

## St. Louis Community College — Missouri S&T

### General Engineering

Transfer Guide Effective as of Fall 2025

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

Students are not required to complete all courses on this guide before transferring to Missouri S&T.

### 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.

St. Louis Community College			Semester	Missouri S&T		
MTH 210	Analytic Geometry and Calculus I	5		MATH 1214	Calculus I	4
MTH 220	Analytic Geometry and Calculus II	5		MATH 1215	Calculus II	4
MTH 230	Analytic Geometry and Calculus III	5		MATH 2222	Calculus III	4
MTH 240	Differential Equations	3		MATH 3304	Elementary Differential Equations	3
PHY 122	Engineering Physics I	5		PHYSICS 1135	Engineering Physics I	4
PHY 223	Engineering Physics II	5		PHYSICS 2135	Engineering Physics II	4
ENG 101	College Composition I	3		ENGLISH 1120	Exposition and Argumentation	3
		Total Hours	31			Total Hours 26

### Group 2 - Major Requirements: Take All Courses for Major of Choice

Engineering students take all Group 1 - Core Requirements (above) and Group 2 - Major Requirements for chosen major from list below. See course requirements on following pages.

Aerospace Engineering  
Architectural Engineering  
Biomedical Engineering/Biomanufacturing or Biomaterials  
Ceramic Engineering  
Chemical Engineering and Biochemistry Emphasis  
Civil Engineering  
Computer Engineering  
Electrical Engineering

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

Engineering Major Requirements are detailed on the following pages.

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

## Aerospace Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	5
ESC 101 or IS 167	Scientific Computer Programming (3) or C++ Programming I (4)	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ESC 200	Engineering Circuits I	3	EE 2800	Electrical Circuits	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	AERO ENG 2360	Dynamics	3
ESC 207	Engineering Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ME 249	Materials and Metallurgy	3	MET ENG 2110	Metallurgy for Engineers	3
MTH 215	Linear Algebra	3	MATH 3108	Linear Algebra I or <small>Satisfies the Advanced Math/Computer Science elective requirement.</small>	3
PHL 104 or PHL 112	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
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		53	Group 2 Major Requirements		53
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		84	Total Hours*		79
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Aerospace Engineering degree.</small>					

## Architectural Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ESC 207	Engineering Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ESC 206	Strength of Materials Lab	1	CIV ENG 2211	Materials Testing	1
CE 240	Plane Surveying	3	CIV ENG 2401	Fundamentals of Surveying	3
GEO 111	Physical Geology	5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
<b>Humanities, Arts, and Social Sciences General Education Requirements</b> From the options listed in each group below, select 9 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>					
<b>Humanities and Fine Arts</b> Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	3	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	3
<b>Behavioral and Social Sciences</b> Select 6 hours from at least two specific disciplines to include HISTORY 1200.					
HST 128*	Western Civilization 1500 to Present* <small>*Satisfies the State of Missouri Government requirement.</small>	3	HISTORY 1200*	Modern Western Civilization* <small>*Satisfies the State of Missouri Government requirement.</small>	3
PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3	PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		41	Group 2 Major Requirements		33
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		72			Total Hours* 59
<small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Architectural Engineering degree.</small>					

## Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
COM 107	Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CHM 206, 210	Organic Chemistry I and Lab	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHM 207 or BIO 111 or BIO 225	Organic Chemistry II and Lab or Introductory Biology I or Genetics	5	CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry II and Lab or General Biology and Lab or General Genetics Applies to degree as Track Elective.	4
BIO 218	Microbiology for Biotechnology	4	BIO SCI 3333, 3359	Anatomy and Physiology I and Lab	4
IS 187 or IS 280 or IS 167* or ESC 101*	Java Programming I (4) or Python (3) or C++ Programming I* (4) or Scientific Computer Programming (3)*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* *Will be substituted for CS 1500.	3
ESC 207	Engineering Thermodynamics	3	MECH ENG 2519*	Thermodynamics* *The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the biomedical engineering department. Students must complete both courses to receive credit.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 3 hours.					
HST 115 or HST 128* or GEG 101 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
Humanities, Arts, and Social Sciences ENGLISH 3560 required.					
ENG 103	Report Writing	3	ENGLISH 3560	Technical Writing	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		45	Group 2 Major Requirements		41
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		76	Total Hours*		67
*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.					

\*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.

