Northwest Missouri State University — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2026

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

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

Group 1 - Core Requirements: All Majors Take All Courses

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

Northwest Missouri State University			Semester	Missouri S&T		
MATH 17120	Calculus I	4		MATH 1214	Calculus I Grade of C or better is required.	4
MATH 17121	Calculus II	5		MATH 1215	Calculus II Grade of C or better is required.	4
MATH 17321	Multivariate Calculus	4		MATH 2222	Calculus III Grade of C or better is required.	4
MATH 17361	Differential Equations	3		MATH 3304	Elementary Differential Equations	3
PHYS 25120, 25121	Fundamentals of Classical Physics I and Lab	5		PHYSICS 1135	Engineering Physics I Grade of C or better is required.	4
PHYS 25230, 25231	Fundamentals of Classical Physics II and Lab	5		PHYSICS 2135	Engineering Physics II Grade of C or better is required.	4
ENGL 10111	Composition I: Writing in Academic Contexts	3		ENGLISH 1120	Exposition and Argumentation	3
	Total Hours	29			Total Hours	26

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

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

Aerospace Engineering
Architectural Engineering
Biomedical Engineering - Biomanufacturing
Biomedical Engineering - 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
Semiconductor 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.

This transfer guide is published by Missouri University of Science and Technology and is in effect as of Fall 2026.
Further information or updates are available from Missouri S&T Transfer Admissions at transfer.mst.edu, transfer@mst.edu, or 800-522-0938.

Aerospace Engineering Group 2 Major Requirements

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	3		AERO ENG 2360	Dynamics	3
MATH 17311	Linear Algebra	3		MATH 3108	Linear Algebra I Satisfies the Advanced Math/Comp Sci elective requirement.	3
Ethics	Ethics Elective Engineering, business, bio, social or other ethics approved by advisor.	3		Ethics	Ethics Elective Engineering, business, bio, social or other ethics approved by advisor.	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	34			Group 2 Major Requirements	35
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	63			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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
GEOL 27110, 27111	General Geology and Lab	4		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 3 hours Humanities and Fine Arts 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 3 hours.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	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 1190 or Literature	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 Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	3
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines, to include HISTORY 1200.						
HUM 26103*	**Western Civ II: 1500 to the Present*** ***Satisfies the State of Missouri Government requirement.**	3		**HISTORY 1200***	**Modern Western Civilization*** ***Satisfies the State of Missouri Government requirement.**	3
PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	3		PHILOS 1105 or PHILOS 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 ***Satisfies the State of Missouri government requirement.**	3
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	29			Group 2 Major Requirements	28
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	58			Total Hours*	54
					*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

Northwest Missouri State University		Semester	Missouri S&T		Semester
COM 29230	Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 24117	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
CHEM 24342, 24343	Organic Chemistry I and Lab	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4
BIOL 04102, 04103 or BIOL 04350	General Biology and Lab or Genetics	4	BIO SCI 1113, 1219 or BIO SCI 2223	General Biology and Lab or General Genetics Applies to degree as Track Elective.	4
BIOL 04310	Cell Biology	4	BIO SCI 2213, 2219	Cell Biology and Lab	4
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	COMP SCI 1500	Computational Problem Solving	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 3 hours Behavioral and Social Sciences. ***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.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 3 hours.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I 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.					
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	40		Group 2 Major Requirements	38
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	69		Total Hours*	64
				*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.	

Biomedical Engineering-Biomaterials
Group 2 Major Requirements

Northwest Missouri State University			Semester	Missouri S&T		
COM 29230	Public Speaking	3		SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 24117	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
CHEM 24342, 24343	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
BIOL 04102, 04103	General Biology and Lab	4		BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4
BIOL 04310	Cell Biology	4		BIO SCI 2213, 2219	Cell Biology and Lab	4
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	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 3 hours Behavioral and Social Sciences. ***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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 3 hours.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I 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.						
ENGL 10315	Technical Writing	3		ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	43			Group 2 Major Requirements	41
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	72			Total Hours*	67

*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 24117	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
CHEM 24342	Organic Chemistry I	3		CHEM 2210	Organic Chemistry I Will satisfy the advanced chemistry elective requirement.	3
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	36			Group 2 Major Requirements	35
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	65			Total Hours*	61
					*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

