

## East Central 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.

### 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>East Central College</u>			<u>Semester</u>	<u>Missouri S&amp;T</u>		
MTH 190	Analytic Geometry & Calculus I	5		MATH 1214	Calculus I	Grade of C or better is required. 4
MTH 210	Analytic Geometry & Calculus II	5		MATH 1215	Calculus II	Grade of C or better is required. 4
MTH 220	Analytic Geometry & Calculus III	5		MATH 2222	Calculus III	Grade of C or better is required. 4
MTH 245	Differential Equations	3		MATH 3304	Elementary Differential Equations	3
PHY 211, 212	General Physics I and Lab	5		PHYSICS 1135	Engineering Physics I	Grade of C or better is required. 4
PHY 221, 222	General Physics II and Lab	5		PHYSICS 2135	Engineering Physics II	Grade of C or better is required. 4
COL 101	Falcon Seminar	1		FR ENG 1100	Study and Careers in Engineering and Computing	1
ENG 101	English Composition I	3		ENGLISH 1120	Exposition and Argumentation	3
		Total Hours	32			Total Hours 27

### 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

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design 3
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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>
CHM 111	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab 5 <small>*CHEM 1310 will be substituted for CHEM 1305.</small>
EGR 221, 222	C++ Program Engineers and Lab	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++) 3
EGR 231	Intro to Circuit Theory	3	EE 2800	Electrical Circuits 3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics 3
EGR 214	Engineering Mechanics-Dynamics	3	AERO ENG 2360	Dynamics 3
MTH 241 or MTH 242	Linear Algebra or Engineering Statistics	3	MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics 3 <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>
PHL 203	Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	PHILOS 1130	How Should I Live? An Introduction to Ethics 3 <small>or other engineering, business, bio, social ethics approved by advisor</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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or <b>US History to 1877*</b> or <b>US History Since 1877*</b> or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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 6 <small>*Satisfies the State of Missouri government requirement.</small>
<b>Behavioral and Social Sciences</b> Select 6 hours from at least two specific disciplines.				
CIV 201 or <b>CIV 202*</b> or GRY 101 or PHL 101 or PHL 111 or <b>PSC 102*</b> or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or <b>Western Civilization II*</b> or World Geography or Intro to Philosophy or Intro to Logic or <b>US Government I: National and State*</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	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 6 <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. 3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives 0
	Group 2 Major Requirements	45		Group 2 Major Requirements 44
	Group 1 Core Requirements	32		Group 1 Core Requirements 27
	Total Hours	77		Total Hours* 71
<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

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design 3
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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>
CHM 111	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab 5 <small>*CHEM 1310 will be substituted for CHEM 1305.</small>
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics 3
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics 2
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics 3 <small>Will be substituted for STAT 3113.</small>
GEO 101	Intro to Physical Geology	3	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 3 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 3 hours.				
ENG 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	3	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or MUSIC 1150 or THEATRE 1150	British Literature I: The Beginnings to 1800 or 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 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 to include HISTORY 1200.				
CIV 202*	Western Civilization II* <small>*Satisfies the State of Missouri Government requirement.</small>	3	HISTORY 1200*	Modern Western Civilization* <small>*Satisfies the State of Missouri Government requirement.</small>
PHIL 101 or PHIL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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>
	No free electives applied to the degree.	0		Maximum Free Electives 0
	Group 2 Major Requirements	32		Group 2 Major Requirements 31
	Group 1 Core Requirements	32		Group 1 Core Requirements 27
	Total Hours	64		Total Hours* 58