## Biomedical Engineering-Biomaterials Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
COM 107	Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CHM 206, 210	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* *CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).	4
CHM 207, 211	Organic Chemistry II and Lab	5	CHEM 2220, 2229*	Organic Chemistry II and Lab* CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).	4
BIO 111	Introductory Biology	5	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4
BIO 218	Microbiology for Biotechnology	4	BIO SCI 3333, 3359	Human Anatomy and Physiology I and Lab	4
IS 187 or IS 280 or IS 167* or ESC 101*	Java Programming I (4) or Python (3) or C++ Programming I* (4) or Scientific Computer Programming (3)*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* *Will be substituted for CS 1500.	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 200	Engineering Circuits I	3	EE 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) *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).	4
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 3 hours.					
HST 115 or HST 128* or GEG 101 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
Humanities, Arts, and Social Sciences ENGLISH 3560 required.					
ENG 103	Report Writing	3	ENGLISH 3560	Technical Writing	3
No free electives applied to the degree.		0		Maximum Free Electives	0
Group 2 Major Requirements		53		Group 2 Major Requirements	49
Group 1 Core Requirements		31		Group 1 Core Requirements	26
Total Hours		84			Total Hours* 75
*S&T advisor permission is required to transfer more than 69 credits toward the S&T Biomedical Engineering degree.					

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

## Ceramic Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T		
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</small>	3	
CHEM 206	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I (3) <small>Will satisfy the advanced chemistry elective requirement.</small>	3	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		40	Group 2 Major Requirements		38	
Group 1 Core Requirements		31	Group 1 Core Requirements		26	
Total Hours		71			Total Hours*	64
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Ceramic Engineering degree.</small>						

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

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
COM 107	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis* (2)	3
				*CHEM 1510 is not a degree requirement, transfers as general elective credit.	
CHM 206, 210	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab*	4
				*CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits. See note below .	
CHM 207 or BIO 218	Organic Chemistry II and Lab (5) or Microbiology for Biotechnology (4)	9	CHEM 2220 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Microbiology and Lab (5)	8
				Applies to the degree as required science elective credits. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.	
IS 187 or IS 280 or IS 167* or ESC 101*	Java Programming I (4) or Python (3) or C++ Programming I* (4) or Scientific Computer Programming (3)*	3	CS 1500 or CS 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab*	3
				CS 1971,1981 will be substituted by the department for CS 1500.	
ESC 207	Engineering Thermodynamics	3	MECH ENG 2519*	Thermodynamics*	3
				*The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.	
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
Humanities, Arts, and Social Sciences					
ENGLISH 3560 required.					
ENG 103	Report Writing	3	ENGLISH 3560	Technical Writing	3
No free electives applied to the degree.		0		Maximum Free Electives	0
Group 2 Major Requirements		51		Group 2 Major Requirements	47
Group 1 Core Requirements		31		Group 1 Core Requirements	26
Total Hours		82			Total Hours* 73
*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

St. Louis Community College			Semester	Missouri S&T		
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <i>Applies to degree as Gen Ed Communication requirement.</i>	3	
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
GEO 111	Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
ESC 203	Engineering Mechanics I (Statics)	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
ESC 204	Engineering Mechanics II	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
ESC 206	Strength of Materials Lab	1	CIV ENG 2211	Materials Testing	1	
CE 240	Plane Surveying	3	CIV ENG 2401	Fundamentals of Surveying	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	
Humanities, Arts, and Social Sciences						
Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		42	Group 2 Major Requirements		41	
Group 1 Core Requirements		31	Group 1 Core Requirements		26	
Total Hours		73			Total Hours*	
					67	
*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

St. Louis Community College		Semester	Missouri S&T		
COM 107	Public Speaking	3	SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
MTH 212	Discrete Mathematics	3	COMP SCI 1200	Discrete Math for Computer Science	3
IS 167	C++ Programming I or	3	CS 1500	Computational Problem Solving	3
ESC 203 or ESC 204 or ESC 207 or CHM 206 or BIO 225	Engineering Statics (3) or Engineering Dynamics (3) or Engineering Thermodynamics (3) or Organic Chemistry I (3) or Genetics (3)	3	CIV ENG 2200 or MECH ENG 2350 or MECH ENG 2519 or CHEM 2210 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Thermodynamics (3) Organic Chemistry I (4) or General Genetics (3) Satisfies a required engineering/science elective.	3
ESC 200	Engineering Circuits I	3	EE 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	4
MTH 215	Linear Algebra	3	MATH 3108	Linear Algebra Satisfies a required math elective.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
Humanities, Arts, and Social Sciences Select 3 hours.					
ENG 102 or ENG 103	College Composition II or Report Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	41		Group 2 Major Requirements	42
	Group 1 Core Requirements	31		Group 1 Core Requirements	26
	Total Hours	72		Total Hours*	68
*S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.					

