

Lewis & Clark Community College — 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.

| Lewis & Clark Community College | | | Semester | Missouri S&T | | | |
|---------------------------------|---|---|----------|---------------------------|---|---|----|
| MATH 171 | Calculus and Analytical Geometry I | 5 | | MATH 1214 | Calculus for Engineers I | 4 <small>Grade of C or better is required.</small> | |
| MATH 172 | Calculus and Analytical Geometry II | 5 | | MATH 1215 | Calculus for Engineers II | 4 <small>Grade of C or better is required.</small> | |
| MATH 271 | Calculus and Analytical Geometry III | 4 | | MATH 2222 | Calculus with Analytic Geometry III | 4 <small>Grade of C or better is required.</small> | |
| MATH 272 | Differential Equations | 3 | | MATH 3304 | Elementary Differential Equations | 3 | |
| PHYS 141 | General Physics I | 5 | | PHYSICS 1135 | Engineering Physics I | 4 <small>Grade of C or better is required.</small> | |
| PHYS 142 | General Physics II | 5 | | PHYSICS 2135 | Engineering Physics II | 4 <small>Grade of C or better is required.</small> | |
| CHEM 141 | General Chemistry I | 5 | | CHEM 1310, 1319 | General Chemistry I and Lab | 5 | |
| ENGL 131 | First Year-English I | 3 | | ENGLISH 1120 | Exposition and Argumentation | 3 | |
| ECON 152 or ECON 151 | 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 | | | 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 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

| Lewis & Clark Community College | | Semester | Missouri S&T | | |
|---|--|----------|---|--|----|
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II 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 |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 210 | Engineering Circuit Analysis | 3 | EE 2800 | Circuit Analysis I | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics - Dynamics | 3 | AERO ENG 2360 | Dynamics | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH ENG 2519 | Thermodynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| MATH 274 | Linear Algebra | 3 | MATH 3108 | Linear Algebra I <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small> | 3 |
| | Literature Elective | 3 | | Literature Elective | 3 |
| | Ethics Elective | 3 | | Ethics 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 | 33 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 71 | | Total Hours* | 67 |

*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

| Lewis & Clark Community College | | Semester | Missouri S&T | | |
|--|---|----------|---|---|----|
| HIST 132 (ir HIST 231 or HIST 232) | Western Civilization II (or American Republic: Beginnings-1877 or American Nation: 1877-Present) | 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 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| ENGL 132 or SPCH 131 or HSS Elective | First-Year English II 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 Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language | 3 |
| ADCG 133 | Intro to Architecture | 3 | ART 3203 | Architectural Design I | 3 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| PHYS 246 | Thermodynamics | 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 | 24 | | Group 2 Major Requirements | 24 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 62 | | Total Hours* | 58 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|---|-----------------|---|---|----|
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| CHEM 261 | Organic Chemistry I | 3 | CHEM 2210 | Organic Chemistry I (Not a specific requirement. Will satisfy the advanced chemistry elective requirement.) | 3 |
| CHEM 142 | General Chemistry II | 5 | CHEM 1320 | General Chemistry II | 3 |
| PHYS 244 | Intro to Modern Physics | 3 | PHYS 2305 | Intro to Modern Physics | 3 |
| ENGL 132 or SPCH 131 or HSS Elective | First-Year English II 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 Public Speaking 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 | 24 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 64 | | Total Hours* | 58 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|---|----|
| ENGL 132 or ENGL 137 | First-Year English II or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 142 | General Chemistry II | 5 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 261, 262 | Organic Chemistry I and Lab | 4 | CHEM 2210, 2219 | Organic Chemistry I and Lab | 4 |
| CHEM 263 | Organic Chemistry II | 3 | CHEM 2220 | Organic Chemistry II | 3 |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH ENG 2519* | Thermodynamics* *The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit. | 3 |
| SPCH 131 | Public Speaking | 3 | SP&MS 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 | 30 | | Group 2 Major Requirements | 28 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 68 | | Total Hours* | 62 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or ENGL 137 | First-Year English II or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 142 | General Chemistry II | 5 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 261, 262 | Organic Chemistry I and Lab | 4 | CHEM 2210, 2219 | Organic Chemistry I and Lab | 4 |
| CHEM 263 | Organic Chemistry II | 3 | CHEM 2220 | Organic Chemistry II | 3 |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH ENG 2519* | Thermodynamics* <small>*The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.</small> | 3 |
| SPCH 131 | Public Speaking | 3 | SP&MS 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 | 30 | | Group 2 Major Requirements | 28 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 68 | | Total Hours* | 62 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Public Speaking or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 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 | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 59 | | Total Hours* | 55 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|-------------------------------|---|----|
| SPCH 131 | Public Speaking | 3 | SPMS 1185 | Public Speaking | 3 |
| ENGL 132 or | First-Year English II or | 3 | ENGLISH 1160 or | Writing and Research or | 3 |
| ENGL 137 | Technical Writing | | ENGLISH 3560 | Technical Writing | |
| HIST 231 or | American Republic: Beginnings-1877 or | | HISTORY 1300 or | American History to 1877 or | |
| HIST 232 or | American Nation: 1877-Present or | 3 | HISTORY 1310 or | American History since 1877 or | 3 |
| HIST 132 or | Western Civilization II or | | HISTORY 1200 or | Modern Western Civilization or | |
| POLS 131 | American Government | | POL SCI 1200 | American Government | |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 241 and | Applied Mechanics-Statics (3) and | | CIV ENG 2200 and | Engineering Mechanics-Statics (3) and | |
| PHYS 242 | Applied Mechanics-Dynamics (3) | | MECH ENG 2350 | Engineering Mechanics-Dynamics (3) | |
| (BOTH of the courses above or | (Both courses above combined or any one of the following courses | | (BOTH of the courses above or | (Both courses above combined or any one of the following courses will satisfy | |
| ONE of the courses below.) | will satisfy a required engineering science elective.) | 3 | ONE of the courses below.) | a required engineering science elective.) | 3 |
| OR | OR | | OR | OR | |
| PHYS 246 or | Thermodynamics (3) or | | MECH ENG 2519 or | Thermodynamics (3) or | |
| PHYS 244 or | Intro to Modern Physics (3) | | PHYSICS 2311 or | Modern Physics I (3) | |
| CHEM 261 | Organic Chemistry I (4) | | CHEM 2210 | Organic Chemistry I (4) | |
| PHYS 210 | Engineering 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 |
| MATH 274 | Linear Algebra | 3 | MATH 3108 | Linear Algebra (Will satisfy a required math elective.) | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | See your advisor for course options. | 0 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 24 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 62 | | Total Hours* | 61 |

