

Missouri State University — Missouri S&T

General Engineering Transfer Guide

Effective as of Fall 2020

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

Group 1 - Core Requirements: All Majors Take All Courses

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

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MTH 261	Analytic Geometry and Calculus I	5	MATH 1214	Calculus for Engineers I <small>Grade of C or better is required.</small>	4
MTH 280	Analytic Geometry and Calculus II	5	MATH 1215	Calculus for Engineers II <small>Grade of C or better is required.</small>	4
MTH 302	Multivariate Calculus	3	MATH 2222	Calculus with Analytic Geometry III <small>Grade of C or better is required.</small>	4
MTH 303	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHY 203	Foundations of Physics I	5	PHYSICS 1135	Engineering Physics I <small>Grade of C or better is required.</small>	4
PHY 204	Foundations of Physics II	5	PHYSICS 2135	Engineering Physics II <small>Grade of C or better is required.</small>	4
CHM 160, 161	General Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
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
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
Total Hours		38	Total Hours		35

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

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

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

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

Engineering Major Requirements are detailed on the following pages.

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

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

Aerospace 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	Engineering Design with Computer Appl	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3
CSC 125	Intro to C++ Programming	4	COMP SCI 1570, 1580	Intro to Programming and Lab (C++)	3
PHY 252	Intro to Circuit Analysis	3	EE 2800	Circuit Analysis I	3
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PTCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 333 or MTH 345	Linear Algebra or Statistics for Scientists and Engineers	3	MATH 3108 or STAT 3117	Linear Algebra I or Intro to Probability and Statistics (Will be substituted for STAT 3115.) <small>(Either course will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	3
	<i>See your advisor for course options.</i>	3		Literature Elective	3
	<i>See your advisor for course options.</i>	3		Ethics Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	65

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

Architectural Engineering Group 2 Major Requirements

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
HST 104 (or HST 121 or HST 122)	World History since 1600 C.E. (or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877) <small>*HST 104 is preferred; 121 or 122 will also be accepted.</small>	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>	3
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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 345	Statistics for Scientists and Engineers	3	STAT 3115	Engineering Statistics (Will be substituted for STAT 3113.)	3
ENG 210 or ENG 310 or COM 115 or HSS Elective	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
GLG 110 or GLG 171, 172	Principles of Geology or Environmental Geology and Lab	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
TCM 315	Thermodynamics and Heat Transfer	3	MECH ENG 2527	Thermal Analysis	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	65

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

Ceramic Engineering Group 2 Major Requirements

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
CHM 342	Organic Chemistry I	5	CHEM 2210/2219	Organic Chemistry I and Lab (Not a specific requirement. Will satisfy technical elective requirement.)	5
CHM 170	General Chemistry II	3	CHEM 1320	General Chemistry II	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3115.)	3
PHYS 375	Modern Physics	3	PHYS 2305	Intro to Modern Physics	3
ENG 210 or ENG 310 or COM 115 or HSS Elective	Writing II: Writing Across the Disciplines or Writing II: Writing for Grad. and Prof. Schools or Fundamentals of Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	32		Group 2 Major Requirements	32
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	70		Total Hours*	67

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

Chemical Engineering Group 2 Major Requirements

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHM 170	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 342	Organic Chemistry I	3	CHEM 2210, 2219	Organic Chemistry I and Lab	5
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) (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9	CHEM 2220, 2229 or CHEM 2510 or CHEM 4610 or BIO SCI 2213, 2219 or BIO SCI 3313	Organic Chemistry II and Lab (5) or Analytical Chemistry (4) or General Biochemistry (3) or Cell Biology and Lab (4) or Microbiology (3) (Will satisfy science elective requirement. Select up to 9 hours from these options.)	9
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)	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
COM 115	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	38
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	73

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CHM 170	General Chemistry II	3	CHEM 1320	General Chemistry II	3
CHM 342	Organic Chemistry I	3	CHEM 2210, 2219	Organic Chemistry I and Lab	5
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) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9	CHEM 2220, 2229 or CHEM 2510 or CHEM 4610 or BIO SCI 2213, 2219 or BIO SCI 3313	Organic Chemistry II and Lab (5) or Analytical Chemistry (4) or General Biochemistry (3) or Cell Biology and Lab (4) or Microbiology (3) <small>(Will satisfy science elective requirement. Select up to 9 hours from these options.)</small>	9
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)	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics <small>(Will be substituted for STAT 3113.)</small>	3
COM 115	Fundamentals of Public Speaking	3	SP&MS 1185	Principles of Speech	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	33		Group 2 Major Requirements	38
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	73

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

Civil Engineering Group 2 Major Requirements

<u>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
GLG 171, 172 or GLG 110	Environmental Geology and Lab (preferred) or Principles of Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	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 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics <small>(Will be substituted for STAT 3113.)</small>	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	65

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
COM 115	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
MTH 314	Discrete Mathematics	3	CS 1200	Discrete Math for Computer Science	3
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)	3-4	CS 1500 or CS 1971,1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3
PHY 233 and PHY 333 (BOTH of the courses above or ONE of the courses below) OR TCM 315 or CHM 342 or PHY 325 or BIO 320 or BIO 235	Statics and Intermediate Mechanics (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics and Heat Transfer (3) or Organic Chemistry I (3) or Modern Physics (3) or Cellular and Molecular Biology (4) or Principles of Genetics (4)	3-4	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) 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) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Analysis (3) or Organic Chemistry I (4) or Intro to Theoretical Physics (3) or Cell Biology (3) or General Genetics (3)	3-4
PHY 252	Intro to Circuit Analysis	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MTH 333 or MTH 315	Linear Algebra or Algebraic Structures	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics (Will satisfy a required math elective.)	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	33
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	68		Total Hours*	68

