

Missouri State University — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2025

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

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.

Missouri State University			Semester	Missouri S&T		
MTH 261	Analytic Geometry and Calculus I	5		MATH 1214	Calculus I	Grade of C or better is required. 4
MTH 280	Analytic Geometry and Calculus II	5		MATH 1215	Calculus II	Grade of C or better is required. 4
MTH 302	Multivariate Calculus	3		MATH 2222	Calculus III	Grade of C or better is required. 4
MTH 303	Differential Equations	3		MATH 3304	Elementary Differential Equations	3
PHY 203	Foundations of Physics I	5		PHYSICS 1135	Engineering Physics I	Grade of C or better is required. 4
PHY 204	Foundations of Physics II	5		PHYSICS 2135	Engineering Physics II	Grade of C or better is required. 4
EGR 110	Study and Careers in Engineering	1		FR ENG 1100	Study and Careers in Engineering and Computing	1
ENG 110	Writing I	3		ENGLISH 1120	Exposition and Argumentation	3
		Total Hours	30			Total Hours 27

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

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

Aerospace Engineering
Architectural Engineering
Biomedical Engineering/Biomanufacturing or Biomaterials
Ceramic Engineering
Chemical Engineering and Biochemistry Emphasis
Civil Engineering
Computer Engineering
Electrical Engineering

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

Engineering Major Requirements are detailed on the following pages.

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

This transfer guide is published by Missouri University of Science and Technology and is in effect as of Fall 2025.
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

Missouri State University			Semester	Missouri S&T		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	5	
CSC 125	Intro to C++ Programming	4	COMP SCI 1971,1981	Intro to Programming Method and Lab (C++)	3	
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2800	Electrical Circuits	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
MTH 333 or MTH 545 or MTH 345* or CSC 421	Linear Algebra or Applied Statistics or Statistics for Scientists and Engineers* or Numerical Analysis	3	MATH 3108 or STAT 3115 or STAT 3117* or CS 3200	Linear Algebra I or Engineering Statistics or Intro to Probability and Statistics or Intro to Numerical Methods <small>Math 3108, STAT 3115, or CS 3200 will directly satisfy the Advanced Math/Comp Sci elective requirement. *STAT 3117 will be substituted for the Advanced Math/Comp Sci elective requirement.</small>	3	
PHI 115	Ethics and Contemporary Issues <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	PHILOS 1130	How Should I Live? An Introduction to Ethics <small>or other engineering, business, bio, social ethics approved by advisor</small>	3	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		45	Group 2 Major Requirements		44	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		75			Total Hours*	71
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Aerospace Engineering degree.</small>						

Architectural Engineering Group 2 Major Requirements

Missouri State University			Semester	Missouri S&T	
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <i>Applies to degree as Gen Ed Communication requirement.</i>	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab <i>*CHEM 1310 will be substituted for CHEM 1305.</i>	5
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
TCM 315	Thermodynamics and Heat Transfer	3	MECH ENG 2527	Thermal Analysis	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
GRY 275	Intro to Plane Surveying	3	CIV ENG 2401	Fundamentals of Surveying	3
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115* or STAT 3117*	Engineering Statistics* or Intro to Probability and Statistics* <i>*Will be substituted for STAT 3113.</i>	3
GLG 110	Principles of Geology	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.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines to include HISTORY 1200.					
HST 104*	World History since 1600 C.E.* <i>*Satisfies the State of Missouri government requirement.</i>	3	HISTORY 1200*	Modern Western Civilization* <i>*Satisfies the State of Missouri Government requirement.</i>	3
PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	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 <i>*Satisfies the State of Missouri government requirement.</i>	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		45	Group 2 Major Requirements		43
Group 1 Core Requirements		30	Group 1 Core Requirements		27
Total Hours		75	Total Hours*		70
<i>*S&T advisor permission is required to transfer more than 69 credits toward the S&T Architectural Engineering degree.</i>					

Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

Missouri State University		Semester	Missouri S&T		
COM 115	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CHM 342	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I	3
CHEM 343 or BIO 121 or BIO 235	Organic Chem II (3) or General Biology I (4) or Genetics (3)	4	CHEM 2220 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry II (3) or General Biology and Lab (4) or General Genetics (3) Applies to degree as Track Elective.	3
BIO 320	Cellular and Molecular Biology	4	BIO SCI 2213, 2219	Cell Biology and Lab	4
CSC 131 or CSC 232 or CSC 125*	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming* (4)	3	CS 1500 or CS 1971*,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++) *Course will be substituted for CS 1500.	3
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 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.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music *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	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 American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences					
Select 3 hours.					
HST 103 or HST 104* or GRY 100 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
Humanities, Arts, and Social Sciences					
ENGLISH 3560 required.					
ENG 221 or ENG 321	Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 3560	Technical Writing	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		39	Group 2 Major Requirements		36
Group 1 Core Requirements		30	Group 1 Core Requirements		27
Total Hours		69			Total Hours*
*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.					

Biomedical Engineering-Biomaterials Group 2 Major Requirements

Missouri State University		Semester	Missouri S&T			
COM 115	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3	
CHM 342	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I	3	
CHM 343	Organic Chemistry II	3	CHEM 2220	Organic Chemistry II	3	
BIO 121	General Biology I	4	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4	
BIO 320	Cellular and Molecular Biology	4	BIO SCI 2213, 2219	Cell Biology and Lab	4	
CSC 131 or CSC 232 or CSC 125*	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming* (4)	3	CS 1500 or CS 1971*,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++) *Course will be substituted for CS 1500.	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100. Applies to the degree as a Track Elective (Engineering).	4	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 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.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music *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	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 American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences Select 3 hours.						
HST 103 or HST 104* or GRY 100 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	
Humanities, Arts, and Social Sciences ENGLISH 3560 required.						
ENG 221 or ENG 321	Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 3560	Technical Writing	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		48	Group 2 Major Requirements		47	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		78			Total Hours*	74
*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

Missouri State University			Semester	Missouri S&T		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <i>Applies to degree as Gen Ed Communication requirement.</i>	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</i>	3	
CHM 342 or CHM 375	Organic Chemistry I or Inorganic Chemistry	3	CHEM 2210 or CHEM 3310	Organic Chemistry I (3) or Inorganic Chemistry I (3) <i>Satisfies the advanced chemistry elective requirement.</i>	3	
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115 or STAT 3117	Engineering Statistics or Intro to Probability and Statistics <i>or any statistics course 3000-level or higher. Satisfies statistics elective requirement.</i>	3	
PHY 375	Modern Physics	3	PHYS 2305	Intro to Modern Physics	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	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		46	Group 2 Major Requirements		44	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		76			Total Hours*	71
*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

Missouri State University			Semester	Missouri S&T	
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
COM 115	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis* (2)	3
CHM 342	Organic Chemistry I	3	CHEM 2210	Organic Chemistry I	3
CHM 343 or CHM 302 or CHM 452 or BIO 320 or BIO 310	Organic Chemistry II (3) or Intro to Analytical Chemistry (5) or Biochemistry (3) or Cellular and Molecular Biology (4) or Microbiology (3) Select up to 9 hours from these options.	9	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319 or CHEM 4610, 4619	Organic Chemistry II (3) or Analytical Chemistry (4) or Cell Biology and Lab (4) or Microbiology and Lab (5) or General Biochemistry and Lab (5) Applies to the degree as required science elective credits. Select up to 9 hours from these options.	9
CSC 131 or CSC 232 or CSC 125*	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming* (4)	3	CS 1500 or CS 1971*,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* (C++)	3
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115* or STAT 3117*	Engineering Statistics* or Intro to Probability and Statistics*	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	6
Humanities, Arts, and Social Sciences ENGLISH 3560 required.					
ENG 221 or ENG 321	Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 3560	Technical Writing	3
<i>No free electives applied to the degree.</i>		0		Maximum Free Electives	0
Group 2 Major Requirements		49		Group 2 Major Requirements	47
Group 1 Core Requirements		30		Group 1 Core Requirements	27
Total Hours		79			Total Hours* 74
<i>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Chemical Engineering degree.</i>					

