

# Jefferson College — Missouri S&T

## General Engineering Transfer Guide

Effective as of Fall 2017

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>Partner School</u> |                                   | <u>Semester</u> | <u>Missouri S&amp;T</u> |   |
|-----------------------|-----------------------------------|-----------------|-------------------------|---|
| MTH 180               | Calculus I                        | 5               | MATH 1214               | Calculus for Engineers I Grade of C or better is required. 4            |
| MTH 185               | Calculus II                       | 5               | MATH 1215               | Calculus for Engineers II Grade of C or better is required. 4           |
| MTH 201               | Calculus III                      | 5               | MATH 2222               | Calculus with Analytic Geometry III Grade of C or better is required. 4 |
| MTH 205               | Differential Equations            | 3               | MATH 3304               | Elementary Differential Equations 3                                     |
| PHY 223****           | General Physics I                 | 4               | PHYSICS 1135            | Engineering Physics I Grade of C or better is required. 4               |
| PHY 224               | General Physics II                | 4               | PHYSICS 2135            | Engineering Physics II Grade of C or better is required. 4              |
| CHM 111               | General Chemistry I               | 5               | CHEM 1310, 1319         | General Chemistry I and Lab 5   |
| EGR 101****           | Computer Aided Engineering Design | 4               | MECH ENG 1720           | Engineering Design with Computer Appl 3                                 |
| ENG 101               | English Composition I             | 3               | ENGLISH 1120            | Exposition and Argumentation 3  |
| ECO 102 or            | Microeconomics or                 | 3               | ECON 1100 or            | ECON Principles of Microeconomics or                                    |
| ECO 101               | Macroeconomics                    |                 | 1200                    | Principles of Macroeconomics 3  |
| <b>Total Hours</b>    |                                   |                 | <b>41</b>               | <b>Total Hours</b> <b>37</b>  |

\*\*\*\* JC EGR 101 and PHY 223 must both be taken to receive credit for Missouri S&T MECH ENG 1720

### 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](http://ugs.mst.edu). Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions.

## Aerospace Engineering Group 2 Major Requirements

| <u>Partner School</u>   |   | <u>Semester</u>       | <u>Missouri S&amp;T</u>   |   |
|---|---|-----------------------|---|---|
| HST 103 or<br>HST 104 or<br>HST 102 or<br>PSC 102<br>ENG 102 or<br>SPD 175 or | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or<br>US and Missouri Govt. and Constitution<br>Composition and Rhetoric II or<br>Public Speaking | 3                     | HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or<br>POL SCI 1200<br>ENGLISH 1160 or<br>SPMS 1185 | American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or<br>American Government<br>Writing and Research or<br>Principles of Speech |
| CIS 155<br>EGR 261<br>EGR 228<br>EGR 250<br>MTH 172                           | Intro to Computer Programming<br>Circuit Analysis I<br>Engineering Mechanics - Statics<br>Engineering Mechanics - Dynamics<br>Linear Algebra                                | 3<br>3<br>3<br>3<br>3 | COMP SCI 1570<br>EE 2800<br>CIV ENG 2200<br>AERO ENG 2360<br>MATH 3108                                | Intro to Programming (C++)<br>Circuit Analysis I<br>Engineering Mechanics-Statics<br>Dynamics<br>Linear Algebra I   |
| <i>See your advisor for course options.</i>                                   |   |                       |   | Literature Elective   |
| <i>See your advisor for course options.</i>                                   |   |                       |   | Ethics Elective   |
| <i>No free electives applied to the degree.</i>                               |   |                       |   | Maximum Free Electives  |
| Group 2 Major Requirements  |   | 21                    | Group 2 Major Requirements  |   |
| Group 1 Core Requirements   |   | 41                    | Group 1 Core Requirements   |   |
| Total Hours   |   | 62                    | Total Hours*  |   |
|   |   |                       | 27  |   |
|   |   |                       | 37  |   |
|   |   |                       | 64  |   |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Aerospace Engineering degree.

