

Southeastern 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>Southeastern Illinois College</u>			<u>Semester</u>	<u>Missouri S&T</u>			
MATH 162	Calculus and Analytical Geometry I	5	MATH 1214	Calculus for Engineers I	Grade of C or better is required.	4	
MATH 221	Calculus and Analytical Geometry II	5	MATH 1215	Calculus for Engineers II	Grade of C or better is required.	4	
MATH 222	Calculus and Analytical Geometry III	5	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required.	4	
MATH 225	Differential Equations	3	MATH 3304	Elementary Differential Equations		3	
PHYS 221	General Physics I	5	PHYSICS 1135	Engineering Physics I	Grade of C or better is required.	4	
PHYS 222	General Physics II	5	PHYSICS 2135	Engineering Physics II	Grade of C or better is required.	4	
CHEM 121	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab		5	
ENG 121	Rhetoric and Composition I	3	ENGLISH 1120	Exposition and Argumentation		3	
ECON 122 or ECON 121	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics		3	
Total Hours			39	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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or	3	HISTORY 1310 or	American History since 1877 or	3
HIST 122 or	History of Western Civilization or		HISTORY 1200 or	Modern Western Civilization or	
GOVT 121	American Government		POL SCI 1200	American Government	
ENG 122 or	Rhetoric and Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
SPCH 121	Principles of Speaking		SPMS 1185	Principles of Speech	
CIS 254	C++ Object Oriented Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
	<i>See your advisor for course options.</i>			Literature Elective	3
	<i>See your advisor for course options.</i>			Ethics Elective	3
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	12		Group 2 Major Requirements	18
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	51		Total Hours*	52

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HIST 122 or	History of Western Civilization or		HISTORY 1200*	Modern Western Civilization*	
HIST 241 or	American History I or	3	(or HISTORY 1300 or	(or American History to 1877 or	3
HIST 242	American History II		HISTORY 1310)	American History since 1877)	
				*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.	
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
			ENGLISH 1160 or	Writing and Research or	
			SPMS 1185 or	Public Speaking or	
ENG 122 or	Rhetoric and Composition II or	3	HSS Elective	Humanities/Social Science Elective: history, economics,	3
SPCH 121	Principles of Speaking			political science, sociology, psychology, philosophy, fine	
				art, literature, foreign language	
	<i>No free electives applied to the degree.</i>			Maximum Free Electives	0
	Group 2 Major Requirements	12		Group 2 Major Requirements	12
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	51		Total Hours*	46

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

Ceramic Engineering Group 2 Major Requirements

	<u>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 122	General Chemistry and Qualitative Analysis	5	CHEM 1320	General Chemistry II	3
ENG 122 or SPCH 121	Rhetoric and Composition II or Principles of 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	15
	Group 2 Major Requirements	14		Group 1 Core Requirements	19
	Group 1 Core Requirements	39			34
	Total Hours	53		Total Hours*	49

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

Chemical Engineering Group 2 Major Requirements

	<u>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CHEM 122	General Chemistry and Qualitative Analysis	5	CHEM 1320	General Chemistry II	5
CIS 254	C++ Object Oriented Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (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	14		Group 2 Major Requirements	20
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	54

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CHEM 122	General Chemistry and Qualitative Analysis	5	CHEM 1320	General Chemistry II	5
CIS 254	C++ Object Oriented Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (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	14		Group 2 Major Requirements	20
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	54

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENG 122 or SPCH 121	Rhetoric and Composition II or Principles of Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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
		12			15
		39			34
Total Hours		51			49

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
SPCH 121	Principles of Speaking	3	SPMS 1185	Public Speaking	3
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 241 and PHYS 242	Statics and Dynamics	6	CIV ENG 2200 and MECH ENG 2350	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics <small>(Both courses combined will satisfy a required engineering science elective.)</small>	6
<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
		15			21
		39			34
Total Hours		54			55

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
SPCH 121	Principles of Speaking	3	SPMS 1185	Public Speaking	3
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 241 and PHYS 242	Statics and Dynamics	6	CIV ENG 2200 and MECH ENG 2350	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics <small>(Both courses combined will satisfy a required engineering science elective.)</small>	6
<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
		15			21
		39			34
Total Hours		54			55