\*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

<b>St. Louis Community College</b>			<b>Semester</b>	<b>Missouri S&amp;T</b>		
ESC 100	Engineering Computer Application and Design	3		MECH ENG 1720	Intro to Engineering Design	3
COM 107	Public Speaking	3		SPMS 1185	Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
IS 167	C++ Programming I or	3		CS 1500	Computational Problem Solving	3
ESC 203 and ESC 204 <small>(BOTH of the courses above or ONE of the courses below.)</small>	Engineering Statics (3) and Engineering Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small>	3		CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small>	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small>	3
OR				OR		
ESC 207 or CHM 206 or BIO 225	Engineering Thermodynamics (3) or Organic Chemistry I (3) or Genetics (3)			MECH ENG 2519 or CHEM 2210 or BIO SCI 2223	Thermodynamics (3) or Organic Chemistry I (3) or General Genetics (3)	
ESC 200	Engineering Circuits I	3		EE 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) <small>*A passing grade on the Missouri S&amp;T EE Advancement Exam I is required to receive credit for EE 2100.</small>	4
MTH 215	Linear Algebra	3		MATH 3108	Linear Algebra	3
<b>Humanities, Arts, and Social Sciences General Education Requirements</b>						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
<b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>						
<b>Humanities and Fine Arts</b>						
Select 6 hours from at least two specific disciplines.						
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or <b>US History to 1865*</b> or <b>US History 1865 to Present*</b> or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6		ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or <b>HISTORY 1300*</b> or <b>HISTORY 1310*</b> or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or <b>American History to 1877*</b> or <b>American History Since 1877*</b> or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6
<b>Behavioral and Social Sciences</b>						
Select 6 hours from at least two specific disciplines.						
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or <b>Western Civilization 1500 to Present*</b> or Regional Geography or Intro to Philosophy or Intro to Logic or <b>Intro to American Politics*</b> or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6		HISTORY 1100 or <b>HISTORY 1200*</b> or HISTORY 2110 or PHIL 1105 or PHIL 1115 or <b>POL SCI 1200*</b> or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or <b>Modern Western Civilization*</b> or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or <b>American Government*</b> or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
<b>Humanities, Arts, and Social Sciences</b>						
Select 3 hours.						
ENG 102 or ENG 103	College Composition II or Report Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
Electives	Maximum Free Electives	6		Electives	Maximum Free Electives	6
	Group 2 Major Requirements	44			Group 2 Major Requirements	45
	Group 1 Core Requirements	31			Group 1 Core Requirements	26
	Total Hours	75			Total Hours*	71

\*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

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
COM 107	Public Speaking	3	SPMS 1185	Principles of Speech	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
ESC 101 or IS 167	Scientific Computer Programming (3) or C++ Programming I (4)	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MGT 204	Business Organization and Management	3	ENG MGT 2110	Managing Engineering and Technology	3
ESC 200	Engineering Circuits I	3	EE 2800	Electrical Circuits	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ESC 202	Thermal Analysis	3	MECH ENG 2527	Thermal Analysis	3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 15 hours to include					
6 hours Humanities and Fine Arts from at least two specific disciplines and					
6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines to include PSYCH 1101.					
PSY 200	General Psychology I	3	PSYCH 1101	General Psychology Required	3
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
Humanities, Arts, and Social Sciences					
Select 3 hours.					
ENG 102 or ENG 103	College Composition II or Report Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
No free electives applied to the degree.		0	Electives	Maximum Free Electives	0
Group 2 Major Requirements		50	Group 2 Major Requirements		46
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		81			Total Hours*
*S&T advisor permission is required to transfer more than 61 credits toward the S&T Engineering Management degree.					

## Environmental Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T		
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <i>Applies to degree as Gen Ed Communication requirement.</i>	3	
GEO 111	Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</i>	3	
BIO 140	Principles of Biology I	3	BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) <i>*The lab is not a degree requirement, transfers as general elective credit.</i>	3	
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
ESC 206	Strength of Materials Lab	1	CIV ENG 2211	Materials Testing	1	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <i>*Satisfies the State of Missouri government requirement.</i>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines to include HISTORY 1200.						
HST 128*	Western Civilization 1500 to Present* <i>*Satisfies the State of Missouri Government requirement.</i>	3	HISTORY 1200*	Modern Western Civilization* <i>*Satisfies the State of Missouri Government requirement.</i>	3	
PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	3	PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		44	Group 2 Major Requirements		41	
Group 1 Core Requirements		31	Group 1 Core Requirements		26	
Total Hours		75			Total Hours*	67
<i>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Environmental Engineering degree.</i>						

## Geological Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 103	Report Writing	3	ENGLISH 3560	Technical Writing	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
IS 187 or IS 280 or IS 167 or ESC 101	Java Programming I (4) or Python (3) or C++ Programming I (4) or Scientific Computer Programming (3)	3	CS 1500 or CS 1971, 1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
GEO 111	Physical Geology	3	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre *Satisfies the State of Missouri government requirement.	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
Humanities, Arts, and Social Sciences					
Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		41	Group 2 Major Requirements		40
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		72	Total Hours*		66
*S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.					