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

Electrical Engineering Group 2 Major Requirements

| <u>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|-------------------------------|---|----|
| SPCH 131 | Public Speaking | 3 | SPMS 1185 | Public Speaking | 3 |
| ENGL 132 or | First-Year English II or | 3 | ENGLISH 1160 or | Writing and Research or | 3 |
| ENGL 137 | Technical Writing | | ENGLISH 3560 | Technical Writing | |
| HIST 231 or | American Republic: Beginnings-1877 or | | HISTORY 1300 or | American History to 1877 or | |
| HIST 232 or | American Nation: 1877-Present or | 3 | HISTORY 1310 or | American History since 1877 or | 3 |
| HIST 132 or | Western Civilization II or | | HISTORY 1200 or | Modern Western Civilization or | |
| POLS 131 | American Government | | POL SCI 1200 | American Government | |
| CIS 235 | C++ Programming | 3 | CS 1500 | Computational Problem Solving | 3 |
| PHYS 241 and | Applied Mechanics-Statics (3) and | | CIV ENG 2200 and | Engineering Mechanics-Statics (3) and | |
| PHYS 242 | Applied Mechanics-Dynamics (3) | | MECH ENG 2350 | Engineering Mechanics-Dynamics (3) | |
| (BOTH of the courses above or | (Both courses above combined or any one of the following courses | | (BOTH of the courses above or | (Both courses above combined or any one of the following courses will satisfy | |
| ONE of the courses below.) | will satisfy a required engineering science elective.) | 3 | ONE of the courses below.) | a required engineering science elective.) | 3 |
| OR | OR | | OR | OR | |
| PHYS 246 or | Thermodynamics (3) or | | MECH ENG 2519 or | Thermodynamics (3) or | |
| PHYS 244 or | Intro to Modern Physics (3) | | PHYSICS 2311 or | Modern Physics I (3) | |
| CHEM 261 | Organic Chemistry I (4) | | CHEM 2210 | Organic Chemistry I (4) | |
| PHYS 210 | Engineering 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 |
| MATH 274 | Linear Algebra | 3 | MATH 3108 | Linear Algebra | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | See your advisor for course options. | 3 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 65 | | 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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|---|--|----|
| PSYC 131 | General Psychology | 3 | PSYCH 1101 | General Psychology | 3 |
| HIST 231 or HIST 232 or HIST 132 or POL S 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II 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 |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 210 | Engineering Circuit Analysis | 3 | EE 2800 | Circuit Analysis I | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH 2527 | Thermal Analysis | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>See your advisor for course options.</i> | 3 | | Maximum Free Electives | 3 |
| | Group 2 Major Requirements | 33 | | Group 2 Major Requirements | 33 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 71 | | Total Hours* | 67 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|--|--|-----------------|--|--|----|
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Public Speaking or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II | 3 | HISTORY 1300 or HISTORY 1310 or HISTORY 1200 | American History to 1877 or American History since 1877 or Modern Western Civilization | 3 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| CHEM 142 | General Chemistry II | 5 | CHEM 1320 | General Chemistry II | 3 |
| BIOL 130 | Fundamentals of Biological Science | 4 | BIO SCI 1113 | General Biology | 4 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 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 | 30 | | Group 2 Major Requirements | 28 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 68 | | Total Hours* | 62 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Public Speaking or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | GEO ENG 1150 (GEOLOGY 1110) | Physical and Environmental Geology | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| BIOL 130 or CHEM 142 or CHEM 261 | Fundamentals of Biological Science or General Chemistry II or Organic ChemistryI | 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 | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 65 | | Total Hours* | 61 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II 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 |