## Architectural Engineering Group 2 Major Requirements

| <u>Partner School</u>                           |   | <u>Semester</u> | <u>Missouri S&amp;T</u>                               |  |
|---|---|-----------------|---|--|
| HST 102 or<br>HST 103 or<br>HST 104             | Renaissance to Early Modern Europe or<br>US History I or<br>US History II | 3               | HISTORY 1200*<br>(or HISTORY 1300 or<br>HISTORY 1310) | Modern Western Civilization*<br>(or American History to 1877 or<br>American History since 1877)  |
| EGN 228<br>EGN 150                              | Engineering Mechanics - Statics<br>Engineering Mechanics - Dynamics       | 3<br>3          | CIV ENG 2200<br>MECH ENG 2350                         | Engineering Mechanics-Statics<br>Engineering Mechanics-Dynamics  |
| ADT 151   | Surveying I   | 4               | CIV ENG 2401  | Fundamentals of Surveying  |
| ENG 102 or<br>SPD 175 or<br>HSS Elective        | Composition and Rhetoric II or<br>Public Speaking                         | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>Elective           | Writing and Research or<br>Public Speaking or<br>Humanities/Social Science Elective: history, economics,<br>political science, sociology, psychology, philosophy, fine   |
| BIO 101 or<br>PHY 106                           | General Biology or<br>Introduction to Astronomy                           | 4 or 5          | BIO SCI 1113 or<br>PHYSICS 1505                       | Principles of Biology or<br>Introductory Astronomy or<br>(or other chemistry, geology, biology, physics, or<br>astronomy course that is not otherwise required for the<br>degree) <small>4 credits to the degree as a basic science elective</small> |
| <i>No free electives applied to the degree.</i> |   |                 |   | Maximum Free Electives   |
| Group 2 Major Requirements                      |   | 16              | Group 2 Major Requirements                            |  |
| Group 1 Core Requirements                       |   | 41              | Group 1 Core Requirements                             |  |
| Total Hours                                     |   | 57              | Total Hours*  |  |
|   |   |                 | 19  |  |
|   |   |                 | 37  |  |
|   |   |                 | 56  |  |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Architectural Engineering degree.

## Ceramic Engineering Group 2 Major Requirements

| <u>Partner School</u>  |   | <u>Semester</u>    | <u>Missouri S&amp;T</u>   |   |
|--|---|--------------------|---|---|
| HST 103 or<br>HST 104 or<br>HST 102 or<br>PSC 102<br>EGN 228 | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or<br>US and Missouri Govt. and Constitution<br>Engineering Mechanics - Statics | 3<br><br><br><br>3 | HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or<br>POL SCI 1200<br>CIV ENG 2200 | American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or<br>American Government<br>Engineering Mechanics-Statics                                 |
| CHM 200  | Organic Chemistry I   | 5                  | CHEM 2210/2219  | Organic Chemistry I and Lab<br>(Not a specific requirement. Will satisfy technical elective requirement.)   |
| CHM 112  | General Chemistry II  | 3                  | CHEM 1320   | General Chemistry II<br>Writing and Research or   |
| ENG 102 or<br>SPD 175 or<br>HSS Elective                     | Composition and Rhetoric II or<br>Public Speaking   | 3                  | ENGLISH 1160 or<br>SPMS 1185 or<br>Elective   | HSS<br>Public Speaking or<br>Humanities/Social Science Elective: history, economics,<br>political science, sociology, psychology, philosophy, fine<br>art, literature, foreign language |
| <i>See your advisor for course options.</i>                  |   |                    |   | Humanities/Social Science Elective  |
| <i>No free electives applied to the degree.</i>              |   |                    |   | Maximum Free Electives  |
| Group 2 Major Requirements                                   |   | 17                 | Group 2 Major Requirements  |   |
| Group 1 Core Requirements                                    |   | 41                 | Group 1 Core Requirements   |   |
| Total Hours  |   | 58                 | Total Hours*  |   |
|  |   |                    | 20<br>37<br>57  |   |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Ceramic Engineering degree.