Northwest Missouri State University		Semester	Missouri S&T		
COM 29230	Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 24117	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
CHEM 24342, 24343	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* *CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits See note below .	4
CHEM 24344 or BIOL 04140	Organic Chemistry II (3) or General Microbiology (4) Will satisfy science elective requirement. Select up to 8 hours from these options.	8	CHEM 2220 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Microbiology and Lab (5) Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.	8
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	COMP SCI 1500	Computational Problem Solving	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.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6	HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences ENGLISH 3560 required.					
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	43		Group 2 Major Requirements	41
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	72		Total Hours*	67
				*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
GEOL 27110, 27111	General Geology and Lab	4		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	32			Group 2 Major Requirements	31
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	61			Total Hours*	70
					*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

Northwest Missouri State University		Semester	Missouri S&T		Semester
COM 29230	Public Speaking	3	SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	COMP SCI 1500	Computational Problem Solving	3
PHYS 25322 and PHYS 25325 BOTH of the courses above or ONE of the courses below. OR CHEM 24342 or BIOL 04310 or BIOL 04350	Statics and Classical Mechanics I Both courses above combined or any one of the following courses will satisfy a required engineering science elective. OR Organic Chemistry I or Cell Biology or Genetics	3	CIV ENG 2200 and MECH ENG 2350 BOTH of the courses above or ONE of the courses below. OR CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) Both courses above combined or any one of the following courses will satisfy a required engineering science elective. OR Organic Chemistry I (3) or Cell Biology (3) or General Genetics (3)	3
MATH 17311	Linear Algebra	3	MATH 3108	Linear Algebra Will satisfy a required math elective.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. ***At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.**					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6	HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy 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.					
ENGL 10112 or ENGL 10315	Composition II: Writing as Engagement 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	34		Group 2 Major Requirements	35
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	63		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

Northwest Missouri State University			Semester	Missouri S&T		
COM 29230	Public Speaking	3		SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	3
PHYS 25322 and PHYS 25325 BOTH of the courses above or ONE of the courses below. OR CHEM 24342 or BIOL 04310 or BIOL 04350	Statics and Classical Mechanics I Both courses above combined or any one of the following courses will satisfy a required engineering science elective. OR Organic Chemistry I or Cell Biology or Genetics	3		CIV ENG 2200 and MECH ENG 2350 BOTH of the courses above or ONE of the courses below. OR CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) Both courses above combined or any one of the following courses will satisfy a required engineering science elective. OR Organic Chemistry I (3) or Cell Biology (3) or General Genetics (3)	3
MATH 17311	Linear Algebra	3		MATH 3108	Linear Algebra	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy 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.						
ENGL 10112 or ENGL 10315	Composition II: Writing as Engagement or Technical Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
Electives	Maximum Free Electives	6		Electives	Maximum Free Electives	6
	Group 2 Major Requirements	37			Group 2 Major Requirements	38
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	66			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

Northwest Missouri State University			Semester	Missouri S&T		
COM 29230	Public Speaking	3		SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines to include PSYCH 1101.						
PSYC 08103	General Psychology	3		PSYCH 1101	General Psychology Required	3
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	3		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy 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 Select 3 hours.						
ENGL 10112 or ENGL 10315	Composition II: Writing as Engagement 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	28			Group 2 Major Requirements	28
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	57			Total Hours*	61
					*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
GEOL 27110, 27111	General Geology and Lab	4		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 24117	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
BIOL 04102	General Biology	3		BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) *The lab is not a degree requirement, transfers as general elective credit.	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	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 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, or 1310 to satisfy the State of Missouri government requirement and a degree-specific gen ed requirement.**						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines. At least one course in either the HFA or the BSS (below) section must be selected from HISTORY 1200, 1300, or 1310.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.. At least one course in either the HFA (above) or the BSS section must be selected from HISTORY 1200, 1300, or 1310.						
HUM 26103* or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	**Western Civ II: 1500 to the Present*** or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		**HISTORY 1200*** or PHILOS 1105 or PHILOS 1115 or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	**Modern Western Civilization*** or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement and a degree-specific gen ed requirement.**	6
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	37			Group 2 Major Requirements	34
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	66			Total Hours*	60
					*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

Northwest Missouri State University		Semester	Missouri S&T		
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
GEOL 27110, 27111	General Geology and Lab	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	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.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6	HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	32		Group 2 Major Requirements	31
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	61		Total Hours*	64

*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

Northwest Missouri State University		Semester	Missouri S&T		Semester
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	3	MECH ENG 2360	Dynamics	3
MATH 17311	Linear Algebra	3	MATH 3108	Linear Algebra I Satisfies the Advanced Math/Statistics elective requirement.	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.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6	HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	32
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	60		Total Hours*	58
				*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 2417	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
CHEM 24342	Organic Chemistry I	3		CHEM 2210	Organic Chemistry I Not specifically required for the degree but will satisfy out-of-department technical elective requirement	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	3			Maximum Free Electives	0
	Group 2 Major Requirements	39			Group 2 Major Requirements	35
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	68			Total Hours*	68
					*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