| CIS 235 | C++ Programming | 3 | CS 1971, 1981 | Intro to Programming Method and Lab (C++) | 3 |
| PHYS 210 | Engineering Circuit Analysis | 3 | EE 2800 | Circuit Analysis I | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics - Dynamics | 3 | MECH ENG 2360 | Dynamics | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH ENG 2519 | Thermodynamics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| MATH 274 | Linear Algebra | 3 | MATH 3108 | Linear Algebra <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 | 33 | | Group 2 Major Requirements | 33 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 71 | | Total Hours* | 67 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|---|----|
| ENGL 132 or SPCH 131 or ENGL 137 | First-Year English II or Public Speaking or Technical Writing | 3 | ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 | Writing and Research or Public Speaking or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| CHEM 142 | General Chemistry II | 5 | CHEM 1320 | General Chemistry II | 3 |
| CHEM 261 or PHYS 210 or PHYS 244 | Organic Chemistry or Engineering Circuit Analysis or Intro to Modern Physics | 3 | CHEM 2210 or EE 2800 or PHYSICS 2305 | Organic Chemistry I (4) or Electrical Circuits (3) or Intro to Modern Physics (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 |
| | <i>See your advisor for course options.</i> | 5 | | Maximum Free Electives | 5 |
| | Group 2 Major Requirements | 31 | | Group 2 Major Requirements | 29 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 69 | | Total Hours* | 63 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or ENGL 137 | First-Year English II or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200* | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH ENG 2527 | Thermal Analysis | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | 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 | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 65 | | Total Hours* | 61 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or ENGL 137 | First-Year English II or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| MATH 274 | Linear Algebra | 3 | MATH 3108 | Linear Algebra | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 3 |
| PHYS 244 | Intro to Modern Physics | 3 | PHYSICS 2305 | Intro to Modern Physics | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | Humanities/Social Science Elective | 3 | | Humanities/Social Science Elective | 3 |
| | <i>See your advisor for course options.</i> | 6 | | Maximum Free Electives | 6 |
| | Group 2 Major Requirements | 30 | | Group 2 Major Requirements | 30 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 68 | | Total Hours* | 64 |

*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>Lewis & Clark Community College</u> | | <u>Semester</u> | <u>Missouri S&T</u> | | |
|---|--|-----------------|---|--|----|
| ENGL 132 or ENGL 137 | First-Year English II or Technical Writing | 3 | ENGLISH 1160 or ENGLISH 3560 | Writing and Research or Technical Writing | 3 |
| HIST 231 or HIST 232 or HIST 132 or POLS 131 | American Republic: Beginnings-1877 or American Nation: 1877-Present or Western Civilization II or American 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 |
| PHSC 145 | Intro Geology & Physical Geography | 3 | GEOLOGY 1110 (GEO ENG 1150) | Physical and Environmental Geology | 3 |
| PHYS 241 | Applied Mechanics-Statics | 3 | CIV ENG 2200 | Engineering Mechanics-Statics | 3 |
| PHYS 242 | Applied Mechanics-Dynamics | 3 | MECH ENG 2350 | Engineering Mechanics-Dynamics | 3 |
| PHYS 246 | Thermodynamics | 3 | MECH 2527 | Thermal Analysis | 3 |
| PHYS 245 | Mechanics of Solids | 3 | CIV ENG 2210 | Mechanics of Materials | 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 | 27 | | Group 2 Major Requirements | 27 |
| | Group 1 Core Requirements | 38 | | Group 1 Core Requirements | 34 |
| | Total Hours | 65 | | Total Hours* | 61 |

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