

# Houston Community College — Missouri S&T

## General Engineering

Transfer Guide Effective as of Fall 2024

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>Houston Community College</u> |                                  | <u>Semester</u> | <u>Missouri S&amp;T</u> |   |
|----------------------------------|----------------------------------|-----------------|-------------------------|---|
| MATH 2413 and                    | Calculus I (4) and               | 8               | MATH 1214 and           | Calculus I and  |
| MATH 2414                        | Calculus II (4)                  |                 | MATH 1215               | Calculus II Grade of C or better in both courses is required. |
| MATH 2415                        | Calculus III                     | 4               | MATH 2222               | Calculus III Grade of C or better is required.                |
| MATH 2320                        | Differential Equations           | 3               | MATH 3304               | Elementary Differential Equations                             |
| PHYS 2325, 2125                  | University Physics I and Lab I   | 4               | PHYSICS 1135            | Engineering Physics I Grade of C or better is required.       |
| PHYS 2326, 2126                  | University Physics II and Lab II | 4               | PHYSICS 2135            | Engineering Physics II Grade of C or better is required.      |
| CHEM 1311, 1111                  | General Chemistry I and Lab      | 4               | CHEM 1310, 1319         | General Chemistry I and Lab                                   |
| ENGR 1201                        | Intro to Engineering             | 2               | FR ENG 1100             | Study and Careers in Engineering and Computing                |
| ENGL 1301                        | Composition I                    | 3               | ENGLISH 1120            | Exposition and Argumentation                                  |
| ECON 2302 or                     | Principles of Microeconomics or  | 3               | ECON 1100 or            | Principles of Microeconomics or                               |
| ECON 2301                        | Principles of Macroeconomics     |                 | ECON 1200               | Principles of Macroeconomics                                  |
| Total Hours                      |                                  | 35              | Total Hours             |   |
|                                  |                                  |                 | 35                      |   |

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

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

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

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

Engineering Major Requirements are detailed on the following pages.

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

**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](mailto: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>Houston Community College</u>                                    |   | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|---|---|-----------------|---|--|----|
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305  | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government               | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government | 3  |
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2314<br>ENGR 2405 | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical Writing I<br>Electrical Circuits I | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560                       | Writing and Research or<br>Principles of Speech or<br>Technical Writing  | 3  |
| ENGR 2301<br>ENGR 2332  | Engineering Mechanics - Statics<br>Mechanics of Materials   | 3               | EE 2800<br>CIV ENG 2200<br>CIV ENG 2210                               | Electrical Circuits<br>Engineering Mechanics-Statics<br>Mechanics of Materials   | 3  |
| MATH 2318   | Linear Algebra  | 3               | MATH 3108   | Linear Algebra I<br><small>Will satisfy the Advanced Math/Comp Sci elective requirement.</small>                       | 3  |
|   | Literature Elective   | 3               |   | Literature Elective  | 3  |
| Ethics  | Ethics Elective<br><small>Engineering, business, bio, social or other ethics approved by advisor.</small>                   | 3               | Ethics  | Ethics Elective<br><small>Engineering, business, bio, social or other ethics approved by advisor.</small>              | 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   | 35              |   | Group 1 Core Requirements  | 35 |
|   | Total Hours   | 59              |   | Total Hours*   | 59 |

\*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>Houston Community College</u>                    |   | <u>Semester</u> | <u>Missouri S&amp;T</u>                               |  |    |
|---|---|-----------------|---|--|----|
| HISTORY 2312* or<br>HISTORY 1301 or<br>HISTORY 1302 | Western Civilization II<br>(or United States History I or<br>United States 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)<br><small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>                                | 3  |
| ENGR 2301<br>ENGR 2302                              | Engineering Mechanics - Statics<br>Engineering Mechanics - Dynamics   | 3               | CIV ENG 2200<br>MECH ENG 2350                         | Engineering Mechanics-Statics<br>Engineering Mechanics-Dynamics  | 3  |
| ENGR 2332   | Mechanics of Materials  | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science or<br>Communication | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language<br>or one communication course from this list: ENGL 1302,<br>ENGL 2314, SPCH 1311, SPCH 1315. | 3               | Humanities or<br>Social Science or<br>Communication   | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language<br>or one communication course from this list: ENGLISH 1160,<br>1600, 3560 or SPMS 1185. | 3  |
|   | <i>No free electives applied to the degree.</i>   | 0               |   | Maximum Free Electives   | 0  |
|   | Group 2 Major Requirements  | 15              |   | Group 2 Major Requirements   | 14 |
|   | Group 1 Core Requirements   | 35              |   | Group 1 Core Requirements  | 35 |
|   | Total Hours   | 50              |   | Total Hours*   | 49 |

