

St. Charles Community 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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>			
MAT 180	Calculus and Analytic Geometry I	5	MATH 1214	Calculus I Grade of C or better is required.	4	
MAT 230	Calculus and Analytic Geometry II	5	MATH 1215	Calculus II Grade of C or better is required.	4	
MAT 240	Calculus and Analytic Geometry III	5	MATH 2222	Calculus III Grade of C or better is required.	4	
MAT 250	Differential Equations	3	MATH 3304	Elementary Differential Equations	3	
PHY 250	Engineering Physics I	5	PHYSICS 1135	Engineering Physics I Grade of C or better is required.	4	
PHY 251	Engineering Physics II	5	PHYSICS 2135	Engineering Physics II Grade of C or better is required.	4	
CHM 115	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
EGR 100	Intro to Engineering	1	FR ENG 1100	Study and Careers in Engineering and Computing	1	
ENG 101	English Composition I	3	ENGLISH 1120	Exposition and Argumentation	3	
ECO 120 or ECO 110	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3	
Total Hours		40			Total Hours	35

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 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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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 COM 106 or ENG 115	English Composition II or 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
CPT 182	Beginning Programming in C++	3	CS 1570, 1580	Intro to Programming and Lab (C++) (4)	3
EGR 220	Electrical Circuits	3	EE 2800	Electrical Circuits	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	AERO ENG 2360	Dynamics	3
MAT 242	Introductory Linear Algebra	3	MATH 3108	Linear Algebra I <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>	3
LIT 250 or LIT 210 or LIT 272 or LIT 223	English Literature Before 1800 or American Literature From 1620-1865 World Lit-Ancient World thru Renaissance or African American Literature or other literature	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2245 or	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or African American Literature or other literature	3
PHL 160 or BUS 105	Ethics or Business Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	PHILOS 1130 or PHILOS 3235	How Should I Live? An Introduction to Ethics or Business Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	65

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MECH ENG 1720	Engineering Design with Computer Appl	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 146* (or HIS 101 or HIS 102)	Western Civ: Modern European Heritage* (or US History to 1877 or US History Since 1877) <small>*HIS 146 is preferred; 101 or 102 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
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
PHY 125	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
HSS Elective	Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	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.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	18		Group 2 Major Requirements	17
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	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.

Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

<u>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 106	Public Speaking	3	SP&MS 1185	Principles of Speech	3
ENG 115	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CHM 116	General Chemistry II and Lab	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
CHM 240 and CHM 241 and CHM 243	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Lab	8	CHEM 2210, 2219 and CHM 2220,2229*	Organic Chemistry I and Lab and Organic Chemistry II and Lab* <small>CHM 2220 and 2229 apply to the degree as a Track Elective. BIO SCI 1113, 1219 or BIO SCI 2223 are also Track Elective options.</small>	8
CPT 135 or CPT 185 or CPT 189 or CPT 182*	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3) or Beginning Programming in C++*	3	CS 1500 or CS 1570, 1580*	Computational Problem Solving or Intro to Programming and Lab* (C++) (4) <small>*Course 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	25		Group 2 Major Requirements	26
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	65		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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 106	Public Speaking	3	SP&MS 1185	Principles of Speech	3
ENG 115	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CHM 116	General Chemistry II and Lab	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
CHM 240 and CHM 241 and CHM 243	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Lab	8	CHEM 2210, 2219* and CHEM 2220, 2229*	Organic Chemistry I and Lab* and Organic Chemistry II and Lab* <small>*CHEM 2219 and 2229 Labs apply to the degree as Track Electives (non- engineering).</small>	4
BIO 150	General Biology: Cells to Organisms	5	BIO SCI 1113*, 1219*	General General Biology* and Lab* <small>*Applies to degree as Track Elective (Non-engineering).</small>	4
CPT 135 or CPT 185 or CPT 189 or CPT 182*	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3) or Beginning Programming in C++*	3	CS 1500 or CS 1570, 1580*	Computational Problem Solving or Intro to Programming and Lab* (C++) (4) <small>*Course will be substituted for CS 1500.</small>	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 220	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. Applies to the degree as a Track Elective (Engineering).	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	36		Group 2 Major Requirements	29
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	76		Total Hours*	64

