

# East Central College — Missouri S&T

## General Engineering Transfer Guide

Effective as of Fall 2020

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

### Group 1 - Core Requirements: All Majors Take All Courses

Engineering students take all Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice. Math prerequisites: While they are not part of Missouri S&T engineering degree requirements, algebra and trigonometry skills are critical to success in calculus. To prepare for entry into calculus, students should follow math placement testing and advising recommendations at their college.

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>			
MTH 190	Analytic Geometry and Calculus I	5	MATH 1214	Calculus for Engineers I <small>Grade of C or better is required.</small>	4	
MTH 210	Analytic Geometry and Calculus II	5	MATH 1215	Calculus for Engineers II <small>Grade of C or better is required.</small>	4	
MT 220	Analytic Geometry and Calculus III	5	MATH 2222	Calculus with Analytic Geometry III <small>Grade of C or better is required.</small>	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 <small>Grade of C or better is required.</small>	4	
PHY 221, 222	General Physics II and Lab	5	PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4	
CHM 111	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
COL 101	Foundation 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	
ECO 102 or ECO 101	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3	
Total Hours		40			Total Hours	35

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

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

**Aerospace Engineering**  
**Architectural Engineering**  
**Ceramic Engineering**  
**Chemical Engineering**  
**Chemical Engineering/Biochemistry  
Emphasis**  
**Civil Engineering**  
**Computer Engineering**  
**Electrical Engineering**

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

Engineering Major Requirements are detailed on the following pages.

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

**Humanities/Social Science (HSS) Electives:** HSS electives may include any history, economics, political science, sociology, psychology, philosophy, fine art, literature, or foreign language. Missouri S&T approved HSS courses are listed at [ugs.mst.edu](http://ugs.mst.edu). Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions.

## 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	Engineering Design with Computer Appl	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
EGR 221, 222	C++ Program Engineers and Lab	4	CS 1971, 1981	Intro to Programming Method and Lab (C++) <small>Course transfers as CS 1971,1981 for Mechanical and Aerospace Engineering majors.</small>	3
EGR 231	Intro to Circuit Theory	3	EE 2800	Circuit Analysis I	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 <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	3
ENG 210 or ENG 221 or ENG 124 or ENG 214 or ENG 215	Survey British Lit: Beginnings to 1784 or Survey American Lit: Colonial to 1865 or World Literature I or Women's Literature or African-American Literature <small>(or other literature elective)</small>	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2242 or ENGLISH 2245 or	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or Literature by Women or African American Literature <small>(or other literature elective)</small>	3
PHL 203	Ethics <small>(or other ethics elective)</small>	3	PHIL 1130	Intro to Ethics <small>(or other ethics elective)</small>	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	65

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

## Architectural Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
CIV 202* <small>(or HST 101 or HST 102)</small>	European Civilization II* <small>(or US History to 1865 or US History 1865-1945)</small> <small>*CIV 202 is preferred; HST 101 or 102 will also be accepted.</small>	3	HISTORY 1200* <small>(or HISTORY 1300 or HISTORY 1310)</small>	Modern Western Civilization* <small>(or American History to 1877 or American History since 1877)</small> <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</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	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
ENG 102 or COM 110 or HSS Elective	English Composition II or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	21		Group 2 Major Requirements	21
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	61		Total Hours*	56

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

## Ceramic Engineering Group 2 Major Requirements

East Central College		Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 205	Organic Chemistry I Lecture and Lab	5	CHEM 2210	Organic Chemistry I (Not a specific requirement. Will satisfy the advanced chemistry elective requirement.)	4
CHM 112	General Chemistry II Lecutre and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)* *Note: CHEM 1510 is not an S&T degree requirement; course transfers as elective credit.	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics (or any statistics course 3000-level or higher. Satisfies statistics elective requirement.)	3
ENG 102 or COM 110 or HSS Elective	English Composition II or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	28		Group 2 Major Requirements	25
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	68		Total Hours*	60

