

Truman State University — Missouri S&T

General Engineering Transfer Guide

Effective as of Fall 2023

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

Group 1 - Core Requirements: All Majors Take All Courses

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

| <u>Truman State University</u> | | | <u>Semester</u> | <u>Missouri S&T</u> | | | |
|--------------------------------|------------------------------------|---|-----------------|-------------------------|-----------------------------------|---|----|
| MATH 198 | Analytic Geometry and Calculus I | 5 | | MATH 1214 | Calculus I | 4 | |
| MATH 263 | Analytic Geometry and Calculus II | 5 | | MATH 1215 | Calculus II | 4 | |
| MATH 264 | Analytic Geometry and Calculus III | 3 | | MATH 2222 | Calculus III | 4 | |
| MATH 365 | Ordinary Differential Equations | 3 | | MATH 3304 | Elementary Differential Equations | 3 | |
| PHYS 195 | Physics I | 5 | | PHYSICS 1135 | Engineering Physics I | 4 | |
| PHYS 196 | Physics II | 5 | | PHYSICS 2135 | Engineering Physics II | 4 | |
| CHEM 130 | Chemical Principles I | 4 | | CHEM 1310, 1319 | General Chemistry I and Lab | 5 | |
| ENG 190 | Writing as Critical Thinking | 3 | | ENGLISH 1120 | Exposition and Argumentation | 3 | |
| ECON 201 or | Principles of Microeconomics or | 3 | | ECON 1100 or | Principles of Microeconomics or | 3 | |
| ECON 200 | Principles of Macroeconomics | | | ECON 1200 | Principles of Macroeconomics | 3 | |
| Total Hours | | | 36 | Total Hours | | | 34 |

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

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

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

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

Engineering Major Requirements are detailed on the following pages.

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

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

Aerospace Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | |
|--|--|-----------------|---|--|
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government |
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing |
| CS 180 or CS 181 | Foundations of Computer Science I (4) or Foundations of Computer Science II (3) | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics |
| MATH 357 or STAT 290 | Linear Algebra or Statistics | 3 | MATH 3108 or STAT 3115 | Linear Algebra I or Engineering Statistics or (Will satisfy the Advanced Math/Comp Sci elective requirement.) |
| | Literature Elective | 3 | | Literature Elective |
| | Ethics Elective | 3 | | Ethics Elective Engineering, business, bio, social or other ethics approved by advisor. |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives |
| | Group 2 Major Requirements | 21 | | Group 2 Major Requirements |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements |
| | Total Hours | 57 | | Total Hours* |
| | | | | 55 |

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

Architectural Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | |
|---|---|-----------------|---|---|
| HIST 112* (or HIST 104 or HIST 105) | World Civilizations since AD1300* (or US History I, 1607-1877 or US History II, 1877-present) <small>*HISTORY 112 is preferred; 104 or 106 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> |
| PHY 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics (Will be substituted for STAT 3113.) |
| HSS Elective | Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language | 3 | HSS Elective | Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language |
| NASC 140 | Physical Geology | 4 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives |
| | Group 2 Major Requirements | 16 | | Group 2 Major Requirements |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements |
| | Total Hours | 52 | | Total Hours* |
| | | | | 49 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| CHEM 329, 330 | Organic Chemistry I and Lab | 4 | CHEM 2210 | Organic Chemistry I (Will satisfy the advanced chemistry elective requirement.) | 4 |
| CHEM 131 | Chemical Principles II | 4 | CHEM 1320 | General Chemistry II | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics (or any statistics course 3000-level or higher. Satisfies statistics elective requirement.) | 3 |
| PHYS 250 | Modern Physics I | 3 | PHYS 2305 | Intro to Modern Physics | 3 |
| ENG 210 or COMM 170 or HSS Elective | Writing Across the Disciplines or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language | 3 | ENGLISH 1160 or SPMS 1185 or HSS Elective | Writing and Research or Principles of Speech or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 26 | | Group 2 Major Requirements | 25 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 62 | | Total Hours* | 59 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|---|----|
| ENG 212 | Technical Writing | 3 | ENGLISH 3560 | Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| CHEM 131 | Chemical Principles II | 4 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 329, 330 | Organic Chemistry I (3) and Lab (1) | 4 | CHEM 2210, 2219* | Organic Chemistry I and Lab* *The lab is not required for the degree, will transfer as 1 of the 9 science elective credits (below) . | 4 |
| CHEM 331 or BIOL 200 or BIOL 204 or BIOL 304 | Organic Chemistry II (3) or Cell Biology (4) or Introductory Microbiology (4) or General Microbiology (4) | 8 | CHEM 2220 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319 or CHEM 4610, 4619 | Organic Chemistry II (3) or Cell Biology and Lab (4) or Microbiology and Lab (5) or General Biochemistry and Lab (Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.) | 8 |
| CS 170 or CS 180* or CS 181* | Intro to Computer Science (4) or Foundations of Computer Science I (3) or Foundations of Computer Science II (3) | 3 | CS 1500 or CS 1971, 1981* | Computational Problem Solving or Intro to Programming Method and Lab (C++)* *Will be substituted for CS 1500. | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics (Will be substituted for STAT 3113.) | 3 |
| COMM 170 | Public Speaking | 3 | SPMS 1185 | Principles of Speech | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 34 | | Group 2 Major Requirements | 33 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 70 | | Total Hours* | 67 |