## Mechanical Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	5
ESC 101 or IS 167	Scientific Computer Programming (3) or C++ Programming I (4)	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ESC 200	Engineering Circuits I	3	EE 2800	Electrical Circuits	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	MECH ENG 2360	Dynamics	3
ESC 207	Engineering Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ESC 206	Strength of Materials Lab	1	CIV ENG 2211	Materials Testing	1
MTH 215	Linear Algebra	3	MATH 3108	Linear Algebra I or <small>Satisfies the Advanced Math/Computer Science elective requirement.</small>	3
ME 249	Materials and Metallurgy	3	MET ENG 2110	Metallurgy for Engineers	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		51	Group 2 Major Requirements		51
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		82	Total Hours*		77
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Mechanical Engineering degree.</small>					

## Metallurgical Engineering Group 2 Major Requirements

St. Louis Community College		Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design 3
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech 3 <small>Applies to degree as Gen Ed Communication requirement.</small>
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics 3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials 3
ME 249	Materials and Metallurgy	3	MET ENG 2110	Metallurgy for Engineers 3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab 5
CHM 106	General Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) 3 <small>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</small>
CHM 206 or ESC 200	Organic Chemistry I or Engineering Circuits	3	CHEM 2210 or EE 2800	Organic Chemistry I (4) or Circuits (3) or Electrical 3 <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.</small>
<b>Humanities, Arts, and Social Sciences General Education Requirements</b> From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>				
<b>Humanities and Fine Arts</b> Select 6 hours from at least two specific disciplines.				
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>
<b>Behavioral and Social Sciences</b> Select 6 hours from at least two specific disciplines.				
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>
<b>Humanities, Arts, and Social Sciences</b> Select 3 hours.				
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.
Maximum Free Electives		3	Maximum Free Electives	
Group 2 Major Requirements		46	Group 2 Major Requirements	
Group 1 Core Requirements		31	Group 1 Core Requirements	
Total Hours		77	Total Hours*	70

\*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

St. Louis Community College			Semester	Missouri S&T		
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
ESC 207	Engineering Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3	
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
GEO 111	Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		38	Group 2 Major Requirements		37	
Group 1 Core Requirements		31	Group 1 Core Requirements		26	
Total Hours		69			Total Hours*	
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Mining Engineering degree.</small>						



## Nuclear Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ESC 100	Engineering Computer Application and Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
ESC 101 or IS 167	Scientific Computer Programming (3) or C++ Programming I (4)	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MTH 215	Linear Algebra	3	MATH 3108	Linear Algebra	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ESC 200	Engineering Circuits I	3	EE 2800	Electrical Circuits	3
ESC 207	Engineering Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
ME 249	Materials and Metallurgy	3	MET ENG 2110	Metallurgy for Engineers	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. <b>*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.</b>					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
ECO 152 or ECO 151	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
Maximum Free Electives		0	Maximum Free Electives		0
Group 2 Major Requirements		50	Group 2 Major Requirements		47
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		81			Total Hours* 73
<small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Nuclear Engineering degree.</small>					

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

## Petroleum Engineering Group 2 Major Requirements

St. Louis Community College			Semester	Missouri S&T	
ENG 102 or COM 107 or ENG 103	College Composition II or Public Speaking or Report Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 105	General Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
IS 187 or IS 280	Java Programming I (4) or Python (3)	3	COMP SCI 1500	Computational Problem Solving	3
GEO 111	Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ESC 203	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ESC 204	Engineering Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ESC 205	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ESC 207	Engineering Thermodynamics	3	MECH ENG 2527	Thermal Analysis	3
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 211 or ENG 204 or ENG 205 or ENG 231 or HST 101* or HST 102* or ART 100 or MUS 114 or THT 101	British Literature II or American Literature I or American Literature II or World Literature or US History to 1865* or US History 1865 to Present* or Art Appreciation or Music Appreciation or Intro to Theatre <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines.					
HST 115 or HST 128* or GEG 101 or PHL 101 or PHL 102 or PSC 101* or PSY 200 or ECO 152 or ECO 151 or Foreign Language	Ancient and Medieval History to 1500 or Western Civilization 1500 to Present* or Regional Geography or Intro to Philosophy or Intro to Logic or Intro to American Politics* or General Psychology I or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences					
Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		41	Group 2 Major Requirements		40
Group 1 Core Requirements		31	Group 1 Core Requirements		26
Total Hours		72			Total Hours*
					66
<small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Petroleum Engineering degree.</small>					