

Missouri Southern State University — 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>Missouri Southern State University</u>			<u>Semester</u>	<u>Missouri S&T</u>			
MATH 0150	Calculus with Analytic Geometry I	5		MATH 1214	Calculus for Engineers I	4	
MATH 0250	Calculus with Analytic Geometry II	5		MATH 1215	Calculus for Engineers II	4	
MATH 0260	Calculus with Analytic Geometry III	5		MATH 2222	Calculus with Analytic Geometry III	4	
MATH 0322	Differential Equations	3		MATH 3304	Elementary Differential Equations	3	
PHYS 0250 and PHYS 0260	General Physics I and General Physics II*	5		PHYSICS 1135	Engineering Physics I	4	
	<small>*Both PHYS 0250 and 0260 must be taken to receive credit for S&T PHYSICS 1135.</small>						
PHYS 0290 and PHYS 0291	General Physics III and Lab	5		PHYSICS 2135	Engineering Physics II	4	
CHEM 0140,141	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5	
ENG 0101	College Composition I	3		ENGLISH 1120	Exposition and Argumentation	3	
ECON 0202 or ECON 0201	Principles of Economics (Micro) or Principles of Economics (Macro)	3		ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3	
Total Hours			38	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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 0110 or HIST 0120 or HIST 0140 or	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or	American History to 1877 or American History since 1877 or Modern Western Civilization or	3
PSC 0120	Government: US, State, Local		POL SCI 1200	American Government	
ENG 0102 or COMM 0100 or	English Composition or Oral Communications or	3	ENGLISH 1160 or SPMS 1185 or	Writing and Research or Principles of Speech or	3
ENG 0313	Technical Writing		ENGLISH 3560	Technical Writing	
CIS 0110	Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 0372	Electronics for Experimental Physicists	4	EE 2800	Circuit Analysis I	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2360	Dynamics	3
MATH 0351	Linear Algebra	3	MATH 3108	Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)	3
ENG 0271 or ENG 0281 or ENG 0261	British Literature I or American Literature I or World Literature I (or other literature elective)	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I (or other literature elective)	3
	<i>See your advisor for course options.</i>	3		Ethics Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	27
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	66		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 0110* (or HIST 0120 or HIST 0140)	US History 1492-1877* (or US History 1877-present or Western Civilization since 1660 <small>*HISTORY 0110 is preferred; 0120 or 0140 will also be accepted.</small>	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
ENG 0102 or COMM 0100 or HSS Elective	English Composition or Oral Communications 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
GEOL 0120	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 0341	<i>Thermal Physics</i>	4	MECH ENG 2527	Thermal Analysis	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	20		Group 2 Major Requirements	18
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	58		Total Hours*	52

*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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
CHEM 0301	Organic Chemistry I	5	CHEM 2210,2219	Organic Chemistry I (4) and Lab (1) <small>(CHEM 2210 will satisfy the advanced chemistry elective requirement; CHEM 2219 will transfer as elective credit.)</small>
CHEM 0142	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qual. Analysis* (2) <small>*CHEM 1510 is not an S&T requirement; will transfer as elective credit.</small>
PHYS 0301	Modern Physics	4	PHYS 2305	Intro to Modern Physics
ENG 0102 or COMM 0100 or HSS Elective	English Composition or Oral Communications 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
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	26		Group 2 Major Requirements
	Group 1 Core Requirements	38		Group 1 Core Requirements
	Total Hours	64		Total Hours*
				55

*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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>	
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
CHEM 0142	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qual. Analysis* (2) <small>*CHEM 1510 is not an S&T requirement; will transfer as elective credit.</small>
CHEM 0301	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I (4) and Lab (1) <small>CHEM 2210 is required; CHEM 2219 will apply to 9-hour science elective requirement.</small>
CHEM 0302	Organic Chemistry II	5	CHEM 2220, 2229	Organic Chemistry II (4) and Lab (1) <small>CHEM 2220 will apply to 9-hour science elective requirement; CHEM 2229 will transfer as elective credit.</small>
BIO 0231	General and Medical Microbiology	5	BIO SCI 3313, 3319	Microbiology and Lab (5) <small>Will apply to 9-hour science elective requirement.</small>
CIS 0110 or CIS 0210 or CIS 0350	Programming I or Programming II or Data Structures	3	CS 1971,1981 or CS 1500 or CS 1500	Intro to Programming Method and Lab (C++) or Computational Problem Solving or Computational Problem Solving
COM 0100	Oral Communications	3	SP&MS 1185	Principles of Speech
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives
	Group 2 Major Requirements	35		Group 2 Major Requirements
	Group 1 Core Requirements	38		Group 1 Core Requirements
	Total Hours	73		Total Hours*
				67

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0142	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qual. Analysis* (2) <small>*CHEM 1510 is not an S&T requirement; will transfer as elective credit.</small>	3
CHEM 0301	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I (4) and Lab (1) <small>CHEM 2210 is required; CHEM 2219 will apply to 9-hour science elective requirement.</small>	5
CHEM 0302	Organic Chemistry II	5	CHEM 2220, 2229	Organic Chemistry II (4) and Lab (1) <small>CHEM 2220 will apply to 9-hour science elective requirement; CHEM 2229 will transfer as elective credit.</small>	5
BIO 0231	General and Medical Microbiology	5	BIO SCI 3313, 3319	Microbiology and Lab (5) <small>Will apply to 9-hour science elective requirement.</small>	5
CIS 0110 or CIS 0210 or CIS 0350	Programming I or Programming II or Data Structures	3	CS 1971,1981 or CS 1500 or CS 1500	Intro to Programming Method and Lab (C++) or Computational Problem Solving or Computational Problem Solving	3
COM 0100	Oral Communications	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	35		Group 2 Major Requirements	33
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	67

*S&T advisor permission is required to transfer more than 71 credits toward the S&T Chemical/Biochemical Engineering degree.

