

Northwest Missouri State University — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2024

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>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MATH 17120	Calculus I	4	MATH 1214	Calculus I <small>Grade of C or better is required.</small>	4
MATH 17121	Calculus II	4	MATH 1215	Calculus II <small>Grade of C or better is required.</small>	4
MATH 17321	Multivariate Calculus	4	MATH 2222	Calculus III <small>Grade of C or better is required.</small>	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 <small>Grade of C or better is required.</small>	4
PHYS 25230, 25231	Fundamentals of Classical Physics II and Lab	5	PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4
CHEM 24114, 24115	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
ENGL 10111	Composition I: Academic Literacies	3	ENGLISH 1120	Exposition and Argumentation	3
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
Total Hours		35	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
Biomedical Engineering/Biomufacturing or Biomaterials
Ceramic Engineering
Chemical Engineering and Biochemistry Emphasis
Civil Engineering
Computer Engineering
Electrical Engineering

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

Engineering Major Requirements are detailed on the following pages.

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

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 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>Northwest Missouri State University</u>	<u>Semester</u>	<u>Missouri S&T</u>	
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	3
ENGL 10112 or COM 29230 or ENGL 10315	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	3
PHYS 25322	3	CIV ENG 2200	3
PHYS 25325	3	AERO ENG 2360	3
MATH 17311	3	MATH 3108	3
	3		3
Ethics	3	Ethics	3
	0		0
	21		21
	35		34
Total Hours	56	Total Hours*	55

*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>Northwest Missouri State University</u>	<u>Semester</u>	<u>Missouri S&T</u>	
HUM 26103 (HIST 33155 or HISST 33156)	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	3
PHYS 25322	3	CIV ENG 2200	3
PHYS 25325	3	MECH ENG 2350	2
GEOL 27110, 27111	4	GEOLOGY 1110 (GEO ENG 1150)	3
Humanities or Social Science or Communication	3	Humanities or Social Science or Communication	3
	0		0
	16		14
	35		34
Total Hours	51	Total Hours*	48

*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

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 29230	Public Speaking	3	SP&MS 1185	Principles of Speech	3
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II	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	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	CS 1500	Computational Problem Solving	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	64

*S&T advisor permission is required to transfer more than 68 credit hours toward the degree.

Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 29230	Public Speaking	3	SP&MS 1185	Principles of Speech	3
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 24342, 24343	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab*	4
BIOL 04102, 04103	General Biology and Lab	4	BIO SCI 1113*, 1219*	General General Biology* and Lab*	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	CS 1500	Computational Problem Solving	3
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	64

*S&T advisor permission is required to transfer more than 65 credits toward the S&T Biomedical Engineering degree.

Ceramic Engineering Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 24342	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I <i>Will satisfy the advanced chemistry elective requirement.</i>	3
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II	3
ENGL 10112 or COM 29230 or HSS Elective	Composition II: Writing as Engagement or Public Speaking or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Principles of Speech or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	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	35		Group 1 Core Requirements	34
	Total Hours	57		Total Hours*	55

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

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

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 29230	Public Speaking	3	SP&MS 1185	Principles of Speech	3
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 24342, 24343	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* <i>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</i>	4
CHEM 24344 or BIOL 04140	Organic Chemistry II (3) or General Microbiology (4) <i>Will satisfy science elective requirement. Select up to 8 hours from these options.</i>	8	CHEM 2220 or BIO SCI 3313, 3319	Organic Chemistry II (3) or Microbiology and Lab (5) <i>Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.</i>	8
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	CS 1500	Computational Problem Solving	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	67		Total Hours*	64

*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

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 10112 or COM 29230 or ENGL 10315	Composition II: Writing as Engagement or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	17
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	54		Total Hours*	51

*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>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 29230	Public Speaking	3	SPMS 1185	Principles of Speech	3
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
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	CS 1500	Computational Problem Solving	3
PHYS 25322 or PHYS 25325 or CHEM 24342 or BIOL 04310 or BIOL 04350	Statics (3) or Classical Mechanics I (3) or Organic Chemistry I (3) or Cell Biology (3) or Genetics (3)	3	CIV ENG 2200 or MECH ENG 2350 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Organic Chemistry I (3) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required engineering/science elective.</small>	3
MATH 17311	Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy a required math elective.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	35		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 Computer Engineering degree.