## Chemical Engineering Group 2 Major Requirements

| <u>Partner School</u>  |   | <u>Semester</u>              | <u>Missouri S&amp;T</u>  |  |
|--|---|------------------------------|--|--|
| ENH 102  | English Composition II  | 3                            | ENGLISH 1160   | Writing and Research   |
| HST 103 or<br>HST 104 or<br>HST 102 or<br>PSC 102<br>CHM 112<br>CHM 200<br>CHM 201 | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or<br>US and Missouri Govt. and Constitution<br>General Chemistry II<br>Organic Chemistry I<br>Organic Chemistry II | 3<br><br><br><br>3<br>5<br>5 | ENGLISH 1160<br>HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or<br>POL SCI 1200<br>CHEM 1320<br>CHEM 2210<br>CHEM 2220 | Writing and Research<br>American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or<br>American Government<br>General Chemistry II<br>Organic Chemistry I<br>Organic Chemistry II (Will satisfy science elective requirement.) |
| CIS 155 or<br>CIS 152  | Intro to Computer Programming or<br>Fortran Programming   | 3                            | COMP SCI 1570, 1580 or<br>COMP SCI 1971, 1981  | Intro to Programming or<br>Intro to Programming Methodology and Lab  |
| <i>See your advisor for course options.</i>  |   |                              |  | Humanities/Social Science Elective   |
| <i>See your advisor for course options.</i>  |   |                              |  | Humanities/Social Science Elective   |
| <i>No free electives applied to the degree.</i>                                    |   |                              |  | Maximum Free Electives   |
| Group 2 Major Requirements   |   | 22                           | Group 2 Major Requirements   |  |
| Group 1 Core Requirements  |   | 41                           | Group 1 Core Requirements  |  |
| Total Hours  |   | 63                           | Total Hours*   |  |
|  |   |                              | 26<br>37<br>63   |  |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Chemical Engineering degree.

## Chemical Engineering - Biochemical Engineering Emphasis

| <u>Partner School</u>  |   | <u>Semester</u>              | <u>Missouri S&amp;T</u>  |  |
|--|---|------------------------------|--|--|
| ENH 102  | English Composition II  | 3                            | ENGLISH 1160   | Writing and Research   |
| HST 103 or<br>HST 104 or<br>HST 102 or<br>PSC 102<br>CHM 112<br>CHM 200<br>CHM 201 | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or<br>US and Missouri Govt. and Constitution<br>General Chemistry II<br>Organic Chemistry I<br>Organic Chemistry II | 3<br><br><br><br>3<br>5<br>5 | ENGLISH 1160<br>HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or<br>POL SCI 1200<br>CHEM 1320<br>CHEM 2210<br>CHEM 2220 | Writing and Research<br>American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or<br>American Government<br>General Chemistry II<br>Organic Chemistry I<br>Organic Chemistry II (Will satisfy science elective requirement.) |
| CIS 155 or<br>CIS 152  | Intro to Computer Programming or<br>Fortran Programming   | 3                            | COMP SCI 1570, 1580 or<br>COMP SCI 1971, 1981  | Intro to Programming or<br>Intro to Programming Methodology and Lab  |
| <i>See your advisor for course options.</i>  |   |                              |  | Humanities/Social Science Elective   |
| <i>See your advisor for course options.</i>  |   |                              |  | Humanities/Social Science Elective   |
| <i>No free electives applied to the degree.</i>                                    |   |                              |  | Maximum Free Electives   |
| Group 2 Major Requirements   |   | 22                           | Group 2 Major Requirements   |  |
| Group 1 Core Requirements  |   | 41                           | Group 1 Core Requirements  |  |
| Total Hours  |   | 63                           | Total Hours*   |  |
|  |   |                              | 26<br>37<br>63   |  |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Chemical/Biochemical Engineering degree.

## CIVIL Engineering Group 2 Major Requirements

| <u>Partner School</u>                           |  | <u>Semester</u> | <u>Missouri S&amp;T</u>    |                                    |
|---|--|-----------------|----------------------------|------------------------------------|
| ENG 102 or                                      | English Composition II or              | 3               | ENGLISH 1160 or            | Writing and Research or            |
| COM 110   | Public Speaking                        |                 | SPMS 1185                  | Public Speaking                    |
| HST 103 or                                      | US History I or                        |                 | HISTORY 1300 or            | American History to 1877 or        |
| HST 104 or                                      | US History II or                       | 3               | HISTORY 1310 or            | American History since 1877 or     |
| HST 102 or                                      | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or            | Modern Western Civilization or     |
| PSC 102   | US and Missouri Govt. and Constitution |                 | POL SCI 1200               | American Government                |
| PHY 106   | Physical Geology                       | 4               | GEO 1111/GE 1150           | Intro to Physical Geology          |
| EGN 228   | Engineering Mechanics - Statics        | 3               | CIV ENG 2200               | Engineering Mechanics-Statics      |
| EGN 150   | Engineering Mechanics - Dynamics       | 3               | MECH ENG 2350              | Engineering Mechanics-Dynamics     |
| ADT 151   | Surveying I                            | 4               | CIV ENG 2401               | Fundamentals of Surveying          |
|   |  |                 |                            | Humanities/Social Science Elective |
| <i>See your advisor for course options.</i>     |  |                 |                            | Maximum Free Electives             |
| <i>No free electives applied to the degree.</i> |  |                 |                            |                                    |
| Group 2 Major Requirements                      |  | 20              | Group 2 Major Requirements |                                    |
| Group 1 Core Requirements                       |  | 41              | Group 1 Core Requirements  |                                    |
| Total Hours                                     |  | 61              | Total Hours*               |                                    |
|   |  |                 | 58                         |                                    |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Civil Engineering degree.