Civil Engineering Group 2 Major Requirements

<u>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
GEOL 0120	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	57		Total Hours*	52

*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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 0100	Oral Communications	3	SPMS 1185	Public Speaking	3
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
CIS 0110 or CIS 0210 or CIS 0350	Programming I or Programming II or Data Structures	3	CS 1971,1981 or CS 1500 or CS 1500	Intro to Programming Method and Lab (C++) or Computational Problem Solving or Computational Problem Solving	3
PHYS 0312 and PHYS 0322 (BOTH of the courses above or ONE of the courses below.) OR PHYS 0341 or PHYS 0301 or CHEM 0301	Engineering Mechanics-Statics (3 hours) and Engineering Mechanics-Dynamics (3 hours) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Physics (4) or Modern Physics (4) or Organic Chemistry I (5)	4-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR MECH 2527 or PHYSICS 2305 or CHEM 2210	Engineering Mechanics-Statics (3 hours) and Engineering Mechanics-Dynamics (3 hours) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Analysis (3) or Intro to Modern Physics (3) or Organic Chemistry I (4)	3
PHYS 0372	Electronics for Experimental Physicists	4	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 0300	Fundamentals of Mathematical Thought	3	MATH 3109	Foundations of Mathematics (Will satisfy a required math elective.)	3
MATH 0351 or MATH 0300	Linear Algebra or Fundamentals of Mathematical Thought	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics (Will satisfy a required math elective.)	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	32		Group 2 Major Requirements	27
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	70		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 0100	Oral Communications	3	SPMS 1185	Public Speaking	3
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0312 and PHYS 0322 (BOTH of the courses above or ONE of the courses below.) OR PHYS 0341 or PHYS 0301 or CHEM 0301	Engineering Mechanics-Statics (3 hours) and Engineering Mechanics-Dynamics (3 hours) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Physics (4) or Modern Physics (4) or Organic Chemistry I (5)	4-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR MECH 2527 or PHYSICS 2305 or CHEM 2210	Engineering Mechanics-Statics (3 hours) and Engineering Mechanics-Dynamics (3 hours) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Analysis (3) or Intro to Modern Physics (3) or Organic Chemistry I (4)	3
PHYS 0372	Electronics for Experimental Physicists	4	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 0351	Linear Algebra	3	MATH 3108	Linear Algebra	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	26		Group 2 Major Requirements	24
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	64		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSYC 0100	General Psychology	3	PSYCH 1101	General Psychology	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CIS 0110	Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 0372	Electronics for Experimental Physicists	4	EE 2800	Circuit Analysis I	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
PHYS 0341	Thermal Physics	4	MECH 2527	Thermal Analysis	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	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	70		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140	US History 1492-1877 or US History 1877-present or Western Civilization since 1660	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
GEOL 0120	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 0142	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qual. Analysis* (2)	3
BIO 0101	General Biology	4	BIO SCI 1113	General Biology	4
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	25
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	66		Total Hours*	59

*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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
GEOL 0120	Intro to Geology	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
BIO 0101 or CHEM 152 or CHEM 0301	General Biology or General Chemistry II or Organic Chemistry I	4	BIO SCI 1113 or CHEM 1320 or CHEM 2210	General Biology or General Chemistry II or Organic Chemistry I	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	26		Group 2 Major Requirements	24
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	64		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
CIS 0110	Programming I	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHYS 0372	Electronics for Experimental Physicists	4	EE 2800	Circuit Analysis I	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2360	Dynamics	3
MATH 0351	Linear Algebra	3	MATH 3108	Linear Algebra I (Will satisfy the Advanced Math/Comp Sci elective requirement.)	3
ENG 0271 or ENG 0281 or ENG 0261	British Literature I or American Literature I or World Literature I (or other literature elective)	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I (or other 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	28		Group 2 Major Requirements	27
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	66		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or COMM 0100 or ENG 0313	English Composition or Oral Communications or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 0142	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qual. Analysis* (2) <small>*CHEM 1510 is not an S&T requirement; will transfer as elective credit.</small>	3
CHEM 0301 or PHYS 0372 or PHYS 0301	Organic Chemistry I (5) or Electronics for Experimental Physicists (4) or Modern Physics (4)	4-5	CHEM 2210 or EE 2800 or PHYSICS 2305	Organic Chemistry I (4) or Electrical Circuits (3) or Intro to Modern Physics (3) <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.</small>	3-4
	<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>	5		Maximum Free Electives	5
	Group 2 Major Requirements	29		Group 2 Major Requirements	26
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	60

*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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0312	Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3
PHYS 0341	Thermal Physics	4	MECH ENG 2527	Thermal Analysis	3
GEOL 0120	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	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	26		Group 2 Major Requirements	24
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	64		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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 0351	Linear Algebra	3	MATH 3108	Linear Algebra I	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0301	Modern Physics	3	PHYSICS 2305	Intro to Modern Physics	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	38		Group 1 Core Requirements	34
	Total Hours	65		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>Missouri Southern State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 0102 or ENG 0313	English Composition or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 0110 or HIST 0120 or HIST 0140 or PSC 0120	US History 1492-1877 or US History 1877-present or Western Civilization since 1660 or Government: US, State, Local	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
GEOL 0120	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 0312	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 0322	Classical Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
PHYS 0341	Thermal Physics	4	MECH ENG 2527	Thermal Analysis	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	26		Group 2 Major Requirements	24
	Group 1 Core Requirements	38		Group 1 Core Requirements	34
	Total Hours	64		Total Hours*	58

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