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

## Biomedical Engineering-Biomanufacturing Group 2 Major Requirements

| <u>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |
|--|--|-----------------|---|--|
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Speaking   | Public 3        | SP&MS 1185  | Principles of Speech 3   |
| ENGLISH 2314   | Technical Writing I  | 3               | ENGLISH 3560  | Technical Writing 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government 3                 |
| CHEM 1412  | General Chemistry II   | 4               | CHEM 1320, 1510*  | General Chemistry II (3) and Qualitative Analysis (2)<br>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit. 3 |
| CHEM 2423  | Organic Chemistry I  | 4               | CHEM 2210, 2219   | Organic Chemistry I and Lab 4  |
| CHEM 2425 or<br>BIOL 1406  | Organic Chemistry II or<br>General Biology I   | 4               | CHEM 2220, 2229 or<br>BIO SCI 1113, 1219                              | Organic Chemistry II and Lab or<br>General Biology and Lab 4<br>Applies to degree as Track Elective.                                     |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. 3               |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives 0   |
|  | Group 2 Major Requirements   | 28              |   | Group 2 Major Requirements 26  |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements 35   |
|  | Total Hours  | 63              |   | Total Hours* 61  |

\*S&T advisor permission is required to transfer more than 68 credit hours toward the degree.

## Biomedical Engineering-Biomaterials Group 2 Major Requirements

| <u>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |
|--|--|-----------------|---|--|
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Public Speaking  | 3               | SP&MS 1185  | Principles of Speech 3   |
| ENGLISH 2314   | Technical Writing I  | 3               | ENGLISH 3560  | Technical Writing 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government  | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government 3   |
| CHEM 1412  | General Chemistry II   | 4               | CHEM 1320, 1510*  | General Chemistry II (3) and Qualitative Analysis (2)<br>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit. 3   |
| CHEM 2423  | Organic Chemistry I  | 4               | CHEM 2210, 2219*  | Organic Chemistry I and Lab*<br>*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering). 4  |
| CHEM 2425 or<br>BIOL 1406  | Organic Chemistry II   | 4               | CHEM 2220, 2229*  | Organic Chemistry II and Lab*<br>CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering). 4  |
| BIOL 1406  | General Biology I  | 4               | BIO SCI 1113*, 1219*  | General General Biology* and Lab*<br>*Applies to degree as Track Elective (Non-engineering). 4   |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics 3  |
| ENGR 2405  | Electrical Circuits I  | 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  |
| Upper-level<br>Humanities or<br>Social Science                     | Any upper-level history, economics, political science,<br>sociology, psychology, philosophy, fine art, literature, foreign<br>language at the 2000 level or above.<br>All details and requirements:<br><a href="https://advising.mst.edu/media/studentsupport/advising/documents/H-SS%20catalog.pdf">https://advising.mst.edu/media/studentsupport/advising/documents/H-SS%20catalog.pdf</a> | 3               | Upper-level<br>Humanities or<br>Social Science                        | Any upper-level history, economics, political science,<br>sociology, psychology, philosophy, fine art, literature, foreign<br>language at the 2000 level or above.<br>All details and requirements:<br><a href="https://advising.mst.edu/media/studentsupport/advising/documents/H-SS%20catalog.pdf">https://advising.mst.edu/media/studentsupport/advising/documents/H-SS%20catalog.pdf</a> |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives 0   |
|  | Group 2 Major Requirements   | 38              |   | Group 2 Major Requirements 36  |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements 35   |
|  | Total Hours  | 73              |   | Total Hours* 71  |

\*S&T advisor permission is required to transfer more than 65 credits toward the S&T Biomedical Engineering degree.