## Computer Engineering Group 2 Major Requirements

| <u>Partner School</u>                       |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |   |
|---|--|-----------------|---|---|
| SPD 175                                     | Public Speaking                        | 3               | SPMS 1185   | Principles of Speech                                    |
| ENH 102                                     | English Composition II                 | 3               | ENGLISH 1160  | Writing and Research                                    |
| HST 103 or                                  | US History I or                        |                 | HISTORY 1300 or   | American History to 1877 or                             |
| HST 104 or                                  | US History II or                       | 3               | HISTORY 1310 or   | American History since 1877 or                          |
| HST 102 or                                  | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or   | Modern Western Civilization or                          |
| PSC 102                                     | US and Missouri Govt. and Constitution |                 | POL SCI 1200  | American Government                                     |
| CIS 155                                     | Intro to Computer Programming          | 3               | COMP SCI 1570   | Intro to Programming                                    |
| EGN 228 and                                 | Engineering Mechanics - Statics and    |                 | CIV ENG 2200 and  | Engineering Mechanics-Statics and                       |
| EGN 150                                     | Engineering Mechanincs - Dynamics      | 6               | MECH ENG 2350   | Engineering Mechanics-Dynamics                          |
|   |  |                 | (Both courses combined will satisfy a required engineering science elective.) |   |
| MTH 172                                     | Linear Algebra                         | 3               | MATH 3108   | Linear Algebra (Will satisfy a required math elective.) |
| <i>See your advisor for course options.</i> |  |                 |   | Humanities/Social Science Elective                      |
| <i>See your advisor for course options.</i> |  |                 |   | Maximum Free Electives                                  |
| Group 2 Major Requirements                  |  | 21              | Group 2 Major Requirements  |   |
| Group 1 Core Requirements                   |  | 41              | Group 1 Core Requirements   |   |
| Total Hours                                 |  | 62              | Total Hours*  |   |
|   |  |                 | 64  |   |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Computer Engineering degree.

## Electrical Engineering Group 2 Major Requirements

| <u>Partner School</u>                       |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |                                    |
|---|--|-----------------|---|------------------------------------|
| SPD 175                                     | Public Speaking                        | 3               | SPMS 1185   | Principles of Speech               |
| ENH 102                                     | English Composition II                 | 3               | ENGLISH 1160  | Writing and Research               |
| HST 103 or                                  | US History I or                        |                 | HISTORY 1300 or   | American History to 1877 or        |
| HST 104 or                                  | US History II or                       | 3               | HISTORY 1310 or   | American History since 1877 or     |
| HST 102 or                                  | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or   | Modern Western Civilization or     |
| PSC 102                                     | US and Missouri Govt. and Constitution |                 | POL SCI 1200  | American Government                |
| CIS 155                                     | Intro to Computer Programming          | 3               | COMP SCI 1570   | Intro to Programming               |
| EGN 228 and                                 | Engineering Mechanics - Statics and    |                 | CIV ENG 2200 and  | Engineering Mechanics-Statics and  |
| EGN 150                                     | Engineering Mechanincs - Dynamics      | 6               | MECH ENG 2350   | Engineering Mechanics-Dynamics     |
|   |  |                 | (Both courses combined will satisfy a required engineering science elective.) |                                    |
| MTH 172                                     | Linear Algebra                         | 3               | MATH 3108   | Linear Algebra                     |
| <i>See your advisor for course options.</i> |  |                 |   | Humanities/Social Science Elective |
| <i>See your advisor for course options.</i> |  |                 |   | Maximum Free Electives             |
| Group 2 Major Requirements                  |  | 21              | Group 2 Major Requirements  |                                    |
| Group 1 Core Requirements                   |  | 41              | Group 1 Core Requirements   |                                    |
| Total Hours                                 |  | 62              | Total Hours*  |                                    |
|   |  |                 | 64  |                                    |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Electrical Engineering degree.