\*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

East Central College			Semester	Missouri S&T	
COM 110	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	Applies to degree as Gen Ed Communication requirement. General Chemistry I and Lab	5
CHM 112	General Chemistry II and Lab	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 205	Organic Chemistry I and Lab	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHM 206 or BIO 111 or	Organic Chemistry II and Lab or General Biology and Lab	5	CHEM 2220, 2229 or BIO SCI 1113, 1219	Organic Chemistry II and Lab or General Biology and Lab Applies to degree as Track Elective.	4
EGR 221, 222	C++ Programming for Engineers	4	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab* C++ *Will be substituted for COMP SCI 1500.	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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.					
CIV 201 or CIV 202* or GRY 101 or PSC 102* or PSY 101 ir ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or US Government I: National and State* 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	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 104	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	39		Group 2 Major Requirements	34
	Group 1 Core Requirements	32		Group 1 Core Requirements	27
	Total Hours	71		Total Hours*	61
*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

East Central College			Semester	Missouri S&T	
COM 110	Public Speaking	3	SP&MS 1185	Principles of Speech	3
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	Applies to degree as Gen Ed Communication requirement. General Chemistry I and Lab	5
CHM 112	General Chemistry II and Lab	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 205	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 206	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	General Biology and Lab	5	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4
EGR 221, 222	C++ Programming for Engineers	4	CS 1971,1981*	Intro to Programming Methodology and Lab* C++) *Will be substituted for CS 1500.	3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 231	Intro to Circuit Theory	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. <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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.					
CIV 201 or CIV 202* or GRY 101 or PSC 102* or PSY 101 ir ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or US Government I: National and State* 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	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 104	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	50		Group 2 Major Requirements	45
	Group 1 Core Requirements	32		Group 1 Core Requirements	27
	Total Hours	82		Total Hours*	72
*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 112	General Chemistry II Lecutre and Lab	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	
CHM 205	Organic Chemistry I and Lab	5	CHEM 2210, 2219* or CHEM 3310	Organic Chemistry I (3) and Lab* (1) <small>Satisfies the advanced chemistry elective requirement. *The lab is not a degree requirement, transfers as general elective credit.</small>	3	
MTH 242	Engineering Statistics	3	STAT 3115	Applied Engineering Statistics <small>or any statistics course 3000-level or higher. Satisfies statistics 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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.						
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	42		Group 2 Major Requirements	38	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	74		Total Hours*	65	
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Ceramic Engineering degree.</small>						

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

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

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design 3
COM 110	Public Speaking	3	SP&MS 1185	Principles of Speech 3 <small>Applies to degree as Gen Ed Communication requirement.</small>
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab 5
CHM 112	General Chemistry II Lecture and Lab	5	CHEM 1320, 1510*	General Chemistry II and Lab* 3 <small>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</small>
CHM 205	Organic Chemistry I Lecture and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* 4 <small>*CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits See note below.</small>
CHM 206 or BIO 208	Organic Chemistry II Lecture and Lab or General Microbiology Lecture and Lab <small>Will satisfy science elective requirement. Select up to 9 hours from these options.</small>	9	CHEM 2220, 2229* or BIO SCI 3313, 3319	Organic Chemistry II (3) and Lab* or Microbiology and Lab (5) 8 <small>Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab. *CHEM 2229 is not an S&amp;T degree requirement; will transfer as general elective credit.</small>
EGR 221, 222	C++ Programming for Engineers	4	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab* C++) 3 <small>*Will be substituted for COMP SCI 1500.</small>
MTH 242	Engineering Statistics	3	STAT 3115*	Engineering Statistics* 3 <small>*Will be substituted for STAT 3113.</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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or <b>US History to 1877*</b> or <b>US History Since 1877*</b> or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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>
<b>Behavioral and Social Sciences</b> Select 6 hours from at least two specific disciplines.				
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or <b>Western Civilization II*</b> or World Geography or Intro to Philosophy or Intro to Logic or <b>US Government I: National and State*</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	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>
<b>Humanities, Arts, and Social Sciences</b> ENGLISH 3560 required.				
ENG 104	Technical Writing	3	ENGLISH 3560	Technical Writing 3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives 0
	Group 2 Major Requirements	52		Group 2 Major Requirements 47
	Group 1 Core Requirements	32		Group 1 Core Requirements 27
	Total Hours	84		Total Hours* 74