*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

Ceramic Engineering Group 2 Major Requirements			
	<u>St. Charles Community College</u>	<u>Semester</u>	<u>Missouri S&T</u>
MECH ENG 1720	Engineering Design with Computer Appl	3	MECH ENG 1720 Intro to Engineering Design 3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200 Engineering Mechanics-Statics 3
CHM 240	Organic Chemistry I	3	CHEM 2210 Organic Chemistry I 3 <small>Will satisfy the advanced chemistry elective requirement.</small>
CHM 116	General Chemistry II and Lab	5	CHEM 1320, 1510* General Chemistry II (3) and Qualitative Analysis (2) 3 <small>*Chem 1510 is not an S&T degree requirement. Will transfer as general credit.</small>
ENG 102 or COM 106 or HSS Elective	English Composition II or 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	26	Group 2 Major Requirements 24
	Group 1 Core Requirements	40	Group 1 Core Requirements 35
	Total Hours	66	Total Hours* 59

*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

Chemical Engineering or Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements			
	<u>St. Charles Community College</u>	<u>Semester</u>	<u>Missouri S&T</u>
MECH ENG 1720	Engineering Design with Computer Appl	3	MECH ENG 1720 Intro to Engineering Design 3
COM 106	Public Speaking	3	SP&MS 1185 Principles of Speech 3
ENG 115	Technical Writing	3	ENGLISH 3560 Technical Writing 3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CHM 116	General Chemistry II and Lab	5	CHEM 1320, 1510* General Chemistry II (3) and Qualitative Analysis (2) 3 <small>*Chem 1510 is not an S&T degree requirement. Will transfer as general credit.</small>
CHM 240 and CHM 241 and CHM 243	Organic Chemistry I and Organic Chemistry II and Organic Chemistry Lab	8	CHEM 2210, 2219 and CHEM 2220,2229 Organic Chemistry I and Lab and Organic Chemistry II and Lab 8 <small>CHEM 2210 is a degree requirement. CHEM 2219 and 2220 will partially satisfy the 9-credit-hour science elective requirement (below). CHEM 2229 transfers as general elective credit.</small>
CHEM 222 or BIO 246	Quantitative Analysis or Microbiology	4	CHEM 2510 or BIO SCI 3313, 3319 Analytical Chemistry (4) or Microbiology and Lab (5) 5 <small>Will satisfy science elective requirement. Select from these options and CHEM 2219 and 2220 (above) to total 9 hours..</small>
CPT 135 or CPT 185 or CPT 189 or CPT 182*	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3) or Beginning Programming in C++*	3	CS 1500 or CS 1570, 1580* Computational Problem Solving or Intro to Programming and Lab* (C++) (4) 3 <small>*Course will be substituted for CS 1500.</small>
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	35	Group 2 Major Requirements 34
	Group 1 Core Requirements	40	Group 1 Core Requirements 35
	Total Hours	75	Total Hours* 69

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106 or ENG 115	English Composition II or 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
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
PHY 125	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	21		Group 2 Major Requirements	20
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	61		Total Hours*	55

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 106	Public Speaking	3		SPMS 1185	Principles of Speech	3
ENG 102 or ENG 115	English Composition II or Technical Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CPT 135 or CPT 185 or CPT 189	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3)	3		CS 1500	Computational Problem Solving	3
CPT 182	Beginning Programming in C++	3		CS 1570, 1580	Intro to Programming and Lab (C++)	4
CPT 281	Intro to Data Structures with C++	3		CS 1575	Data Structures	3
EGR 170 or EGR 210 or CHEM 240	Engineering Mechanics-Statics or Engineering Mechanics-Dynamics or Organic Chemistry I	3		CIV ENG 2200 or MECH ENG 2350 or CHEM 2210	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Organic Chemistry I (3) <small>Satisfies a required engineering/science elective.</small>	3
EGR 220	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
MAT 242	Introductory 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	33			Group 2 Major Requirements	34
	Group 1 Core Requirements	40			Group 1 Core Requirements	35
	Total Hours	73			Total Hours*	69

