

# Westminster College — Missouri S&T

## General Engineering Transfer Guide

Effective as of Fall 2023

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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
MAT 124	Calculus I	5	MATH 1214	Calculus I	Grade of C or better is required. 4
MAT 214	Calculus II	4	MATH 1215	Calculus II	Grade of C or better is required. 4
MAT 224	Calculus III	4	MATH 2222	Calculus III	Grade of C or better is required. 4
MAT 312	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHY 201	Physics I	4	PHYSICS 1135	Engineering Physics I	Grade of C or better is required. 4
PHY 212	Physics II	4	PHYSICS 2135	Engineering Physics II	Grade of C or better is required. 4
CHM 114, 115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
ENG 103	Academic Writing	3	ENGLISH 1120	Exposition and Argumentation	3
ECON 212 or ECON 211	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		34	Total Hours		34

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

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

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

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

Engineering Major Requirements are detailed on the following pages.

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

**Humanities/Social Science (HSS) Electives:** HSS electives may include any art, English and technical communication, etymology, foreign language, music, philosophy, speech and media studies, or theatre. Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions. See Missouri S&T online catalog at <https://catalog.mst.edu/undergraduate/degreeprogramsandcourses/> for more information.

## Aerospace Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
SPE 111	Intro to Public Communication	3	SPMS 1185	Principles of Speech	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 215 or MAT 313	Linear Algebra or Mathematical Probability and 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
	Literature Elective	3		Literature Elective	3
	Ethics Elective	3		Ethics Elective <small>Engineering, business, bio, social or other ethics approved by advisor.</small>	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	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

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

## Architectural Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 (or HIS 103 or HIS 104)	Western Civilization II (or U.S. History to 1890 or U.S. History since 1890) <small>*HIS 106 is preferred; 103 or 104 will also be accepted.</small>	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
HSS Elective	Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	HSS Elective	Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
GEL 121	Intro to Geology	4	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	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	52

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

## Ceramic Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 314 or CHM 424	Organic Chemistry and Lab or Physical Chemistry I	3	CHEM 2210 or CHEM 3410	Organic Chemistry I (3) or Chemical Thermodynamics I (3) <small>(Will satisfy the advanced chemistry elective requirement.)</small>	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(or any statistics course 3000-level or higher. Satisfies statistics elective requirement.)</small>	3
SPE 111 or HSS Elective	Intro to Speech Communication or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	SPMS 1185 or HSS Elective	Principles of Speech or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	58		Total Hours*	58

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

## Chemical Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314,315	Organic Chemistry I and Lab	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*The lab is not required for the degree, will transfer as 1 of the 9 science elective credits (below).</small>	4
CHM 324 or CHM 334,335 or BIO 325,206	Organic Chemistry II (3) or Analytical Chemistry I (3) and Lab (1) or Molecular Cell Biology (4) and Lab Instruction Techniques (1) <small>(Select up to 8 hours from these options.)</small>	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219	Organic Chemistry II (4) or Analytical Chemistry (4) or Cell Biology and Lab (4) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.)</small>	8
CSA 304	Structured Programming	3	CS 1971,1981*	Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	33
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	67

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

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

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314,315	Organic Chemistry I and Lab	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*The lab is not required for the degree, will transfer as 1 of the 9 science elective credits (below).</small>	4
CHM 324 or CHM 334,335 or BIO 325,206	Organic Chemistry II (3) or Analytical Chemistry I (3) and Lab (1) or Molecular Cell Biology (4) and Lab Instruction Techniques (1) <small>(Select up to 8 hours from these options.)</small>	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219	Organic Chemistry II (4) or Analytical Chemistry (4) or Cell Biology and Lab (4) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.)</small>	8
CSA 304	Structured Programming	3	CS 1971,1981*	Intro to Programming Methodology and Lab* (C++) <small>*Will be substituted for CS 1500.</small>	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	33
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	67

\*S&T advisor permission is required to transfer more than 70 credits toward the S&T Chemical/Biochemical Engineering degree.

## Civil Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3113.)</small>	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	56		Total Hours*	55

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

## Computer Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CSA 304	Structured Programming	3	CS 1500	Computational Problem Solving	3
EGR 230 or CHM 314 or PHY 223 or BIO 325 or BIO 301	Engineering Mechanics-Statics (3) or Organic Chemistry I (3) or Physics III (3) or Molecular Cell Biology (4) or Genetics (4)	3	CIV ENG 2200 or CHEM 2210 or PHYSICS 2305 BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Organic Chemistry I (4) or Intro to Modern Physics (3) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective.</small>	3
PHY 328	Analog Circuits	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MAT 215 or MAT 331	Linear Algebra or Mathematics Seminar	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics <small>(Will satisfy a required math elective.)</small>	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3117.)</small>	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	27		Group 2 Major Requirements	27
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