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
MTH 242	Engineering Statistics	3	STAT 3115*	Engineering Statistics* <small>*Will be substituted for STAT 3113.</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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.						
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	38		Group 2 Major Requirements	37	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	70		Total Hours*	64	
<small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Civil Engineering degree.</small>						

\*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

East Central College		Semester	Missouri S&T		
COM 110	Public Speaking	3	SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 251 or EGR 221,222	Data Structures or C++ Program Engineers and Lab	3	COMP SCI 1500	Computational Problem Solving	3
EGR 213 and EGR 214 or CHEM 205	Engineering Mechanics-Statics (3) and Engineering Mechanics- Dynamics (3) or Organic Chemistry I and Lab (5)	3	CIV ENG 2200 or MECH ENG 2350 or CHEM 2210, 2219*	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Organic Chemistry I and Lab* (4)  Satisfies a required engineering/science elective. *CHEM 2219 is not an S&T degree requirement; transfers as general elective credit.	3
EGR 231	Intro to Circuit Theory	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.	4
MTH 241	Linear Algebra	3	MATH 3108	Linear Algebra Will satisfy a required math elective.	3
MTH 242	Engineering Statistics	3	STAT 3115*	Engineering Statistics* *Will be substituted for STAT 3117.	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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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 General Education Humanities and Fine Arts Requirement. *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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 104	English Composition II or Technical 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	32		Group 1 Core Requirements	27
	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.					

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
COM 110	Public Speaking	3	SPMS 1185	Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
EGR 251 or EGR 221,222	Data Structures or C++ Program Engineers and Lab	3	COMP SCI 1500	Computational Problem Solving	3	
EGR 213 and EGR 214 <small>(BOTH of the courses above or ONE course below.)</small> OR CHEM 205	Engineering Mechanics-Statics (3) and Engineering Mechanics- Dynamics (3) <small>(Both courses above combined or the one course below will satisfy a required engineering science elective.)</small> OR Organic Chemistry I and Lab (5) <small>*A maximum of 3 credit hours applies to the engineering science elective. Any additional credit hours apply to degree totals as general elective credit.</small>	3	CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE course below.)</small> OR CHEM 2210	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) <small>(Both courses above combined or the one course below will satisfy a required engineering science elective.)</small> OR Organic Chemistry I (4) <small>*A maximum of 3 credit hours applies to the engineering science elective. Any additional credit hours apply to degree totals as general elective credit.</small>	3	
EGR 231	Intro to Circuit Theory	3	EE 2100**	Circuits I <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 241	Linear Algebra	3	MATH 3108	Linear Algebra	3	
MTH 242	Engineering Statistics	3	STAT 3115*	Engineering Statistics* <small>*Will be substituted for STAT 3117.</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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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 General Education Humanities and Fine Arts Requirement. *Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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.						
ENG 102 or ENG 104 Electives	English Composition II or Technical Writing Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements	3 6 47 32	ENGLISH 1160 or ENGLISH 3560 Electives	Writing and Research or Technical Writing Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements	3 6 48 27	
Total Hours				Total Hours*		
79				75		
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Electrical Engineering degree.</small>						

## Engineering Management Group 2 Major Requirements

East Central College			Semester	Missouri S&T	
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
COM 110	Public Speaking	3	SPMS 1185	Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 221, 222	C++ Programming for Engineers	4	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab* C++) <small>*Will be substituted for CS 1500.</small>	3
EGR 231	Intro to Circuit Theory	3	EE 2800	Electrical Circuits	3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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 to include PSYCH 1101.					
PSY 101	General Psychology	3	PSYCH 1101	General Psychology Required	3
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3	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 . <small>*Satisfies the State of Missouri government requirement.</small>	3
Humanities, Arts, and Social Sciences					
Select 3 hours.					
ENG 102 or ENG 104	English Composition II or Technical 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	42		Group 2 Major Requirements	40
	Group 1 Core Requirements	32		Group 1 Core Requirements	27
	Total Hours	74		Total Hours*	61
<small>*S&amp;T advisor permission is required to transfer more than 61 credits toward the S&amp;T Engineering Management degree.</small>					