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSYC 121	Intro to Psychology	3	PSYC 1101	General Psychology	3
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or	3	HISTORY 1310 or	American History since 1877 or	3
HIST 122 or	History of Western Civilization or		HISTORY 1200 or	Modern Western Civilization or	
GOVT 121	American Government		POL SCI 1200	American Government	
ENG 122 or	Rhetoric and Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
SPCH 121	Principles of Speaking		SPMS 1185	Principles of Speech	
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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		15	Group 2 Major Requirements		21
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		54	Total Hours*		55

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 122 or	Rhetoric and Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
SPCH 121	Principles of Speaking		SPMS 1185	Principles of Speech	
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 (preferred) or	
HIST 242 or	American History II or	3	HISTORY 1310 or	American History since 1877 (preferred) or	3
HIST 122	History of Western Civilization		HISTORY 1200	Modern Western Civilization	
CHEM 122	General Chemistry and Qualitative Analysis	5	CHEM 1320	General Chemistry II	3
BIOL 121	Intro to Biology	4	BIO SCI 1113	General Biology	4
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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		21	Group 2 Major Requirements		22
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		60	Total Hours*		56

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 122 or	Rhetoric and Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
SPCH 121	Principles of Speaking		SPMS 1185	Principles of Speech	
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or	3	HISTORY 1310 or	American History since 1877 or	3
HIST 122 or	History of Western Civilization or		HISTORY 1200 or	Modern Western Civilization or	
GOVT 121	American Government		POL SCI 1200	American Government	
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
BIOL 121 or	Intro to Biology or		BIO SCI 1113 or	General Biology or	
CHEM 122	General Chemistry II and Qualitative Analysis	4	CHEM 1320	General Chemistry II	
<i>See your advisor for course options.</i>			<i>or any 3-hour course in chemistry, geochemistry, or biology</i>		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		16	Group 2 Major Requirements		18
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		55	Total Hours*		52

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HIST 241 or HIST 242 or HIST 122 or GOVT 121 ENG 122 or SPCH 121	American History I or American History II or History of Western Civilization or American Government Rhetoric and Composition II or Principles of Speaking	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
		3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
CIS 254	C++ Object Oriented Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
				Literature 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	3		Group 2 Major Requirements	9
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	42		Total Hours*	43

*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>Southeastern Illinois College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
ENG 122 or SPCH 121	Rhetoric and Composition II or Principles of Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HIST 241 or HIST 242 or HIST 122 or GOVT 121	American History I or American History II or History of Western Civilization or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 122	General Chemistry and Qualitative Analysis	5	CHEM 1320	General Chemistry II	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	5
	Group 2 Major Requirements	14		Group 2 Major Requirements	23
	Group 1 Core Requirements	39		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	57

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or		HISTORY 1310 or	American History since 1877 or	
HIST 122 or	History of Western Civilization or	3	HISTORY 1200 or	Modern Western Civilization or	3
GOV'T 121	American Government		POL SCI 1200	American Government	
PHYS 241	Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3
			<small>*The combination of CIV ENG 2200 and MECH ENG 2350 will be substituted for MECH ENG 2340.</small>		
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					0
Group 2 Major Requirements		12	Group 2 Major Requirements		18
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		51	Total Hours*		52

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or		HISTORY 1310 or	American History since 1877 or	
HIST 122 or	History of Western Civilization or	3	HISTORY 1200 or	Modern Western Civilization or	3
GOV'T 121	American Government		POL SCI 1200	American Government	
CIS 254	C++ Object Oriented Programming		CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
		3			4
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					6
Group 2 Major Requirements		12	Group 2 Major Requirements		21
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		51	Total Hours*		55

*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>Southeastern Illinois College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 122	Rhetoric and Composition II	3	ENGLISH 1160	Writing and Research	3
HIST 241 or	American History I or		HISTORY 1300 or	American History to 1877 or	
HIST 242 or	American History II or		HISTORY 1310 or	American History since 1877 or	
HIST 122 or	History of Western Civilization or	3	HISTORY 1200 or	Modern Western Civilization or	3
GOV'T 121	American Government		POL SCI 1200	American Government	
PHYS 241	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 242	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					0
Group 2 Major Requirements		6	Group 2 Major Requirements		12
Group 1 Core Requirements		39	Group 1 Core Requirements		34
Total Hours		45	Total Hours*		46

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