## Engineering Management Group 2 Major Requirements

| <u>Partner School</u> |   | <u>Semester</u> | <u>Missouri S&amp;T</u> |                                    |    |
|-----------------------|---|-----------------|-------------------------|------------------------------------|----|
| PSY 101               | General Psychology                          | 3               | PSYCH 1101              | General Psychology                 | 3  |
| HST 103 or            | US History I or                             |                 | HISTORY 1300 or         | American History to 1877 or        |    |
| HST 104 or            | US History II or                            | 3               | HISTORY 1310 or         | American History since 1877 or     | 3  |
| HST 102 or            | Renaissance to Early Modern Europe or       |                 | HISTORY 1200 or         | Modern Western Civilization or     |    |
| PSC 102               | US and Missouri Govt. and Constitution      |                 | POL SCI 1200            | American Government                |    |
| ENG 102 or            | English Composition II or                   |                 | ENGLISH 1160 or         | Writing and Research or            |    |
| COM 110               | Public Speaking                             | 3               | SPMS 1185               | Public Speaking                    | 3  |
| EGN 161               | Circuit Analysis I                          | 3               | ELEC ENG 2800           | Circuit Analysis I                 | 3  |
| EGN 228               | Engineering Mechanics - Statics             | 3               | CIV ENG 2200            | Engineering Mechanics-Statics      | 3  |
| EGN 150               | Engineering Mechanics - Dynamics            | 3               | MECH ENG 2350           | Engineering Mechanics-Dynamics     | 3  |
|                       | <i>See your advisor for course options.</i> |                 |                         | Humanities/Social Science Elective | 3  |
|                       | <i>See your advisor for course options.</i> |                 |                         | Maximum Free Electives             | 3  |
|                       | Group 2 Major Requirements                  | 18              |                         | Group 2 Major Requirements         | 24 |
|                       | Group 1 Core Requirements                   | 41              |                         | Group 1 Core Requirements          | 37 |
|                       | Total Hours                                 | 59              |                         | Total Hours*                       | 61 |

\*S&T advisor permission is required to transfer more than 66 credits toward the S&T Engineering Management degree.

## Environmental Engineering Group 2 Major Requirements

| <u>Partner School</u> |   | <u>Semester</u> | <u>Missouri S&amp;T</u> |  |    |
|-----------------------|---|-----------------|-------------------------|--|----|
| ENG 102 or            | English Composition II or                       |                 | ENGLISH 1160 or         | Writing and Research or                    |    |
| COM 110               | Public Speaking                                 | 3               | SPMS 1185               | Public Speaking                            | 3  |
| HST 103 or            | US History I or                                 |                 | HISTORY 1300 or         | American History to 1877 (preferred) or    |    |
| HST 104 or            | US History II or                                | 3               | HISTORY 1310 or         | American History since 1877 (preferred) or | 3  |
| HST 102               | Renaissance to Early Modern Europe              |                 | HISTORY 1200            | Modern Western Civilization                |    |
| PHY 106               | Physical Geology                                | 4               | GEO 1111/GE 1150        | Intro to Physical Geology                  | 3  |
| CHM 112               | General Chemistry II                            | 3               | CHEM 1320               | General Chemistry II                       | 3  |
| BIO 101               | General Biology                                 | 5               | BIO SCI 1113            | General Biology                            | 4  |
| EGN 228               | Engineering Mechanics - Statics                 | 3               | CIV ENG 2200            | Engineering Mechanics-Statics              | 3  |
| EGN 150               | Engineering Mechanics - Dynamics                | 3               | MECH ENG 2350           | Engineering Mechanics-Dynamics             | 3  |
|                       | <i>See your advisor for course options.</i>     |                 |                         | Humanities/Social Science Elective         | 3  |
|                       | <i>No free electives applied to the degree.</i> |                 |                         | Maximum Free Electives                     | 0  |
|                       | Group 2 Major Requirements                      | 24              |                         | Group 2 Major Requirements                 | 25 |
|                       | Group 1 Core Requirements                       | 41              |                         | Group 1 Core Requirements                  | 37 |
|                       | Total Hours                                     | 65              |                         | Total Hours*                               | 62 |

\*S&T advisor permission is required to transfer more than 66 credits toward the S&T Environmental Engineering degree.