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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	
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 112	General Chemistry II Lecutre and Lab	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	
BIO 111	General Biology Lecture and Lab	5	BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) <small>*The lab is not a degree requirement, transfers as general elective credit.</small>	3	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics     Will be substituted for STAT 3113.	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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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 General Education Humanities and Fine Arts Requirement. *Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines to include HISTORY 1200 (See notes below regarding HISTORY 1200, 1300, 1310.)						
CIV 202*	Western Civilization II* <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 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	45		Group 2 Major Requirements	40	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	77		Total Hours*	67	
*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3		MECH ENG 1720	Intro to Engineering Design	3
ENG 104	Technical Writing	3		ENGLISH 3560	Technical Writing <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 111	General Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 221, 222	C++ Programming for Engineers	4		COMP SCI 1971, 1981*	Intro to Programming Methodology and Lab* C++ <small>*Will be substituted for COMP SCI 1500.</small>	3
GEO 101	Intro to Physical Geology	3		GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
EGR 203	Engineering Mechanics-Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 214	Engineering Mechanics-Dynamics	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
MTH 242	Engineering Statistics	3		STAT 3115	Engineering Statistics <small>Will be substituted for STAT 3113.</small>	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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or <b>US History to 1877*</b> or <b>US History Since 1877*</b> or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6		ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.						
CIV 201 or <b>CIV 202*</b> or GRY 101 or PHL 101 or PHL 111 or <b>PSC 102*</b> or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or <b>Western Civilization II*</b> or World Geography or Intro to Philosophy or Intro to Logic or <b>US Government I: National and State*</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		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.						
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
	<i>No free electives applied to the degree.</i>	0			Maximum Free Electives	0
	Group 2 Major Requirements	42			Group 2 Major Requirements	40
	Group 1 Core Requirements	32			Group 1 Core Requirements	27
	Total Hours	74			Total Hours*	67

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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 111	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	5	
EGR 221, 222	C++ Program Engineers and Lab	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3	
EGR 231	Intro to Circuit Theory	3	EE 2800	Electrical Circuits	3	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2360	Dynamics	3	
MTH 241 or MTH 242	Linear Algebra or Engineering Statistics	3	MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics <small>Will satisfy the Advanced Math/Comp Sci 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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.						
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	42		Group 2 Major Requirements	41	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	74		Total Hours*	68	
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Mechanical Engineering degree.</small>						

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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	
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	3	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 112	General Chemistry II Lecutre and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)* <small>*CHEM 1510 is not an S&amp;T degree requirement; course transfers as elective credit.</small>	3	
CHEM 205 or EGR 231	Organic Chemistry I and Lab or Intro to Circuit Theory	3	CHEM 2210, 2219* or EE 2800	Organic Chemistry I (4) or Electrical Circuits (3) <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement. *CHEM 2219 is not an S&amp;T degree requirement; will transfer as general elective credit.</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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.						
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 ir ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	
	Maximum Free Electives	3		Maximum Free Electives	3	
	Group 2 Major Requirements	43		Group 2 Major Requirements	41	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	75		Total Hours*	68	
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Metallurgical Engineering degree.</small>						

## Mining Engineering Group 2 Major Requirements

East Central College		Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	3
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
GEO 101	Intro to 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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.					
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	35		Group 2 Major Requirements	34
	Group 1 Core Requirements	32		Group 1 Core Requirements	27
	Total Hours	67		Total Hours*	61
<small>*S&amp;T advisor permission is required to transfer more than 68 credits toward the S&amp;T Mining Engineering degree.</small>					

