

Southwestern Illinois College — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2024

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

Group 1 - Core Requirements: All Majors Take All Courses

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

	<u>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	8
MATH 205	Analytical Geometry and Calculus III	4	MATH 2222	4
MATH 290	Differential Equations	3	MATH 3304	3
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	8
CHEM 105	General Chemistry I	5	CHEM 1310, 1319	5
ENG 101	Rhetoric and Composition I	3	ENGLISH 1120	3
ECON 202 or ECON 201	Principles of Economics II (Micro) or Principles of Economics I (Macro)	3	ECON 1100 or ECON 1200	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
Biomedical Engineering/Biomanufacturing or Biomaterials
Ceramic Engineering
Chemical Engineering and Biochemistry Emphasis
Civil Engineering
Computer Engineering
Electrical Engineering

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

Engineering Major Requirements are detailed on the following pages.

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

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

Aerospace Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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
ENG 102 or COMM 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech
MATH 210 or CIS 250	Computer Programming for Engineers or C++ Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)
ENGR 271	Electrical Circuits	3	EE 2800	Electrical Circuits
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
	Literature Elective	3		Will satisfy the Advanced Math/Comp Sci elective requirement.
PHIL 152	Ethics or other engineering, business, bio, social ethics approved by advisor	3	PHILOS 1130	Literature Elective How Should I Live? An Introduction to Ethics or other engineering, business, bio, social ethics approved by advisor
	<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 102 (or HIST 180 or HIST 181)	World Civilization II (preferred) (or US History to 1865 or US History, 1865 to Present)	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 Mechanics- 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
ES 102	Physical Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology
Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENG 102, ENG 103, or COMM 151.	3	Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENGLISH 1160, 1600, 3560 or SPMS 1185.
	<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*
				54

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

Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 151	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 201	Organic Chemistry I	5	CHEM 2210, 2219 CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry I and Lab Organic Chemistry II and Lab or General Biology and Lab or General Genetics <small>Applies to degree as Track Elective.</small>	4
CHEM 202 or BIOL 101 or BIOL 270	Organic Chemistry II (5) or Principles of Biology I (5) or Genetics (4)	4	BIO SCI 3333, 3339	Anatomy and Physiology I and Lab	4
BIOL 157 MATH 171 or MATH 210* or CIS 250*	Human Anatomy and Physiology Computer Science I - JAVA (4) or Computer Programming for Engineers* (3) or C++ Programming I* (3)	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for CS 1500.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	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 credit hours toward the degree.

Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 151	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 201	Organic Chemistry I	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
CHEM 202	Organic Chemistry II	5	CHEM 2220, 2229*	Organic Chemistry II and Lab* <small>CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
BIOL 101	Principles of Biology I	5	BIO SCI 1113*, 1219*	General General Biology* and Lab* <small>*Applies to degree as Track Elective (Non-engineering).</small>	4
BIOL 157 MATH 171 or MATH 210* or CIS 250*	Human Anatomy and Physiology Computer Science I - JAVA (4) or Computer Programming for Engineers* (3) or C++ Programming I* (3)	3	BIO SCI 3333, 3339	Human Anatomy and Physiology I and Lab	4
ENGR 263	Analytical Mechanics-Statics	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for CS 1500.</small>	3
ENGR 271	Electrical Circuits	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHIL 156	Biomedical Ethics	3	EE 2100*	Circuits I <small>*A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100. Applies to the degree as a Track Elective (Engineering).</small>	3
	<i>No free electives applied to the degree.</i>	0	PHIL 3223	Bioethics	3
	Group 2 Major Requirements	43		Maximum Free Electives	0
	Group 1 Core Requirements	40		Group 2 Major Requirements	37
	Total Hours	83		Group 1 Core Requirements	34
				Total Hours*	71

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

Ceramic Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 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 (3) and Lab* (1) <small>CHEM 2210 will satisfy the advanced chemistry elective requirement. CHEM 2219 is not an S&T degree requirement, will transfer as general elective credit.</small>	3
CHEM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
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 Principles of Speech or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	68		Total Hours*	58

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

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

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COMM 151	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 201	Organic Chemistry I	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</small>	4
CHEM 202 or BIOL 250	Organic Chemistry II (5) or Microbiology (4) <small>Select up to 8 hours from these options. Up to 8 hours will apply to the science elective requirement. Additional hours will transfer as general elective credit.</small>	9	CHEM 2220 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Microbiology and Lab (5) <small>Will partially satisfy the 9-hour science elective requirement. Select up to 8 hours from these options.</small>	8
MATH 171 or MATH 210* or CIS 250*	Computer Science I - JAVA (4) or Computer Programming for Engineers* (3) or C++ Programming I* (3)	3	CS 1500 or CS 1971, 1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for CS 1500.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	71		Total Hours*	61