## Geological Engineering Group 2 Major Requirements

| <u>Partner School</u> |   | <u>Semester</u> | <u>Missouri S&amp;T</u> |   |    |
|-----------------------|---|-----------------|-------------------------|---|----|
| ENG 102 or            | English Composition II or                       |                 | ENGLISH 1160 or         | Writing and Research or                                     |    |
| COM 110               | Public Speaking                                 | 3               | SPMS 1185               | Public Speaking   | 3  |
| HST 103 or            | US History I or                                 |                 | HISTORY 1300 or         | American History to 1877 or                                 |    |
| HST 104 or            | US History II or                                | 3               | HISTORY 1310 or         | American History since 1877 or                              | 3  |
| HST 102 or            | Renaissance to Early Modern Europe or           |                 | HISTORY 1200 or         | Modern Western Civilization or                              |    |
| PSC 102               | US and Missouri Govt. and Constitution          |                 | POL SCI 1200            | American Government   |    |
| PHY 106               | Physical Geology                                | 4               | GEO 1110/GE 1150        | Physical and Environmental Geology                          | 3  |
| EGN 228               | Engineering Mechanics - Statics                 | 3               | CIV ENG 2200            | Engineering Mechanics-Statics                               | 3  |
| EGN 150               | Engineering Mechanics - Dynamics                | 3               | MECH ENG 2350           | Engineering Mechanics-Dynamics                              | 3  |
| BIO 101 or            | General Biology or                              |                 | BIO SCI 1113 or         | General Biology or  |    |
| CHM 112 or            | General Chemistry II or                         |                 | CHEM 1320 or            | General Chemistry II or                                     |    |
| CHM 200               | Organic Chemistry I                             |                 | CHEM 2210               | Organic Chemistry I   |    |
|                       | <i>See your advisor for course options.</i>     |                 |                         | or any 3-hour course in chemistry, geochemistry, or biology |    |
|                       | <i>See your advisor for course options.</i>     |                 |                         | Humanities/Social Science Elective                          | 3  |
|                       | <i>No free electives applied to the degree.</i> |                 |                         | Humanities/Social Science Elective                          | 3  |
|                       | Group 2 Major Requirements                      | 16              |                         | Maximum Free Electives                                      | 0  |
|                       | Group 1 Core Requirements                       | 41              |                         | Group 2 Major Requirements                                  | 21 |
|                       | Total Hours                                     | 57              |                         | Group 1 Core Requirements                                   | 37 |
|                       |   |                 |                         | Total Hours*  | 58 |

\*S&T advisor permission is required to transfer more than 66 credits toward the S&T Geological Engineering degree.

## Mechanical Engineering Group 2 Major Requirements

| <u>Partner School</u>                                     |   | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |
|---|---|-----------------|---|--|
| HST 103 or<br>HST 104 or<br>HST 102 or                    | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or  | 3               | HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or   | American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or  |
| PSC 102<br>ENG 102 or<br>COM 110<br>CIS 155 or<br>CIS 152 | US and Missouri Govt. and Constitution<br>English Composition II or<br>Public Speaking<br>Intro to Computer Programming or<br>Fortran Programming | 3               | POL SCI 1200<br>ENGLISH 1160 or<br>SPMS 1185<br>COMP SCI 1570, 1580 or<br>COMP SCI 1971, 1981 | American Government<br>Writing and Research or<br>Public Speaking<br>Intro to Programming or<br>Intro to Programming Methodology and Lab |
| EGN 161<br>EGN 228<br>EGN 150                             | Circuit Analysis I<br>Engineering Mechanics - Statics<br>Engineering Mechanics - Dynamics   | 3               | EE 2800<br>CIV ENG 2200<br>MECH ENG 2360  | Circuit Analysis I<br>Engineering Mechanics-Statics<br>Dynamics  |
| MTH 175<br>MTT 148  | Linear Algebra<br>Intro to Metallurgy   | 3               | MATH 3108<br>MET ENG 2110   | Linear Algebra I<br>(Will satisfy the Advanced Math/Comp Sci elective requirement.)<br>Metallurgy for Engineers                          |
|   | <i>See your advisor for course options.</i>   |                 |   | Literature Elective  |
|   | <i>No free electives applied to the degree.</i>   |                 |   | Humanities/Social Science Elective   |
|   | Group 2 Major Requirements  | 15              |   | Maximum Free Electives   |
|   | Group 1 Core Requirements   | 41              |   | Group 2 Major Requirements   |
|   | Total Hours   | 56              |   | Group 1 Core Requirements  |
|   |   |                 |   | Total Hours*   |
|   |   |                 |   | 21   |
|   |   |                 |   | 37   |
|   |   |                 |   | 58   |

\*An advisor permission is required to transfer more than 66 credits toward the S&T Mechanical Engineering degree.

