total Hours*	58

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