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

Civil Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or COMM 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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
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	2
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
ENGR 251	Surveying	3	CIV ENG 2401	Fundamentals of Surveying	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	57

*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	Principles of Speech	3
ENG 102	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 171 or MATH 210* or CIS 250*	Computer Science I - JAVA (4) or Computer Programming for Engineers* (3) or C++ Programming I* (3)	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for CS 1500.</small>	3
ENGR 263 or ENGR 264 or CHEM 201 or BIOL 270	Analytical Mechanics-Statics (3) or Analytical Mechanics-Dynamics (3) or Organic Chemistry I (5) or General Genetics (4)	3	CIV ENG 2200 or MECH ENG 2350 or CHEM 2210 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Organic Chemistry I (3) or General Genetics (3) <small>Satisfies a required engineering/science elective.</small>	3
ENGR 271	Electrical Circuits	3	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MATH 292	Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy a required math elective.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	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 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	Principles of Speech	3
ENG 102	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 171 or MATH 210* or CIS 250*	Computer Science I - JAVA (4) or Computer Programming for Engineers* (3) or C++ Programming I* (3)	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for CS 1500.</small>	3
ENGR 263 and ENGR 264 <small>BOTH of the courses above or ONE of the courses below.</small> OR CHEM 201 or BIOL 270	Analytical Mechanics-Statics (3) and Analytical Mechanics-Dynamics (3) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Organic Chemistry I (5) or General Genetics (4)	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small> OR CHEM 2210 or BIO SCI 2223	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 Organic Chemistry I (4) or General Genetics (3)	3
ENGR 271	Electrical Circuits	3	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MATH 292	Linear Algebra	3	MATH 3108	Linear Algebra	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	61

*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 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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
COMM 151	Fundamentals of Public Speaking	3	SPMS 1185	Principles of Speech	3
ENG 102	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
MATH 210 or CIS 250	Computer Programming for Engineers or C++ Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 271	Electrical Circuits	3	EE 2800	Electrical Circuits	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanics- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	3	Electives	Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	29
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	61

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

Environmental Engineering Group 2 Major Requirements

<u>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102 or COMM 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
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	Modern Western Civilization or American History to 1877 or American History since 1877	3
ES 102	Physical Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
BIOL 101	Principles of Biology I	4	BIO SCI 1113	General Biology	3
ENGR 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanics- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	26
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	71		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>Southwestern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 171 or MATH 210 or CIS 250	Computer Science I - JAVA (4) or Computer Programming for Engineers (3) or C++ Programming I (3)	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab (C++)	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 Mechanics- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	57

*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 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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
ENG 102 or COMM 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
MATH 210 or CIS 250	Computer Programming for Engineers or C++ Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 271	Electrical Circuits	3	EE 2800	Electrical Circuits	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/Statistics elective requirement.</small>	3
	Literature Elective	3		Literature Elective	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	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	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 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, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
CHEM 201 or ENGR 271	Organic Chemistry I (5) or Electrical Circuits (3)	5	CHEM 2210 or EE 2800	Organic Chemistry I (3) or Electrical Circuits (3) <small>Not specifically required for the degree but will satisfy out-of-department technical elective requirement</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	5	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	33		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	61

*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 Intro to Technical Communication	3	ENGLISH 1160 or ENGLISH 1600	Writing and Research or Intro to Technical Communications	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 263	Analytical Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 264	Analytical Mechanics- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	57

*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 COMM 151	Rhetoric and Composition II or Fundamentals of Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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 210 or CIS 250	Computer Programming for Engineers or C++ Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	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
ENGR 271	Electrical Circuits	3	EE 2800	Electrical Circuits	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6
	Group 2 Major Requirements	33		Group 2 Major Requirements	33
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	67

*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 Intro to Technical Communication	3	ENGLISH 1160 or ENGLISH 1600	Writing and Research or Intro to Technical Communications	3
HIST 102 or HIST 180 or HIST 181 or POLS 150	World Civilization II or US History to 1865 or US History, 1865 to Present or Intro to American 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
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 Mechanics- Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 275	Mechanics of Solids	3	CIV ENG 2210	Mechanics of Materials	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	34
	Total Hours	65		Total Hours*	57

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