*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>Missouri State University</u>			<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3		MECH ENG 1720	Intro to Engineering Design	3
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 160, 161	General Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
GLG 110	Principles of Geology	4		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHY 233	Engineering Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
TCM 273	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
GRY 275	Intro to Plane Surveying	3		CIV ENG 2401	Fundamentals of Surveying	3
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3		STAT 3115* or STAT 3117*	Engineering Statistics* or Intro to Probability and Statistics* <small>*Will be substituted for STAT 3113.</small>	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6		HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
<i>No free electives applied to the degree.</i>						
	Group 2 Major Requirements	45			Maximum Free Electives	0
	Group 1 Core Requirements	30			Group 2 Major Requirements	43
	Total Hours	75			Group 1 Core Requirements	27
					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

Missouri State University			Semester	Missouri S&T	
COM 115	Fundamentals of Public Speaking	3	SPMS 1185	Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
MTH 314	Discrete Mathematics	3	CS 1200	Discrete Math for Computer Science	3
CSC 131 or CSC 232 or CSC 125	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming (4)	3	CS 1500	Computational Problem Solving	3
PHY 233 or PHY 333 or TCM 315 or CHM 342 or PHY 325 or BIO 320 or BIO 235	Statics (3) or Intermediate Mechanics (3) or Thermodynamics and Heat Transfer (3) or Organic Chemistry I (3) or Modern Physics (3) or Cellular and Molecular Biology (4) or Genetics (3)	3	CIV ENG 2200 or MECH ENG 2350 or MECH 2527 or CHEM 2210 or PHYSICS 2305 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (3) or Thermal Analysis (3) or Organic Chemistry I (3) or Intro to Theoretical Physics (3) or Cell Biology (3) or General Genetics (3) <small>Satisfies a required science/engineering elective</small>	3
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) <small>*A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100.</small>	4
MTH 333 or MTH 315	Linear Algebra or Algebraic Structures	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics <small>Satisfies a required math elective.</small>	3
MTH 345 or MTH 545*	Statistics for Scientists and Engineers or Applied Statistics*	3	STAT 3117 or STAT 3115*	Intro to Probability and Statistics or Engineering Statistics* <small>*Will be substituted for STAT 3117.</small>	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.					
ENG 210 or ENG 310 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Writing II: Writing for the Professions or Beginning 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	44		Group 2 Major Requirements	45
	Group 1 Core Requirements	30		Group 1 Core Requirements	27
	Total Hours	74			Total Hours*
				<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.</small>	

*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>Missouri State University</u>			<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3		MECH ENG 1720	Intro to Engineering Design	3
COM 115	Fundamentals of Public Speaking	3		SPMS 1185	Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 160, 161	General Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CSC 131 or CSC 232 or CSC 125	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming (4)	3		CS 1500	Computational Problem Solving	3
PHY 233 and PHY 333 <small>BOTH of the courses above or ONE of the courses below</small> OR TCM 315 or CHM 342 or PHY 325 or BIO 320 or BIO 235	Statics and Intermediate Mechanics <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Thermodynamics and Heat Transfer (3) or Organic Chemistry I (3) or Modern Physics (3) or Cellular and Molecular Biology (4) or Genetics (3)	3		CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small> OR MECH 2527 or CHEM 2210 or PHYSICS 2305 or BIO SCI 2213 or BIO SCI 2223	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) <small>Both courses above combined or any one of the following courses will satisfy a required engineering science elective.</small> OR Thermal Analysis (3) or Organic Chemistry I (3) or Intro to Theoretical Physics (3) or Cell Biology (3) or General Genetics (3)	3
PHY 252	Intro to Circuit Analysis	3		ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) <small>*A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100.</small>	4
MTH 333	Linear Algebra	3		MATH 3108	Linear Algebra	3
MTH 345 or MTH 545*	Statistics for Scientists and Engineers or Applied Statistics*	3		STAT 3117 or STAT 3115*	Intro to Probability and Statistics or Engineering Statistics* <small>*Will be substituted for STAT 3117.</small>	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6		HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.						
ENG 210 or ENG 310 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Writing II: Writing for the Professions or Beginning 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	47			Group 2 Major Requirements	48
	Group 1 Core Requirements	30			Group 1 Core Requirements	27
	Total Hours	77			Total Hours*	75