## Ceramic Engineering Group 2 Major Requirements

| <u>Houston Community College</u>                                   |   | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|---|-----------------|---|--|----|
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government   | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| ENGR 2301  | Engineering Mechanics - Statics   | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2332  | Mechanics of Materials  | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| CHEM 2423  | Organic Chemistry I   | 4               | CHEM 2210   | Organic Chemistry I<br><i>Will satisfy the advanced chemistry elective requirement.</i>  | 3  |
| CHEM 1412  | General Chemistry II  | 4               | CHEM 1320, 1510*  | General Chemistry II (3) and Qualitative Analysis (2)<br><i>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</i>                              | 3  |
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315 or<br>HSS Elective       | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>HSS Elective                       | Writing and Research or<br>Principles of Speech or<br>Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.  | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.  | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.   | 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   | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours   | 61              |   | Total Hours*   | 59 |

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

## Chemical Engineering or Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

| <u>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |   |    |
|--|--|-----------------|---|---|----|
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Public Speaking  | 3               | SP&MS 1185  | Principles of Speech  | 3  |
| ENGLISH 2314   | Technical Writing I  | 3               | ENGLISH 3560  | Technical Writing   | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government                            | 3  |
| CHEM 1412  | General Chemistry II   | 4               | CHEM 1320, 1510*  | General Chemistry II (3) and Qualitative Analysis (2)<br><i>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</i> | 3  |
| CHEM 2423  | Organic Chemistry I  | 4               | CHEM 2210, 2219*  | Organic Chemistry I and Lab*<br><i>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</i>                          | 4  |
| CHEM 2425  | Organic Chemistry II   | 4               | CHEM 2220   | Organic Chemistry II<br><i>Will partially satisfy 9-hour science elective requirement.</i>  | 3  |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.                          | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives  | 0  |
|  | Group 2 Major Requirements   | 28              |   | Group 2 Major Requirements  | 25 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements   | 35 |
|  | Total Hours  | 63              |   | Total Hours*  | 60 |

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

## Civil Engineering Group 2 Major Requirements

| <u>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2314             | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical Writing I                       | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560                       | Writing and Research or<br>Principles of Speech or<br>Technical Writing  | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350   | Engineering Mechanics-Dynamics   | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives   | 0  |
|  | Group 2 Major Requirements   | 18              |   | Group 2 Major Requirements   | 17 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 53              |   | 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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |   |    |
|--|--|-----------------|---|---|----|
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Public Speaking  | 3               | SPMS 1185   | Principles of Speech  | 3  |
| ENGL 1302 or<br>ENGL 2314  | Composition II or<br>Technical Writing I   | 3               | ENGLISH 1160 or<br>ENGLISH 3560                                       | Writing and Research or<br>Technical Writing  | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government  | 3  |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving   | 3  |
| ENGR 2301 and<br>ENGR 2302 or<br>CHEM 2423                         | Engineering Mechanics - Statics (3) and<br>Engineering Mechanics - Dynamics (3) or<br>Organic Chemistry I (4)            | 3               | CIV ENG 2200 or<br>MECH ENG 2350 or<br>CHEM 2210                      | Engineering Mechanics-Statics (3) or<br>Engineering Mechanics-Dynamics (2) or<br>Organic Chemistry I (3)<br><small>Satisfies a required engineering/science elective.</small> | 3  |
| ENGR 2405  | Electrical Circuits I  | 3               | EE 2100**   | Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is<br>required to receive credit for EE 2100.  | 3  |
| MATH 2318  | Linear Algebra   | 3               | MATH 3108   | Linear Algebra I<br><small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>  | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.  | 3  |
| Electives  | Maximum Free Electives   | 3               | Electives   | Maximum Free Electives  | 3  |
|  | Group 2 Major Requirements   | 28              |   | Group 2 Major Requirements  | 27 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements   | 35 |
|  | Total Hours  | 63              |   | Total Hours*  | 62 |