\*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

East Central College			Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 102 or	English Composition II or		ENGLISH 1160 or	Writing and Research or		
ENG 104 or	Technical Writing or	3	ENGLISH 3560 or	Technical Writing or	3	
COM 110	Public Speaking		SPMS 1185	Principles of Speech		
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
EGR 221,222	C++ Program Engineers and Lab	4	COMP SCI 1971,1981	Intro to Programming Method and Lab (C++)	3	
MTH 241	Linear Algebra	3	MATH 3108	Linear Algebra	3	
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	3	
EGR 231	Intro to Circuit Theory	3	EE 2800	Electrical Circuits	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 210 or	Survey British Lit: Beginnings - 1784 or		ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or		
ENG 211 or	Survey British Lit: Romantic-Present or		ENGLISH 1212 or	British Literature II: 1800 to Present		
ENG 221 or	Survey American Lit: Beginnings - 1865 or		ENGLISH 1221 or	American Literature: 1600 to 1865 or		
ENG 222 or	Survey American Lit: 1865-Present or		ENGLISH 1222 or	American Literature: 1865 to Present or		
ENG 124 or	World Literature I or		ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or		
HST 101* or	US History to 1877* or	6	HISTORY 1300* or	American History to 1877* or	6	
HST 102* or	US History Since 1877* or		HISTORY 1310* or	American History Since 1877* or		
ART 101 or	Art Appreciation or		ART 1180 or	Art Appreciation or		
MUS 101 or	Music Appreciation or		MUSIC 1150 or	Music Understanding and Appreciation or		
THE 101	Theatre Appreciation		THEATRE 1150	Theatre for Social Change		
*Satisfies the State of Missouri government requirement.						
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
ECO 102 or	Principles of Microeconomics or	3	ECON 1100 or	Principles of Microeconomics or	3	
ECO 101	Principles of Macroeconomics		ECON 1200	Principles of Macroeconomics		
CIV 201 or	Western Civilization I or		HISTORY 1100 or	Early Western Civilization or		
CIV 202* or	Western Civilization II* or		HISTORY 1200* or	Modern Western Civilization* or		
GRY 101 or	World Geography or		HISTORY 2110 or	World Regional Geography or		
PHL 101 or	Intro to Philosophy or	3	PHIL 1105 or	Self and World: Intro to Philosophy or		
PHL 111 or	Intro to Logic or		PHIL 1115 or	Logic and Reasoning: An Introduction or	3	
PSC 102* or	US Government I: National and State* or		POL SCI 1200* or	American Government* or		
PSY 101 or	General Psychology or		PSYCH 1101 or	General Psychology or		
Foreign Language	Elementary or Intermediate Foreign Language		Foreign Language	Elementary or Intermediate Foreign Language		
*Satisfies the State of Missouri government requirement.						
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	42		Group 2 Major Requirements	41	
	Group 1 Core Requirements	32		Group 1 Core Requirements	27	
	Total Hours	74		Total Hours*	68	
*S&T advisor permission is required to transfer more than 69 credits toward the S&T Nuclear Engineering degree.						

\*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

East Central College		Semester	Missouri S&T		
ENG 102 or ENG 104 or COM 110	English Composition II or Technical Writing or Public Speaking	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 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EGR 214	Engineering Mechanics-Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
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 210 or ENG 211 or ENG 221 or ENG 222 or ENG 124 or HST 101* or HST 102* or ART 101 or MUS 101 or THE 101	Survey British Lit: Beginnings - 1784 or Survey British Lit: Romantic-Present or Survey American Lit: Beginnings - 1865 or Survey American Lit: 1865-Present or World Literature I or US History to 1877* or US History Since 1877* or Art Appreciation or Music Appreciation or Theatre Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or 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 I: The Beginnings to 1800 or 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.					
CIV 201 or CIV 202* or GRY 101 or PHL 101 or PHL 111 or PSC 102* or PSY 101 or ECO 102 or ECO 101 or Foreign Language	Western Civilization I or Western Civilization II* or World Geography or Intro to Philosophy or Intro to Logic or US Government I: National and State* 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	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	32		Group 2 Major Requirements	31
	Group 1 Core Requirements	32		Group 1 Core Requirements	27
	Total Hours	64		Total Hours*	58
<small>*S&amp;T advisor permission is required to transfer more than 69 credits toward the S&amp;T Petroleum Engineering degree.</small>					

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