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3		MECH ENG 1720	Intro to Engineering Design	3
COM 106	Public Speaking	3		SPMS 1185	Principles of Speech	3
ENG 102 or ENG 115	English Composition II or Technical Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CPT 135 or CPT 185 or CPT 189	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3)	3		CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* <small>*Will be substituted for CS 1500.</small>	3
EGR 170 and EGR 210 and (BOTH of the courses above or ONE of the courses below.) OR CHEM 240	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 (3)	3		CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) OR CHEM 2210	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) <small>Three hours will apply to the engineering science elective requirement; any additional hours will apply to degree totals as general elective credit.</small>	3
EGR 220	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
MAT 242	Introductory 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	30
	Group 1 Core Requirements	40			Group 1 Core Requirements	35
	Total Hours	67			Total Hours*	65

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

Engineering Management Group 2 Major Requirements

<u>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
PSY 101	Introduction to Psychology	3	PSYCH 1101	General Psychology	3
HIS 146 or HIS 101 or HIS 102 or	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or	Modern Western Civilization or American History to 1877 or American History since 1877 or	3
POL 101	American Government		POL SCI 1200	American Government	
COM 106	Public Speaking	3	SPMS 1185	Principles of Speech	3
ENG 102 or ENG 115	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
CPT 182	Beginning Programming in C++	3	CS 1570, 1580	Intro to Programming and Lab (C++)	4
EGR 220	Electrical Circuits	3	EE 2800	Electrical Circuits	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106 or ENG 115	English Composition II or 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
HIS 146 or HIS 101 or HIS 102	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310	Modern Western Civilization or American History to 1877 or American History since 1877	3
PHY 125	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 116	General Chemistry II and Lab	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
BIO 105	Essentials of Biology	3	BIO SCI 1113 9*	General Biology	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	29		Group 2 Major Requirements	26
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	61

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 115	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CPT 135 or CPT 185 or CPT 189	Computer Science I with Python (4) or Programming in C Sharp (3) or Java Programming (3)	3	CS 1500 or CS 1971, 1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
PHY 125	Intro to Physical Geology	3	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	27		Group 2 Major Requirements	26
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	67		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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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 COM 106 or ENG 115	English Composition II or 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
CPT 182	Beginning Programming in C++	3	CS 1570, 1580	Intro to Programming and Lab (C++)	3
EGR 220	Electrical Circuits	3	EE 2800	Electrical Circuits	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2360	Dynamics	3
MAT 242	Introductory Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy the Advanced Math/Statistics elective requirement.</small>	3
LIT 250 or LIT 210 or LIT 272 or LIT 223	English Literature Before 1800 or American Literature From 1620-1865 or World Lit-Ancient World thru Renaissance or African American Literature or other literature	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2245 or	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or African American Literature or other literature	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	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	65

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106 or ENG 115	English Composition II or 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
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 116	General Chemistry II and Lab	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
CHM 240 or EGR 220	Organic Chemistry I or Electrical Circuits	3	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	31		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	62

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106	English Composition II or Public Speaking	3	ENGLISH 1160 or ENGLISH 3560 or ENGLISH 1600	Writing and Research or Technical Writing or Intro to Technical Communications	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
PHY 125	Intro to Physical Geology	3	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	24		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106 or ENG 115	English Composition II or 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
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
CPT 182	Beginning Programming in C++	3	CS 1570, 1580*	Intro to Programming and Lab (C++)* (4) <small>*CS 1570, 1580 will be substituted for CS 1971, 1981..</small>	3
MAT 242	Introductory Linear Algebra	3	MATH 3108	Linear Algebra	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 220	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	35
	Total Hours	73		Total Hours*	68

*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>St. Charles Community College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EGR 104	Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 106	English Composition II or Public Speaking	3	ENGLISH 3560 or ENGLISH 1160 or ENGLISH 1600	Technical Writing (preferred) or Writing and Research or Intro to Technical Communications	3
HIS 146 or HIS 101 or HIS 102 or POL 101	Western Civ: Modern European Heritage or US History to 1877 or US History Since 1877 or 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
PHY 125	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 170	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 210	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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	24		Group 2 Major Requirements	23
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	64		Total Hours*	58

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