*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	Engineering Design with Computer Appl	3
COM 115	Fundamentals of Public Speaking	3	SPMS 1185	Public Speaking	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
PHY 233 and PHY 333 (BOTH of the courses above or ONE of the courses below) OR TCM 315 or CHM 342 or PHY 325 or BIO 320 or BIO 235	Statics and Intermediate Mechanics (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermodynamics and Heat Transfer (3) or Organic Chemistry I (3) or Modern Physics (3) or Cellular and Molecular Biology (4) or Principles of Genetics (4)	3-4	CIV ENG 2200 and MECH ENG 2350 (BOTH of the courses above or ONE of the courses below.) 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) (Both courses above combined or any one of the following courses will satisfy a required engineering science elective.) OR Thermal Analysis (3) or Organic Chemistry I (4) or Intro to Theoretical Physics (3) or Cell Biology (3) or General Genetics (3)	3-4
PHY 252	Intro to Circuit Analysis	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
MTH 333	Linear Algebra	3	MATH 3108	Linear Algebra	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	30		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	68		Total Hours*	65

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
PSY 121	Intro to Psychology	3	PSYCH 1101	General Psychology	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3
CSC 125	Intro to C++ Programming	4	COMP SCI 1570, 1580	Intro to Programming and Lab (C++)	3
PHY 252	Intro to Circuit Analysis	3	EE 2800	Circuit Analysis I	3
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
TCM 315	Thermodynamics and Heat Transfer	3	MECH 2527	Thermal Analysis	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Maximum Free Electives	3
	Group 2 Major Requirements	40		Group 2 Major Requirements	39
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	78		Total Hours*	74

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
GLG 110 or GLG 171, 172	Principles of Geology or Environmental Geology and Lab	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHM 170	General Chemistry II	3	CHEM 1320	General Chemistry II	3
BIO 121	General Biology I	4	BIO SCI 1113	General Biology	4
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	35		Group 2 Major Requirements	34
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	73		Total Hours*	69

*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	Engineering Design with Computer Appl	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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3	
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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	
GLG 110 or GLG 171, 172	Principles of Geology or Environmental Geology and Lab	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3	
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3	
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3	
BIO 121 or CHM 170 or CHM 342	General Biology I or General Chemistry II or Organic Chemistry I	3	BIO SCI 1113 or CHEM 1320 or CHEM 2210	General Biology or General Chemistry II or Organic Chemistry I or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.	3	
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3	
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3	
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0	
	Group 2 Major Requirements	31		Group 2 Major Requirements	30	
	Group 1 Core Requirements	38		Group 1 Core Requirements	35	
	Total Hours	69			Total Hours*	65

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>			
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3	
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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	
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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3	
CSC 125	Intro to C++ Programming	4	COMP SCI 1570, 1580	Intro to Programming and Lab (C++)	3	
PHY 252	Intro to Circuit Analysis	3	EE 2800	Circuit Analysis I	3	
PHY 233	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 345	Linear Algebra or Statistics for Scientists and Engineers	3	MATH 3108 or STAT 3117	Linear Algebra I or Intro to Probability and Statistics (STAT 3117 will be substituted for STAT 3115.) (Either course will satisfy the Advanced Math/Comp Sci elective requirement.)	3	
	<i>See your advisor for course options.</i>	3		Literature Elective	3	
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3	
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0	
	Group 2 Major Requirements	31		Group 2 Major Requirements	30	
	Group 1 Core Requirements	38		Group 1 Core Requirements	35	
	Total Hours	69			Total Hours*	65

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	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 Beginning Technical Writing	3	ENGLISH 1160 or ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Principles of Speech or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
CHM 170	General Chemistry II	3	CHEM 1320	General Chemistry II	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 2310 or CHEM 3410 or EE 2800 or GEOLOGY 2610 or MATH 5325 or PHYSICS 2305	Organic Chemistry I (4) 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)	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	5		Maximum Free Electives	5
	Group 2 Major Requirements	35		Group 2 Major Requirements	35
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	73		Total Hours*	70

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
PHY 233	Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3
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 or GLG 171, 172	Principles of Geology or Environmental Geology and Lab	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	34		Group 2 Major Requirements	33
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	68

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
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	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
TCM 273	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MTH 345	Statistics for Scientists and Engineers	3	STAT 3117	Intro to Probability and Statistics (Will be substituted for STAT 3113.)	3
PHY 375	Modern Physics	3	PHYSICS 2305	Intro to Modern Physics	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	6		Maximum Free Electives	6
	Group 2 Major Requirements	36		Group 2 Major Requirements	36
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	74		Total Hours*	71

*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>Missouri State University</u>		<u>Semester</u>	<u>Missouri S&T</u>		
TCM 110	Intro to Engineering Design	3	MECH ENG 1720	Engineering Design with Computer Appl	3
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 1160 or ENGLISH 3560 or ENGLISH 3560	Writing and Research or Writing and Research or Technical Writing or Technical Writing	3
HST 104 or HST 121 or HST 122 or PLS 101	World History since 1600 C.E. or Survey of the History of the U.S. to 1877 or Survey of the History of the U.S. since 1877 or American Democracy and Citizenship	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
GLG 110 or GLG 171, 172	Principles of Geology or Environmental Geology and Lab	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
PHY 233	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
PHY 333	Intermediate Mechanics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
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
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>See your advisor for course options.</i>	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	31		Group 2 Major Requirements	30
	Group 1 Core Requirements	38		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	65

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