*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

Missouri State University			Semester	Missouri S&T		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
COM 115	Fundamentals of Public Speaking	3	SPMS 1185	Principles of Speech	3	
				Applies to degree as Gen Ed Communication requirement.	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CSC 125	Intro to C++ Programming	4	COMP SCI 1971,1981	Intro to Programming Method and Lab (C++)	3	
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2800	Electrical Circuits	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
TCM 315	Thermodynamics and Heat Transfer	3	MECH ENG 2527	Thermal Analysis	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
MTH 545 or	Applied Statistics or		STAT 3115 or	Engineering Statistics or		
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include						
6 hours Humanities and Fine Arts from at least two specific disciplines and						
6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 340 or	Survey of English Literature I or		ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or		
ENG 341 or	Survey of English Literature II or		ENGLISH 1212 or	British Literature II: 1800 to Present		
ENG 350 or	Survey of American Literature I or		ENGLISH 1221 or	American Literature: 1600 to 1865 or		
ENG 351 or	Survey of American Literature II or		ENGLISH 1222 or	American Literature: 1865 to Present or		
HST 121* or	Survey of the History of the U.S. to 1877* or	6	HISTORY 1300* or	American History to 1877* or	6	
HST 122* or	Survey of the History of the U.S. since 1877* or		HISTORY 1310* or	American History Since 1877* or		
ART 200 or	Art in Context or		ART 1180 or	Art Appreciation or		
MUS 241	The Language of Music		MUSIC 1150	Music Understanding and Appreciation		
*Satisfies the State of Missouri government requirement.						
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines to include PSYCH 1101.						
PSY 121	Introductory Psychology	3	PSYCH 1101	General Psychology Required	3	
HST 103 or	World History to Circa 1600 C.E. or		HISTORY 1100 or	Early Western Civilization or		
HST 104* or	World History since 1600 C.E.* or		HISTORY 1200* or	Modern Western Civilization* or		
GRY 100 or	World Regional Geography or		HISTORY 2110 or	World Regional Geography or		
PHI 110 or	Intro to Philosophy or		PHILOS 1105 or	Self and World: Intro to Philosophy or		
PHI 105 or	Critical Thinking or	3	PHILOS 1115 or	Logic and Reasoning: An Introduction or	3	
PLS 101*or	American Democracy and Citizenship* or		POL SCI 1200* or	American Government*or		
ECO 165 or	Principles of Microeconomics or		ECON 1100 or	Principles of Microeconomics or		
ECO 155 or	Principles of Macroeconomics or		ECON 1200 or	Principles of Macroeconomics or		
Foreign Language	Elementary or Intermediate Foreign Language		Foreign Language	Elementary or Intermediate Foreign Language		
*Satisfies the State of Missouri government requirement.						
Humanities, Arts, and Social Sciences						
Select 3 hours.						
ENG 210 or	Writing II: Writing Across the Disciplines or		ENGLISH 1160 or	Writing and Research or		
ENG 310 or	Writing II: Writing for Grad. and Prof. Schools or	3	ENGLISH 3560	Technical Writing	3	
ENG 221 or	Writing II: Writing for the Professions or					
ENG 321	Beginning Technical Writing					
No free electives applied to the degree.						
	Group 2 Major Requirements	48	Electives	Maximum Free Electives	0	
	Group 1 Core Requirements	30		Group 2 Major Requirements	46	
				Group 1 Core Requirements	27	
	Total Hours	78			Total Hours*	
*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