Northwest Missouri State University		Semester	Missouri S&T		Semester
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
GEOL 27110, 27111	General Geology and Lab	4	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. ***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.					
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6	HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy 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
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements	29		Group 2 Major Requirements	28
	Group 1 Core Requirements	29		Group 1 Core Requirements	26
	Total Hours	58		Total Hours*	54

*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
MATH 17311	Linear Algebra	3		MATH 3108	Linear Algebra	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines to include either ECON 1100 or 1200.						
ECON 52151 or ECON 52150	General Economics II or General Economics I	3		ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	3		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or Foreign Language	Early Western Civilization or **Modern Western Civilization*** or World Regional Geography or Self and World: Intro to Philosophy or **American Government***or General Psychology or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	3
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	Maximum Free Electives	0			Maximum Free Electives	0
	Group 2 Major Requirements	28			Group 2 Major Requirements	29
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	57			Total Hours*	55
					*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

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement or Technical Writing or Public Speaking	3		ENGLISH 3560 or ENGLISH 1160 or ENGLISH 1600	Technical Writing (preferred) or Writing and Research or Intro to Technical Communications Applies to degree as Gen Ed Communications requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	3
GEOL 27110, 27111	General Geology and Lab	4		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHYS 25322	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHYS 25325	Classical Mechanics I	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	35			Group 2 Major Requirements	34
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	64			Total Hours*	60
					*S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.	

Semiconductor Engineering-Device Engineering Emphasis
Group 2 Major Requirements

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 2417	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
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	Maximum Free Electives	3			Maximum Free Electives	3
	Group 2 Major Requirements	33			Group 2 Major Requirements	32
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	62			Total Hours*	58
					*S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.	

Semiconductor Engineering-Process Engineering Emphasis
Group 2 Major Requirements

Northwest Missouri State University			Semester	Missouri S&T		
ENGL 10112 or ENGL 10315 or COM 29230	Composition II: Writing as Engagement 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 Applies to degree as Gen Ed Communication requirement.	3
CHEM 24114, 24115	General Chemistry I and Lab	4		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 24116, 2417	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
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3		COMP SCI 1500	Computational Problem Solving	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.						
ENGL 10318 or ENGL 10319 or ENGL 10306 or ENGL 10307 or **HIST 33155*** or **HIST 33156*** or ART 13102 or MUS 19201 or THEA 43101 or Literature	British Literature to the 18th Century or British Literature Since the 18th Century or U.S. Literature to 1865 or U.S. Literature: 1865 to Present or **The United States to 1877*** or **The United States since 1877*** or Art Appreciation or Music Appreciation or Theatre Appreciation or Any literature with prerequisite of no more than English Composition I, ***Satisfies the State of Missouri government requirement.**	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or **HISTORY 1300*** or **HISTORY 1310*** or ART 1180 or MUSIC 1150 or THEATRE 1190 or Literature	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present or American Literature: 1600 to 1865 or American Literature: 1865 to Present or **American History to 1877*** or **American History Since 1877*** or Art Appreciation or Music Appreciation or Theatre via Video or Any literature with prerequisite of no more than ENGLISH 1120. ***Satisfies the State of Missouri government requirement.**	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HUM 26102 or **HUM 26103*** or GEOG 32101 or GEOG 32102 or PHIL 39171 or **POLS 34102*** or PSYC 08103 or ECON 52151 or ECON 52150 or Foreign Language	Western Civ I: The Ancient World to 1500 MOTR WCIV 101 or **Western Civ II: 1500 to the Present*** or Intro to Geography MOTR GEOG 101 or People and Cultures of the World MOTR GEOG 101 or Intro to Philosophy or **Intro to American Government and Politics*** or General Psychology or General Economics II or General Economics I or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6		HISTORY 1100 or **HISTORY 1200*** or HISTORY 2110 or PHILOS 1105 or **POL SCI 1200*** or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization MOTR WCIV 101 or **Modern Western Civilization*** or World Regional Geography MOTR GEOG 101 or Self and World: Intro to Philosophy or **American Government*** or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language ***Satisfies the State of Missouri government requirement.**	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	Maximum Free Electives	3			Maximum Free Electives	3
	Group 2 Major Requirements	33			Group 2 Major Requirements	32
	Group 1 Core Requirements	29			Group 1 Core Requirements	26
	Total Hours	62			Total Hours*	58
					*S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.	