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

## Chemical Engineering Group 2 Major Requirements

East Central College		Semester	Missouri S&T		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or ENG 104	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CHM 112	General Chemistry II Lecutre and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)* *Note: CHEM 1510 is not an S&T degree requirement; course transfers as elective credit.	3
CHM 205	Organic Chemistry I Lecture and Lab	5	CHEM 2210, 2219*	Organic Chemistry I (4) and Lab* (1) *Note: CHEM 1510 is not an S&T degree requirement; course transfers as elective credit.	4
CHM 206 or BIO 208	Organic Chemistry II Lecture and Lab or General Microbiology Lecture and Lab (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9	CHEM 2220, 2229 or BIO SCI 3313, 3319	Organic Chemistry II (4) and Lab (1) or Microbiology and Lab (5) (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9
EGR 251 or EGR 221,222	Data Structures or C++ Program Engineers and Lab	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab (C++)	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3113.)	3
COM 110	Public Speaking	3	SP&MS 1185	Principles of Speech	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	40		Group 2 Major Requirements	37
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	80		Total Hours*	72

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

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

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or ENG 104	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CHM 112	General Chemistry II Lecutre and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)* *Note: CHEM 1510 is not an S&T degree requirement; course transfers as elective credit.	3
CHM 205	Organic Chemistry I Lecture and Lab	5	CHEM 2210, 2219*	Organic Chemistry I (4) and Lab* (1) *Note: CHEM 1510 is not an S&T degree requirement; course transfers as elective credit.	4
CHM 206 or BIO 208	Organic Chemistry II Lecture and Lab or General Microbiology Lecture and Lab (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9	CHEM 2220, 2229 or BIO SCI 3313, 3319	Organic Chemistry II (4) and Lab (1) or Microbiology and Lab (5) (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9
EGR 251 or EGR 221,222	Data Structures or C++ Program Engineers and Lab	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab (C++)	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3113.)	3
COM 110	Public Speaking	3	SP&MS 1185	Principles of Speech	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	40		Group 2 Major Requirements	37
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	80		Total Hours*	72

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

## Civil Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
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	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3113.)	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	64		Total Hours*	59

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

## Computer Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
COM 110	Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 104	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EGR 251 or EGR 221,222	Data Structures or C++ Program Engineers and Lab	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab (C++)	3
EGR 213 and EGR 214 (BOTH of the courses above or ONE course below.)	Engineering Mechanics-Statics (3) and Engineering Mechanics- Dynamics (3) (Both courses above combined or the one course below will satisfy a required engineering science elective.)	5-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE course below.)	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) (Both courses above combined or the one course below will satisfy a required engineering science elective.)	4-6
OR	OR		OR	OR	
CHEM 205	Organic Chemistry I and Lab (5)		CHEM 2210	Organic Chemistry I (4)	
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.	3
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
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	3		Maximum Free Electives	3
	Group 2 Major Requirements	32		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	62

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

## Electrical Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
COM 110	Public Speaking	3	SPMS 1185	Public Speaking	3
ENG 102 or ENG 104	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EGR 213 and EGR 214 (BOTH of the courses above or ONE course below.)	Engineering Mechanics-Statics (3) and Engineering Mechanics- Dynamics (3) (Both courses above combined or the one course below will satisfy a required engineering science elective.)	5-6	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE course below.)	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) (Both courses above combined or the one course below will satisfy a required engineering science elective.)	4-6
OR	OR		OR	OR	
CHEM 205	Organic Chemistry I and Lab (5)		CHEM 2210	Organic Chemistry I (4)	
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.	3
MTH 241	Linear Algebra	3	MATH 3108	Linear Algebra	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3117.)	3
	See your advisor for course options.	3		Humanities/Social Science Elective	3
	See your advisor for course options.	3		Maximum Free Electives	3
	Group 2 Major Requirements	32		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	62

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

## Engineering Management Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
PSY 101	General Psychology	3	PSYCH 1101	General Psychology	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
EGR 221,222	C++ Program Engineers and Lab	4	CS 1971,1981	Intro to Programming Method and Lab (C++)	3
EGR 231	Intro to Circuit Theory	3	EE 2800	Circuit Analysis I	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	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	34		Group 2 Major Requirements	33
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	74		Total Hours*	68

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

## Environmental Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HST 101 or HST 102 or CIV 202	US History to 1865 or US History 1865-1945 or European Civilization II	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 112	General Chemistry II Lecutre and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)* <small>*Note: CHEM 1510 is not an S&amp;T degree requirement; course transfers as elective credit.</small>	3
BIO 111	General Biology Lecture and Lab	5	BIO SCI 1113	General Biology	4
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	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	34		Group 2 Major Requirements	31
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	74		Total Hours*	66