## Metallurgical Engineering Group 2 Major Requirements

| <u>Partner School</u>   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>  |   |
|---|--|-----------------|--|---|
| ENG 102 or<br>COM 110   | English Composition II or<br>Public Speaking   | 3               | ENGLISH 1160 or<br>SPMS 1185   | Writing and Research or<br>Public Speaking  |
| HST 103 or<br>HST 104 or<br>HST 102 or                            | US History I or<br>US History II or<br>Renaissance to Early Modern Europe or   | 3               | HISTORY 1300 or<br>HISTORY 1310 or<br>HISTORY 1200 or                                | American History to 1877 or<br>American History since 1877 or<br>Modern Western Civilization or   |
| PSC 102<br>EGN 228<br>MTT 148<br>CHM 112<br>CHM 200 or<br>EGN 161 | US and Missouri Govt. and Constitution<br>Engineering Mechanics - Statics<br>Intro to Metallurgy<br>General Chemistry II<br>Organic Chemistry I or<br>Analysis I | 3               | POL SCI 1200<br>CIV ENG 2200<br>MET ENG 2110<br>CHEM 1320<br>CHEM 2210 or<br>EE 2800 | American Government<br>Engineering Mechanics-Statics<br>Metallurgy for Engineers<br>General Chemistry II<br>Organic Chemistry I or<br>Electrical Circuits |
|   | <i>See your advisor for course options.</i>  |                 |  | Not specifically required for the degree but will satisfy Out-of-Department<br>Technical Elective Requirement   |
|   | <i>See your advisor for course options.</i>  |                 |  | Humanities/Social Science Elective  |
|   | <i>See your advisor for course options.</i>  |                 |  | Humanities/Social Science Elective  |
|   | Group 2 Major Requirements   | 15              |  | Maximum Free Electives  |
|   | Group 1 Core Requirements  | 41              |  | Group 2 Major Requirements  |
|   | Total Hours  | 56              |  | Group 1 Core Requirements   |
|   |  |                 |  | Total Hours*  |
|   |  |                 |  | 29  |
|   |  |                 |  | 37  |
|   |  |                 |  | 66  |

\*An advisor permission is required to transfer more than 66 credits toward the S&T Metallurgical Engineering degree.

## Mining Engineering Group 2 Major Requirements

| <u>Partner School</u>                           |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |                                    |    |
|---|--|-----------------|---|------------------------------------|----|
| ENH 102   | English Composition II                 | 3               | ENGLISH 1160  | Writing and Research               | 3  |
| HST 103 or                                      | US History I or                        |                 | HISTORY 1300 or   | American History to 1877 or        |    |
| HST 104 or                                      | US History II or                       | 3               | HISTORY 1310 or   | American History since 1877 or     | 3  |
| HST 102 or                                      | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or   | Modern Western Civilization or     |    |
| PSC 102   | US and Missouri Govt. and Constitution |                 | POL SCI 1200  | American Government                |    |
| EGN 228   | Engineering Mechanics - Statics        | 3               | CIV ENG 2200*   | Engineering Mechanics-Statics      | 3  |
| EGN 150   | Engineering Mechanics - Dynamics       | 3               | MECH ENG 2350*  | Engineering Mechanics-Dynamics     | 3  |
|   |  |                 | *The combination of CIV ENG 2200 and MECH ENG 2350 will be substituted for MECH ENG 2340. The Combination of CIV ENG 22000 and 2210 and MECH ENG 2350 will be substituted for MI ENG 3812 |                                    |    |
| PHY 106   | Physical Geology                       | 4               | GEO 1111/GE 1150  | Intro to Physical Geology          | 3  |
| <i>See your advisor for course options.</i>     |  |                 |   | Humanities/Social Science Elective | 3  |
| <i>See your advisor for course options.</i>     |  |                 |   | Humanities/Social Science Elective | 3  |
| <i>No free electives applied to the degree.</i> |  |                 |   | Maximum Free Electives             | 0  |
| Group 2 Major Requirements                      |  | 16              | Group 2 Major Requirements  |                                    | 21 |
| Group 1 Core Requirements                       |  | 41              | Group 1 Core Requirements   |                                    | 37 |
| Total Hours                                     |  | 57              | Total Hours*  |                                    | 58 |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Mining Engineering degree.