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENG 212 | Technical Writing | 3 | ENGLISH 3560 | Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| CHEM 131 | Chemical Principles II | 4 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 329, 330 | Organic Chemistry I (3) and Lab (1) | 4 | CHEM 2210, 2219* | Organic Chemistry I and Lab* <small>*The lab is not required for the degree, will transfer as 1 of the 9 science elective credits (below) .</small> | 4 |
| CHEM 331 or BIOL 200 or BIOL 204 or BIOL 304 | Organic Chemistry II (3) or Cell Biology (4) or Introductory Microbiology (4) or General Microbiology (4) | 8 | CHEM 2220 or BIO SCI 2213, 2219 or BIO SCI 3313, 3319 or CHEM 4610, 4619 | Organic Chemistry II (3) or Cell Biology and Lab (4) or Microbiology and Lab (5) or General Biochemistry and Lab <small>(Will satisfy science elective requirement. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.)</small> | 8 |
| CS 170 or CS 180* or CS 181* | Intro to Computer Science (4) or Foundations of Computer Science I (3) or Foundations of Computer Science II (3) | 3 | CS 1500 or CS 1971, 1981* | Computational Problem Solving or Intro to Programming Method and Lab (C++)* <small>*Will be substituted for CS 1500.</small> | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics <small>(Will be substituted for STAT 3113.)</small> | 3 |
| COMM 170 | Public Speaking | 3 | SPMS 1185 | Principles of Speech | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 34 | | Group 2 Major Requirements | 33 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 70 | | Total Hours* | 67 |

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

Civil Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| NASC 140 | Physical Geology | 4 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics <small>(Will be substituted for STAT 3113.)</small> | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 19 | | Group 2 Major Requirements | 18 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 55 | | Total Hours* | 52 |

*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>Truman State University</u> | <u>Semester</u> | | <u>Missouri S&T</u> | |
|---|--|-----------------|---|---|----|
| COMM 170 | Public Speaking | 3 | SPMS 1185 | Principles of Speech | 3 |
| ENG 210 or ENG 212 | Writing Across the Disciplines or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| CS 170 or CS 180 or CS 181 | Intro to Computer Science I or Foundations of Computer Science I or Foundations of Computer Science II | 3 | CS 1500 | Computational Problem Solving | 3 |
| CS 310 | Data Structures and Algorithms | 3 | CS 1575 | Data Structures | 3 |
| PHYS 387 or PHYS 381 or PHYS 250 or CHEM 329 or BIOL 200 or BIOL 300 | Statics or Modern Physics I or Organic Chemistry I or Cell Biology or Genetics | 3 | CIV ENG 2200 or PHYSICS 2311 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223 | Engineering Mechanics-Statics (3) or Modern Physics I (3) Organic Chemistry I (4) or Cell Biology (3) or General Genetics (3) | 3 |
| MATH 357 | Linear Algebra | 3 | MATH 3108 | Linear Algebra <small>(Will satisfy a required math elective.)</small> | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics <small>(Will be substituted for STAT 3117.)</small> | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Maximum Free Electives | 3 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 30 | | Group 2 Major Requirements | 30 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 66 | | Total Hours* | 64 |

*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>Truman State University</u> | <u>Semester</u> | | <u>Missouri S&T</u> | |
|--|--|-----------------|--|---|----|
| COMM 170 | Public Speaking | 3 | SPMS 1185 | Principles of Speech | 3 |
| ENG 210 or ENG 212 | Writing Across the Disciplines or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| CS 170 or CS 180 or CS 181 | Intro to Computer Science I or Foundations of Computer Science I or Foundations of Computer Science II | 3 | CS 1500 | Computational Problem Solving | 3 |
| PHYS 387 and S&T MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small> | Statics and Engineering Mechanics-Dynamics at S&T <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> | 3 | CIV ENG 2200 and MECH ENG 2350 <small>(BOTH of the courses above or ONE of the courses below.)</small> | Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>(Both courses above combined or any one of the following courses will satisfy a required engineering science elective.)</small> | 3 |
| OR | OR | 3 | OR | OR | 3 |
| PHYS 250 or CHEM 39 or BIOL 200 or BIOL 300 | Modern Physics I or Organic Chemistry I or Cell Biology or Genetics | 3 | PHYSICS 2311 or CHEM 2210 or BIO SCI 2213 or BIO SCI 2223 | Modern Physics I (3) Organic Chemistry I (3) or Cell Biology (3) or General Genetics (3) | 3 |
| MATH 357 | Linear Algebra | 3 | MATH 3108 | Linear Algebra | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics <small>(Will be substituted for STAT 3117.)</small> | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Maximum Free Electives | 3 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 63 | | Total Hours* | 61 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| PSYC 166 | General Psychology | 3 | PSYCH 1101 | General Psychology | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| COMM 170 | Public Speaking | 3 | SPMS 1185 | Principles of Speech | 3 |
| ENG 210 or ENG 212 | Writing Across the Disciplines or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| CS 180 or CS 181 | Foundations of Computer Science I (4) or Foundations of Computer Science II (3) | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Maximum Free Electives | 3 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 63 | | Total Hours* | 61 |