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

## Geological Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
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	3
BIO 111 or CHM 112 or CHM 205	General Biology Lecture and Lab or General Chemistry II and Lab or Organic Chemistry I and Lab <small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</small>	5	BIO SCI 1113 or CHEM 1320 or CHEM 2210	General Biology or General Chemistry II or Organic Chemistry I <small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	62

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

## Mechanical Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
EGR 221, 222	C++ Program Engineers and Lab	4	CS 1971, 1981	Intro to Programming Method and Lab (C++) <small>Course transfers as CS 1971,1981 for Mechanical and Aerospace Engineering majors.</small>	3
EGR 231	Intro to Circuit Theory	3	EE 2800	Circuit Analysis I	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
EGR 213	Metallurgy for Engineers	3	MET ENG 2110	Metallurgy for Engineers	3
ENG 210 or ENG 221 or ENG 124 or ENG 214 or ENG 215	Survey British Lit: Beginnings to 1784 or Survey American Lit: Colonial to 1865 or World Literature I or Women's Literature or African-American Literature <small>(or other literature elective)</small>	3	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1231 or ENGLISH 2242 or ENGLISH 2245 or	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or World Literature I or Literature by Women or African American Literature <small>(or other literature elective)</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	34		Group 2 Major Requirements	33
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	74		Total Hours*	68

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

## Metallurgical Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or COM 110 or ENG 104	English Composition II or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Public Speaking or Technical Writing	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EGR 203	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	3
EGR 213	Metallurgy for Engineers	3	MET ENG 2110	Metallurgy for Engineers	3
CHM 112	General Chemistry II and Lab	5	CHEM 1320	General Chemistry II	3
CHEM 205 or EGR 231	Organic Chemistry I Lec & Lab or Intro to Circuit Theory	3	CHEM 2210 or EE 2800	Organic Chemistry I (4) or Electrical Circuits (3)	3-4
	<i>See your advisor for course options.</i>	3		Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.	
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	5		Humanities/Social Science Elective	3
	Group 2 Major Requirements	37		Maximum Free Electives	5
	Group 1 Core Requirements	40		Group 2 Major Requirements	32
	Total Hours	77		Group 1 Core Requirements	35
				Total Hours*	67

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

## Mining Engineering Group 2 Major Requirements

<u>East Central College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 103	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
ENG 102 or ENG 104	English Composition II or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or ENGLISH 1600	Writing and Research or Technical Writing or Intro to Technical Communications	3
HST 101 or HST 102 or CIV 202 or PSC 102	US History to 1865 or US History 1865-1945 or European Civilization II or US Government National and State	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
MTH 242	Engineering Statistics	3	STAT 3115	Engineering Statistics	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	3
GEO 101	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	40		Group 1 Core Requirements	35
	Total Hours	67		Total Hours*	62

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



## Nuclear Engineering Group 2 Major Requirements

<u>East Central College</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
EGR 103	3	MECH ENG 1720	3
ENG 102 or	3	ENGLISH 1160 or	3
ENG 104		ENGLISH 3560	3
HST 101 or		HISTORY 1300 or	
HST 102 or	3	HISTORY 1310 or	3
CIV 202 or		HISTORY 1200 or	
PSC 102		POL SCI 1200	3
MTH 241	3	MATH 3108	3
EGR 203	3	CIV ENG 2200	3
MTH 242	3	STAT 3115	3
EGR 213	3	MET ENG 2110	3
	3		3
	3		3
	6		6
	33		33
	40		35
Total Hours	73		Total Hours* 68

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

## Petroleum Engineering Group 2 Major Requirements

<u>East Central College</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
EGR 103	3	MECH ENG 1720	3
ENG 102 or	3	ENGLISH 1160 or	3
ENG 104		ENGLISH 3560 or	3
HST 101 or		ENGLISH 1600	
HST 102 or	3	HISTORY 1300 or	3
CIV 202 or		HISTORY 1310 or	
PSC 102		HISTORY 1200 or	3
GEO 101	3	POL SCI 1200	3
EGR 203	3	GEOLOGY 1110	3
EGR 214	3	(GEO ENG 1150)	3
	3	CIV ENG 2200	3
	3	MECH ENG 2350	3
	3		3
	3		3
	0		0
	24		24
	40		35
Total Hours	64		Total Hours* 59

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