## Nuclear Engineering Group 2 Major Requirements

| <u>Partner School</u>                       |  | <u>Semester</u> | <u>Missouri S&amp;T</u>    |  |    |
|---|--|-----------------|----------------------------|--|----|
| ENH 102                                     | English Composition II                 | 3               | ENGLISH 1160               | Writing and Research                     | 3  |
| HST 103 or                                  | US History I or                        |                 | HISTORY 1300 or            | American History to 1877 or              |    |
| HST 104 or                                  | US History II or                       | 3               | HISTORY 1310 or            | American History since 1877 or           | 3  |
| HST 102 or                                  | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or            | Modern Western Civilization or           |    |
| PSC 102                                     | US and Missouri Govt. and Constitution |                 | POL SCI 1200               | American Government                      |    |
| CIS 155 or                                  | Intro to Computer Programming or       | 3               | COMP SCI 1570, 1580 or     | Intro to Programming or                  | 3  |
| CIS 152                                     | Fortran Programming                    | 3               | COMP SCI 1971, 1981        | Intro to Programming Methodology and Lab | 3  |
| EGN 228                                     | Engineering Mechanics - Statics        | 3               | CIV ENG 2200               | Engineering Mechanics-Statics            | 3  |
|   |  |                 | MET ENG 2110               | Metallurgy for Engineers                 | 3  |
| <i>See your advisor for course options.</i> |  |                 |                            | Humanities/Social Science Elective       | 3  |
| <i>See your advisor for course options.</i> |  |                 |                            | Humanities/Social Science Elective       | 3  |
| <i>See your advisor for course options.</i> |  |                 |                            | Maximum Free Electives                   | 6  |
| Group 2 Major Requirements                  |  | 12              | Group 2 Major Requirements |  | 27 |
| Group 1 Core Requirements                   |  | 41              | Group 1 Core Requirements  |  | 37 |
| Total Hours                                 |  | 53              | Total Hours*               |  | 64 |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Nuclear Engineering degree.

## Petroleum Engineering Group 2 Major Requirements

| <u>Partner School</u>                           |  | <u>Semester</u> | <u>Missouri S&amp;T</u>    |                                    |    |
|---|--|-----------------|----------------------------|------------------------------------|----|
| ENH 102   | English Composition II                 | 3               | ENGLISH 1160               | Writing and Research               | 3  |
| HST 103 or                                      | US History I or                        |                 | HISTORY 1300 or            | American History to 1877 or        |    |
| HST 104 or                                      | US History II or                       | 3               | HISTORY 1310 or            | American History since 1877 or     | 3  |
| HST 102 or                                      | Renaissance to Early Modern Europe or  |                 | HISTORY 1200 or            | Modern Western Civilization or     |    |
| PSC 102   | US and Missouri Govt. and Constitution |                 | POL SCI 1200               | American Government                |    |
| PHY 106   | Physical Geology                       | 4               | GEO 1110/GE 1150           | Physical and Environmental Geology | 3  |
| EGN 228   | Engineering Mechanics - Statics        | 3               | CIV ENG 2200               | Engineering Mechanics-Statics      | 3  |
| EGN 150   | Engineering Mechanics - Dynamics       | 3               | MECH ENG 2350              | Engineering Mechanics-Dynamics     | 3  |
| <i>See your advisor for course options.</i>     |  |                 |                            | Humanities/Social Science Elective | 3  |
| <i>See your advisor for course options.</i>     |  |                 |                            | Humanities/Social Science Elective | 3  |
| <i>No free electives applied to the degree.</i> |  |                 |                            | Maximum Free Electives             | 0  |
| Group 2 Major Requirements                      |  | 10              | Group 2 Major Requirements |                                    | 15 |
| Group 1 Core Requirements                       |  | 41              | Group 1 Core Requirements  |                                    | 37 |
| Total Hours                                     |  | 51              | Total Hours*               |                                    | 52 |

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Petroleum Engineering degree.