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

Environmental Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|---|-----------------|--|--|----|
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization | 3 |
| NASC 140 | Physical Geology | 4 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| CHEM 131 | Chemical Principles II | 4 | CHEM 1320 | General Chemistry II | 3 |
| BIOL 100 | Biology | 4 | BIO SCI 1113 | General Biology | 4 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics (Will be substituted for STAT 3113.) | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 27 | | Group 2 Major Requirements | 25 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 63 | | Total Hours* | 59 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 212 | Technical Writing | 3 | ENGLISH 3560 | Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| NASC 140 | Physical Geology | 4 | GEO ENG 1150 (GEOLOGY 1110) | Physical and Environmental Geology | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics <small>Applies to the degree as a required statistics elective.</small> | 3 |
| BIOL 100 or CHEM 131 or CHEM 329 | Biology (4) or Chemical Principles II (4) or Organic Chemistry I (3) | 3 | BIO SCI 1113 or CHEM 1320 or CHEM 2210 | General Biology or General Chemistry II or Organic Chemistry I <small>or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.</small> | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 25 | | Group 2 Major Requirements | 24 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 61 | | Total Hours* | 58 |

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

Mechanical Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|---|-----------------|---|---|----|
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing | 3 |
| CS 180 or CS 181 | Foundations of Computer Science I (4) or Foundations of Computer Science II (3) | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| MATH 357 or STAT 290 | Linear Algebra or Statistics | 3 | MATH 3108 or STAT 3115 | Linear Algebra I or Engineering Statistics <small>(Will satisfy the Advanced Math/Computer Science elective requirement.)</small> | 3 |
| | Literature Elective | 3 | | Literature Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 21 | | Group 2 Major Requirements | 21 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 57 | | Total Hours* | 55 |

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

Metallurgical Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics | 3 |
| CHEM 131 | Chemical Principles II | 4 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 329 or PHYS 250 | Organic Chemistry I or Modern Physics I | 3 | CHEM 2210 or PHYSICS 2311 | Organic Chemistry I (4) or Modern Physics I (3) <i>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.</i> | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Maximum Free Electives | 5 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 30 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 66 | | Total Hours* | 61 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 210 or ENG 212 | Writing Across the Disciplines or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877- present or World Civilization since AD 1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200* | Engineering Mechanics - Statics | 3 |
| NASC 140 | Physical Geology | 4 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 22 | | Group 2 Major Requirements | 21 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 58 | | Total Hours* | 55 |

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

Nuclear Engineering Group 2 Major Requirements

| <u>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 210 or COMM 170 or ENG 212 | Writing Across the Disciplines or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Principles of Speech or Technical Writing | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| CS 180 or CS 181 | Foundations of Computer Science I (4) or Foundations of Computer Science II (3) | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| MATH 357 | Linear Algebra | 3 | MATH 3108 | Linear Algebra | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics - Statics | 3 |
| STAT 290 | Statistics | 3 | STAT 3115 | Engineering Statistics | 3 |
| PHYS 381 | Thermodynamics | 4 | MECH ENG 2519 | Thermodynamics | 3 |
| PHYS 250 | Modern Physics I | 3 | PHYSICS 2311 | Modern Physics | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Maximum Free Electives | 6 | | Maximum Free Electives | 6 |
| | Group 2 Major Requirements | 37 | | Group 2 Major Requirements | 36 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 73 | | Total Hours* | 70 |

*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>Truman State University</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| ENG 210 or ENG 212 | Writing Across the Disciplines or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing (preferred) | 3 |
| HIST 104 or HIST 105 or HIST 112 or POL 161 | US History I, 1607-1877 or US History II, 1877-present or World Civilization since AD1300 or American National Government | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization or American Government | 3 |
| NASC 140 | Physical Geology | 4 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| PHYS 387 | Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>No free electives applied to the degree.</i> | 0 | | Maximum Free Electives | 0 |
| | Group 2 Major Requirements | 19 | | Group 2 Major Requirements | 18 |
| | Group 1 Core Requirements | 36 | | Group 1 Core Requirements | 34 |
| | Total Hours | 55 | | Total Hours* | 52 |

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