Missouri State University			Semester	Missouri S&T	
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
GLG 110	Principles of Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not a degree requirement, transfers as general elective credit.</small>	3
BIO 121	General Biology I	4	BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) <small>*The lab is not a degree requirement, transfers as general elective credit.</small>	3
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	CIV ENG 2211	Materials Testing	1
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115* or STAT 3117*	Engineering Statistics* or Intro to Probability and Statistics* <small>*Will be substituted for STAT 3113.</small>	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines to include HISTORY 1200					
HST 104*	World History since 1600 C.E.* <small>*Satisfies the State of Missouri government requirement.</small>	3	HISTORY 1200*	Modern Western Civilization* <small>*Satisfies the State of Missouri Government requirement.</small>	3
PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3	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 <small>*Satisfies the State of Missouri government requirement.</small>	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		48	Group 2 Major Requirements		41
Group 1 Core Requirements		30	Group 1 Core Requirements		27
Total Hours		78			Total Hours*
*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>Missouri State University</u>			<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 221 or ENG 321	Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 3560	Technical Writing <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CSC 125 or CSC 131 or CSC 197 or CSC 232	Intro to C++ Programming (4) or Computational Thinking (4) or Introductory Topics in Computer Science (3) or Data Structures (4)	3	CS 1500 or CS 1971, 1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3	
GLG 110	Principles of Geology	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115* or STAT 3117*	Engineering Statistics* (preferred) or Intro to Probability and Statistics* <small>*STAT 3115 is preferred. STAT 3117 will be accepted.</small>	3	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
Humanities, Arts, and Social Sciences Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
<i>No free electives applied to the degree.</i>		0	Maximum Free Electives		0	
Group 2 Major Requirements		45	Group 2 Major Requirements		43	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		75	Total Hours*		70	
<small>*S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.</small>						

Mechanical Engineering Group 2 Major Requirements

Missouri State University			Semester	Missouri S&T	
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310*, 1319	General Chemistry I and Lab <small>*CHEM 1310 will be substituted for CHEM 1305.</small>	5
CSC 125	Intro to C++ Programming	4	COMP SCI 1971,1981	Intro to Programming Method and Lab (C++)	3
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2800	Electrical Circuits	3
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 333 or MTH 545 or MTH 345*	Linear Algebra or Applied Statistics or Statistics for Scientists and Engineers*	3	MATH 3108 or STAT 3115 or STAT 3117*	Linear Algebra I or Engineering Statistics or Intro to Probability and Statistics <small>Math 3108 or STAT 3115 will directly satisfy the Advanced Math/Comp Sci elective requirement. *STAT 3117 will be substituted for the Advanced Math/Comp Sci elective requirement.</small>	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
<i>No free electives applied to the degree.</i>		0	Maximum Free Electives		0
Group 2 Major Requirements		42	Group 2 Major Requirements		41
Group 1 Core Requirements		30	Group 1 Core Requirements		27
Total Hours		72	Total Hours*		68
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mechanical Engineering degree.</small>					

Metallurgical Engineering Group 2 Major Requirements

Missouri State University		Semester	Missouri S&T			
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	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	
MTH 545 or MTH 345*	Applied Statistics or Statistics for Scientists and Engineers*	3	STAT 3115 or STAT 3117*	Engineering Statistics or Intro to Probability and Statistics* *Will be substituted for the STAT 3113/3115 requirement.	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHM 170, 171	General Chemistry II and Lab	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3	
CHM 342 or CHM 375 or CHM 506 or PHY 252 or GLG 332 or MTH 507 or PHY 375	Organic Chemistry I or Inorganic Chemistry I or Physical Chemistry I or Intro to Circuit Analysis or Mineralogy or Intro to Partial Differential Equations or Modern Physics	3	CHEM 2210 or CHEM 3310 or CHEM 3410 or ELEC ENG 2800 or GEOLOGY 2610 or MATH 5325 or PHYSICS 2305	Organic Chemistry I (3) or Inorganic Chemistry I (3) or Chemical Thermodynamics I (3) or Electrical Circuits (3) or Mineralogy and Crystallography (3) or Partial Differential Equations (3) or Intro to Modern Physics (3) Not specifically required for the degree but satisfies 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.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music *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	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 American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	
Humanities, Arts, and Social Sciences Select 3 hours.						
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		46	Group 2 Major Requirements		44	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		76			Total Hours*	71