\*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>Houston Community College</u>   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Public Speaking  | 3               | SPMS 1185   | Principles of Speech   | 3  |
| ENGL 1302 or<br>ENGL 2314  | Composition II or<br>Technical Writing I   | 3               | ENGLISH 1160 or<br>ENGLISH 3560   | Writing and Research or<br>Technical Writing   | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305   | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government  | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200   | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving  | 3  |
| ENGR 2301 and<br>ENGR 2302<br>BOTH of the courses above or ONE<br>of the courses below.<br>OR<br>CHEM 2423 | Engineering Mechanics - Statics (3) and<br>Engineering Mechanics - Dynamics (3)<br>Both courses above combined or any one of the following courses will satisfy a<br>required engineering science elective)<br>OR<br>Organic Chemistry I (4) | 3               | CIV ENG 2200 and<br>MECH ENG 2350<br>BOTH of the courses above or ONE<br>of the courses below.<br>OR<br>CHEM 2210 | Engineering Mechanics-Statics (3) and<br>Engineering Mechanics-Dynamics (2)<br>Both courses above combined or any one of the following courses will satisfy a<br>required engineering science elective.<br>OR<br>Organic Chemistry I (3) | 3  |
| ENGR 2405  | Electrical Circuits I  | 3               | EE 2100**   | Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is<br>required to receive credit for EE 2100.   | 3  |
| MATH 2318  | Linear Algebra   | 3               | MATH 3108   | Linear Algebra   | 3  |
| Humanities or<br>Social Science  | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.   | 3               | Humanities or<br>Social Science   | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.   | 3  |
| Electives  | Maximum Free Electives   | 3               | Electives   | Maximum Free Electives   | 3  |
|  | Group 2 Major Requirements   | 28              |   | Group 2 Major Requirements   | 27 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 63              |   | Total Hours*   | 62 |

\*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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| PSYC 2301  | General Psychology   | 3               | PSYCH 1101  | General Psychology   | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| SPCH 1311 or<br>SPPCH 1315   | Intro to Speech Communication or<br>Public Speaking  | 3               | SPMS 1185   | Principles of Speech   | 3  |
| ENGL 1302 or<br>ENGL 2314  | Composition II or<br>Technical Writing I   | 3               | ENGLISH 1160 or<br>ENGLISH 3560                                       | Writing and Research or<br>Technical Writing   | 3  |
| ENGR 2405  | Electrical Circuits I  | 3               | EE 2800   | Electrical Circuits  | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350   | Engineering Mechanics-Dynamics   | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
|  | <i>No free electives applied to the degree.</i>  | 3               | Electives   | Maximum Free Electives   | 0  |
|  | Group 2 Major Requirements   | 30              |   | Group 2 Major Requirements   | 26 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 65              |   | 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>Houston Community College</u>                       |  | <u>Semester</u> | <u>Missouri S&amp;T</u>                            |   |    |
|--|--|-----------------|--|---|----|
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2314 | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical Writing I                       | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560    | Writing and Research or<br>Principles of Speech or<br>Technical Writing   | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312     | United States History I or<br>United States History II or<br>Western Civilization II                                     | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877  | 3  |
| CHEM 1412  | General Chemistry II   | 4               | CHEM 1320, 1510*                                   | General Chemistry II (3) and Qualitative Analysis (2)<br><small>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</small> | 3  |
| BIOL 1406  | General Biology I  | 4               | BIO SCI 1113, 1219*                                | General Biology (3) and Lab* (1)<br><small>*BIO SCI 1219 is not an S&amp;T degree requirement, will transfer as general elective credit.</small>          | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200                                       | Engineering Mechanics-Statics   | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350                                      | Engineering Mechanics-Dynamics  | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210                                       | Mechanics of Materials  | 3  |
| Humanities or<br>Social Science                        | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.                                  | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |  | Maximum Free Electives  | 0  |
|  | Group 2 Major Requirements   | 26              |  | Group 2 Major Requirements  | 23 |
|  | Group 1 Core Requirements  | 35              |  | Group 1 Core Requirements   | 35 |
|  | Total Hours  | 61              |  | Total Hours*  | 58 |

\*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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| ENGLISH 2314   | Technical Writing I  | 3               | ENGLISH 3560  | Technical Writing  | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| COSC 1436 or<br>COSC 1437  | Programming Fundamentals I or<br>Programming Fundamentals II   | 4               | CS 1500   | Computational Problem Solving  | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350   | Engineering Mechanics-Dynamics   | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives   | 0  |
|  | Group 2 Major Requirements   | 25              |   | Group 2 Major Requirements   | 23 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 60              |   | 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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315                          | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or  | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560                       | Writing and Research or<br>Principles of Speech or<br>Technical Writing  | 3  |
| ENGL 2314  | Technical Writing I  | 3               | EE 2800   | Electrical Circuits  | 3  |
| ENGR 2405  | Electrical Circuits I  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| ENGR 2332  | Mechanics of Materials   | 3               | MATH 3108   | Linear Algebra I<br><small>Will satisfy the Advanced Math/Statistics elective requirement.</small>                       | 3  |
| MATH 2318  | Linear Algebra   | 3               |   | Literature Elective  | 3  |
|  | Literature Elective  | 3               |   |  |    |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 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  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 59              |   | Total Hours*   | 59 |