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

## Electrical Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CSA 304	Structured Programming	3	CS 1500	Computational Problem Solving	3
EGR 230 and Dynamics at S&T <small>(BOTH of the courses above or ONE of the courses below.)</small>	Engineering Mechanics-Statics (3) and Dynamics to be taken at Missouri S&T (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small>	3	CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small>	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small>	3
OR PHY 223 or CHM 314 or BIO 325 or BIO 301	OR Physics III (3) or Organic Chemistry I (3) or Molecular Cell Biology (4) or Genetics (4)	3	OR PHYSICS 2305 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	OR Intro to Modern Physics (3) or Organic Chemistry I (4) or Cell Biology (3) or General Genetics (3)	3
PHY 328	Analog Circuits	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MTH 261	Linear Algebra	3	MATH 3108	Linear Algebra	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics <small>(Will be substituted for STAT 3117.)</small>	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	64		Total Hours*	64

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
PSY 112	Psychology as a Natural Science	3	PSYCH 1101	General Psychology	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104 or	U.S. History since 1890 or		HISTORY 1310 or	American History since 1877 or	
POL 211	American Government and Politics		POL SCI 1200	American Government	
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	64		Total Hours*	64

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

## Environmental Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104	U.S. History since 1890		HISTORY 1310	American History since 1877	
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
BIO 108	Intro to Biological Principles	4	BIO SCI 1113	General Biology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3113.)	3
	Humanities/Social Science Elective	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	34		Group 1 Core Requirements	34
	Total Hours	63		Total Hours*	61

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

## Geological Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104 or	U.S. History since 1890 or		HISTORY 1310 or	American History since 1877 or	
POL 211	American Government and Politics		POL SCI 1200	American Government	
GEL 121	Intro to Geology	4	GEOLOGY 1110	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	(GEO ENG 1150)		
MAT 313	Mathematical Probability and Statistics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
BIO 108 or	Intro to Biological Principles (4) or		STAT 3115	Engineering Statistics	3
CHM 124 or	General Chemistry II (3) or		BIO SCI 1113 or	<small>Applies to the degree as a required statistics elective.</small>	
CHM 314	Organic Chemistry I (3)	3	CHEM 1320 or	General Biology or	
			CHEM 2210	General Chemistry II or	
				Organic Chemistry I	3
				<small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</small>	
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	24
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	59		Total Hours*	58

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

## Mechanical Engineering Group 2 Major Requirements

<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
HIS 103 or	U.S. History to 1890 or	3	HISTORY 1300 or	American History to 1877 or	3
HIS 104 or	U.S. History since 1890 or		HISTORY 1310 or	American History since 1877 or	
POL 211	American Government and Politics		POL SCI 1200	American Government	
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 215 or	Linear Algebra or		MATH 3108 or	Linear Algebra I or	
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
				<small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	
	Literature Elective	3		Literature Elective	3
	Humanities/Social Science Elective	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	34		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	61

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

## Metallurgical Engineering Group 2 Major Requirements

Metallurgical Engineering Group 2 Major Requirements					
<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
CHM 124	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 314 or CHM 424 or PHY 328 or PHY 223	Organic Chemistry I or Physical Chemistry I or Analog Circuits or Physics III	3	CHEM 2210 or CHEM 3410 or EE 2800 or PHYSICS 2305	Organic Chemistry I (3) or Chemical Thermodynamics I (3) or Electrical Circuits (3) or Intro to Modern Physics (3)	3
	Humanities/Social Science Elective	3		Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.	
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	5		Humanities/Social Science Elective	3
	Group 2 Major Requirements	32		Maximum Free Electives	3
	Group 1 Core Requirements	34		Group 2 Major Requirements	30
	Total Hours	66		Group 1 Core Requirements	34
				Total Hours*	64

\*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

Mining Engineering Group 2 Major Requirements					
<u>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	22		Group 2 Major Requirements	21
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	56		Total Hours*	55

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
SPE 101	Intro to Speech Communication	3	SPMS 1185	Principles of Speech	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CSA 304	Structured Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MAT 215 or MAT 331	Linear Algebra or Mathematics Seminar	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MAT 313	Mathematical Probability and Statistics	3	STAT 3115	Engineering Statistics	3
PHY 328	Analog Circuits	3	EE 2800	Electrical Circuits	3
PHY 223	Physics III	3	PHYSICS 2305	Intro to Modern Physics	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	6		Maximum Free Electives	6
	Group 2 Major Requirements	39		Group 2 Major Requirements	39
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	73		Total Hours*	73

\*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>Westminster College</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
EGR 101	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Applications	3
HIS 106 or HIS 103 or HIS 104 or POL 211	Western Civilization II or U.S. History to 1890 or U.S. History since 1890 or American Government and Politics	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
GEL 121	Intro to Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
EGR 230	Engineering Mechanics-Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	18
	Group 1 Core Requirements	34		Group 1 Core Requirements	34
	Total Hours	53		Total Hours*	52

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