*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

Missouri State University			Semester	Missouri S&T		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3	
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
MTH 545 or MTH 345*	Applied Statistics or Statistics for Scientists and Engineers*	3	STAT 3115 or STAT 3117*	Engineering Statistics or Intro to Probability and Statistics* <small>*Will be substituted for the STAT 3113/3115 requirement.</small>	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
TCM 315	Thermodynamics and Heat Transfer	3	MECH ENG 2527	Thermal Analysis	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
GLG 110	Principles of Geology	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.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		42	Group 2 Major Requirements		40	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		72			Total Hours*	67
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mining Engineering degree.</small>						

Nuclear Engineering Group 2 Major Requirements

Missouri State University			Semester	Missouri S&T	
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Intro to Engineering Design	3
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CSC 125	Intro to C++ Programming	4	COMP SCI 1971,1981	Intro to Programming Method and Lab (C++)	3
MTH 333 or MTH 315 or MTH/CSC 421	Linear Algebra or Algebraic Structures or Numerical Analysis	3	MATH 3108 or MATH 3109 or COMP SCI 3200	Linear Algebra or Foundations of Mathematics or Intro to Numerical Methods	3
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 545 or MTH 345	Applied Statistics or Statistics for Scientists and Engineers	3	STAT 3115 or STAT 3117	Engineering Statistics or Intro to Probability and Statistics	3
PHY 252	Intro to Circuit Analysis	3	ELEC ENG 2800	Electrical Circuits	3
PHY 375	Modern Physics	3	PHYSICS 2305	Intro to Modern Physics	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
ECO 165 or ECO 155	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	3	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 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 Logic and Reasoning: An Introduction or American Government* or General Psychology or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	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		48	Group 2 Major Requirements		47
Group 1 Core Requirements		30	Group 1 Core Requirements		27
Total Hours		78	Total Hours*		74
<small>*S&T advisor permission is required to transfer more than 69 credits toward the S&T Nuclear Engineering degree.</small>					

*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

Missouri State University		Semester	Missouri S&T			
ENG 210 or ENG 310 or COM 115 or ENG 221 or ENG 321	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Writing II: Writing for the Professions or Writing II: Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech <small>Applies to degree as Gen Ed Communication requirement.</small>	3	
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5	
CSC 131 or CSC 232 or CSC 125	Computational Thinking (4) or Data Structures (4) or Intro to C++ Programming (4)	3	COMP SCI 1500	Computational Problem Solving	3	
CSC 335	Database System Concepts	3	COMP SCI 2300	File Structures and Intro to Database Systems	3	
GLG 110	Principles of Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3	
PHY 233	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
TCM 315	Thermodynamics and Heat Transfer	3	MECH ENG 2527	Thermal Analysis	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 340 or ENG 341 or ENG 350 or ENG 351 or HST 121* or HST 122* or ART 200 or MUS 241	Survey of English Literature I or Survey of English Literature II or Survey of American Literature I or Survey of American Literature II or Survey of the History of the U.S. to 1877* or Survey of the History of the U.S. since 1877* or Art in Context or The Language of Music <small>*Satisfies the State of Missouri government requirement.</small>	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <small>*Satisfies the State of Missouri government requirement.</small>	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
HST 103 or HST 104* or GRY 100 or PHI 110 or PHI 105 or PLS 101* or PSY 121 or ECO 165 or ECO 155 or Foreign Language	World History to Circa 1600 C.E. or World History since 1600 C.E.* or World Regional Geography or Intro to Philosophy or Critical Thinking or American Democracy and Citizenship* or Introductory Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <small>*Satisfies the State of Missouri government requirement.</small>	6	
Humanities, Arts, and Social Sciences						
Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		45	Group 2 Major Requirements		43	
Group 1 Core Requirements		30	Group 1 Core Requirements		27	
Total Hours		75			Total Hours*	70
<small>*S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.</small>						