Electrical Engineering Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 29230	Public Speaking	3	SPMS 1185	Principles of Speech	3
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
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	CS 1500	Computational Problem Solving	3
PHYS 25322 and PHYS 25325 <small>BOTH of the courses above or ONE of the courses below.</small>	Statics and Classical Mechanics I <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small>	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small>	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small>	3
OR CHEM 24342 or BIOL 04310 or BIOL 04350	OR Organic Chemistry I or Cell Biology or Genetics	3	OR CHEM 2210 or BIO SCI 2213 or BIO SCI 2223	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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	35		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 Electrical Engineering degree.

Engineering Management Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSYC 08103	General Psychology	3	PSYCH 1101	General Psychology	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
COM 29230	Public Speaking	3	SPMS 1185	Principles of Speech	3
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
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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	3	Electives	Maximum Free Electives	0
	Group 2 Major Requirements	24		Group 2 Major Requirements	20
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	59		Total Hours*	61

*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>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 10112 or COM 29230 or ENGL 10315	Composition II: Writing as Engagement or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310	Modern Western Civilization or American History to 1877 or American History since 1877	3
GEOL 27110, 27111	General Geology and Lab	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II	3
BIOL 04102	General Biology	3	BIO SCI 1113	General Biology	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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	26		Group 2 Major Requirements	23
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	61		Total Hours*	57

*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>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 10315	Technical Writing	3	ENGLISH 3560	Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
CSIS 44141 or CSIS 44241	Computer Programming I or Computer Programming II	3	CS 1500 or CS 1971, 1981 or CS 1972, 1982	Computational Problem Solving or Intro to Programming Methodology and Lab or Intro to MATLAB Programming and Lab	3
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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	25		Group 2 Major Requirements	23
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	60		Total Hours*	57

*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>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
ENGL 10112 or COM 29230 or ENGL 10315	Composition II: Writing as Engagement or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
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 <small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>	3
	Literature Elective	3		Literature Elective	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	21		Group 2 Major Requirements	21
	Group 1 Core Requirements	35		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 Mechanical Engineering degree.

Metallurgical Engineering Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>	
ENGL 10112 or COM 29230 or ENGL 10315	Composition II: Writing as Engagement or Public Speaking or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing 3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics 3
CHEM 24116	General Chemistry II	4	CHEM 1320	General Chemistry II 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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3
Electives	Maximum Free Electives	5	Electives	Maximum Free Electives 3
	Group 2 Major Requirements	27		Group 2 Major Requirements 24
	Group 1 Core Requirements	35		Group 1 Core Requirements 34
	Total Hours	62		Total Hours* 58

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

Mining Engineering Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>	
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
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language. 3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives 0
	Group 2 Major Requirements	22		Group 2 Major Requirements 20
	Group 1 Core Requirements	35		Group 1 Core Requirements 34
	Total Hours	57		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

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560	Writing and Research or Principles of Speech or Technical Writing	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
MATH 17311	Linear Algebra	3	MATH 3108	Linear Algebra	3
PHYS 25322	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6
	Group 2 Major Requirements	24		Group 2 Major Requirements	24
	Group 1 Core Requirements	35		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 Nuclear Engineering degree.

Petroleum Engineering Group 2 Major Requirements

<u>Northwest Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGL 10315 or ENGL 10112	Technical Writing or Composition II: Writing as Engagement	3	ENGLISH 3560 or ENGLISH 1160	Technical Writing (preferred) or Writing and Research	3
HUM 26103 or HIST 33155 or HIST 33156 or POLS 34102	Western Civilization II: 1500 to the Present or The United States to 1877 or The United States since 1877 or Intro to 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
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 or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	22		Group 2 Major Requirements	20
	Group 1 Core Requirements	35		Group 1 Core Requirements	34
	Total Hours	57		Total Hours*	54

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