\*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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |   |    |
|--|--|-----------------|---|---|----|
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2314             | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical Writing I                       | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560                       | Writing and Research or<br>Principles of Speech or<br>Technical Writing   | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government                                    | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics   | 3  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials  | 3  |
| CHEM 1412  | General Chemistry II   | 4               | CHEM 1320, 1510*  | General Chemistry II (3) and Qualitative Analysis (2)<br><small>*CHEM 1510 is not an S&amp;T degree requirement. Will transfer as general credit.</small> | 3  |
| CHEM 2423  | Organic Chemistry II   | 4               | CHEM 2210   | Organic Chemistry I<br><small>Not specifically required for the degree but will satisfy out-of-department technical elective requirement</small>          | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.                                  | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language.                                  | 3  |
| Electives  | Maximum Free Electives   | 3               | Electives   | Maximum Free Electives  | 3  |
|  | Group 2 Major Requirements   | 29              |   | Group 2 Major Requirements  | 27 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements   | 35 |
|  | Total Hours  | 64              |   | Total Hours*  | 62 |

\*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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2311             | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical & Business Writing              | 3               | ENGLISH 1160 or<br>ENGLISH 3560 or<br>ENGLISH 1600                    | Writing and Research or<br>Technical Writing or<br>Intro to Technical Communications                                     | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350   | Engineering Mechanics-Dynamics   | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives   | 0  |
|  | Group 2 Major Requirements   | 21              |   | Group 2 Major Requirements   | 20 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 56              |   | 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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315<br>ENGL 2314             | Composition II or<br>Intro to Speech Communication or<br>Public Speaking or<br>Technical Writing I                       | 3               | ENGLISH 1160 or<br>SPMS 1185 or<br>ENGLISH 3560                       | Writing and Research or<br>Principles of Speech or<br>Technical Writing  | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| MATH 2318  | Linear Algebra   | 3               | MATH 3108   | Linear Algebra   | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| ENGR 2405  | Electrical Circuits I  | 3               | EE 2800   | Electrical Circuits  | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Electives  | Maximum Free Electives   | 6               | Electives   | Maximum Free Electives   | 6  |
|  | Group 2 Major Requirements   | 30              |   | Group 2 Major Requirements   | 30 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 65              |   | Total Hours*   | 65 |

\*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>Houston Community College</u>                                   |  | <u>Semester</u> | <u>Missouri S&amp;T</u>   |  |    |
|--|--|-----------------|---|--|----|
| ENGL 2314 or<br>ENGL 1302 or<br>SPCH 1311 or<br>SPCH 1315          | Technical Writing I (preferred) or<br>Composition II or<br>Intro to Speech Communication or<br>Public Speaking           | 3               | ENGLISH 3560 or<br>ENGLISH 1160 or<br>SPMS 1185                       | Technical Writing (preferred) or<br>Writing and Research or<br>Principles of Speech                                      | 3  |
| HISTORY 1301 or<br>HISTORY 1302 or<br>HISTORY 2312 or<br>GOVT 2305 | United States History I or<br>United States History II or<br>Western Civilization II or<br>Federal Government            | 3               | HISTORY 1200 or<br>HISTORY 1300 or<br>HISTORY 1310 or<br>POL SCI 1200 | Modern Western Civilization or<br>American History to 1877 or<br>American History since 1877 or<br>American Government   | 3  |
| ENGR 2301  | Engineering Mechanics - Statics  | 3               | CIV ENG 2200  | Engineering Mechanics-Statics  | 3  |
| ENGR 2302  | Engineering Mechanics - Dynamics   | 3               | MECH ENG 2350   | Engineering Mechanics-Dynamics   | 2  |
| ENGR 2332  | Mechanics of Materials   | 3               | CIV ENG 2210  | Mechanics of Materials   | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
| Humanities or<br>Social Science                                    | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3               | Humanities or<br>Social Science                                       | Any history, economics, political science, sociology,<br>psychology, philosophy, fine art, literature, foreign language. | 3  |
|  | <i>No free electives applied to the degree.</i>  | 0               |   | Maximum Free Electives   | 0  |
|  | Group 2 Major Requirements   | 21              |   | Group 2 Major Requirements   | 20 |
|  | Group 1 Core Requirements  | 35              |   | Group 1 Core Requirements  | 35 |
|  | Total Hours  | 56              |   | Total Hours*   | 55 |

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