

Spelman College — Missouri S&T

General Engineering

Transfer Guide Effective as of Fall 2025

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

Students are not required to complete all courses on this guide before transferring to Missouri S&T.

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.

Spelman College			Semester	Missouri S&T		
MATH 231	Calculus I	4		MATH 1214	Calculus I Grade of C or better is required.	4
MATH 232	Calculus II	4		MATH 1215	Calculus II Grade of C or better is required.	4
MATH 324	Calculus III	4		MATH 2222	Calculus III Grade of C or better is required.	4
MATH 365	Differential Equations	4		MATH 3304	Elementary Differential Equations	3
PHY 151 and PHY 241 and PHY 242	Physics I: Mechanics and Physics II: Electricity and Magnetism and Physics III: Optics and Modern Physics *The combination of Spelman PHY 151, 241, and 242 is equivalent to the combination of Missouri S&T PHYSICS 1135 and 2135. All three courses must be taken to satisfy this requirement.	12		PHYSICS 1135* and PHYSICS 2135*	Engineering Physics I and Engineering Physics II Grade of C or better is required. *The combination of Spelman PHY 151, 241, and 242 is equivalent to the combination of Missouri S&T PHYSICS 1135 and 2135. All three courses must be taken to satisfy this requirement.	8
ERG 101	Intro to Engineering	2		FR ENG 1100	Study and Careers in Engineering and Computing	1
ENG 103	First Year Composition	4		ENGLISH 1120	Exposition and Argumentation	3
		Total Hours	34			Total Hours 27

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.

This transfer guide is published by Missouri University of Science and Technology and is in effect as of Fall 2025.
Further information or updates are available from Missouri S&T Transfer Admissions at transfer@mst.edu, transfer@mst.edu, or 800-522-0938.

Aerospace Engineering Group 2 Major Requirements

Spelman College			Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab	pending approval	5
CS 121	Computer Science I	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)		3
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra I		3
Ethics	Ethics Elective	3	Ethics	Ethics Elective		3
Any engineering, business, bio, social ethics approved by advisor.						
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include						
6 hours Humanities and Fine Arts from at least two specific disciplines and						
6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or	Early and Middle English Literature or	6	ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or	6	
ENG 323 or	19th-Century U.S. Literature or		ENGLISH 1221 or	American Literature: 1600 to 1865 or		
ENG 324 or	U.S. Literature After 1900 or		ENGLISH 1222 or	American Literature: 1865 to Present or		
ENG 211 or	World Literature: Ancient to 1600 or		ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or		
HIS 211* or	Survey of American History I* or		HISTORY 1300* or	American History to 1877* or		
HIS 212* or	Survey of American History II* or		HISTORY 1310* or	American History Since 1877* or		
ART 110 or	Survey of Visual Arts or	ART 1180 or	Art Appreciation or			
MUS 120	Music History and Appreciation	MUSIC 1150	Music Understanding and Appreciation			
*Satisfies the State of Missouri government requirement.						
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
PHI 220 or	Intro to Philosophy or	6	PHILOS 1105 or	Self and World: Intro to Philosophy or	6	
PHI 201 or	Formal Logic or		PHILOS 1115 or	Logic and Reasoning: An Introduction or		
PSC 201* or	National Government in the US* or		POL SCI 1200* or	American Government* or		
PSY 200 or	General Psychology or		PSYCH 1101 or	General Psychology or		
ECON 242 or	Principles of Microeconomics or		ECON 1100 or	Principles of Microeconomics or		
ECON 241 or	Principles of Macroeconomics or		ECON 1200 or	Principles of Macroeconomics or		
Foreign Language	Elementary or Intermediate Foreign Language	Foreign Language	Elementary or Intermediate Foreign Language			
*Satisfies the State of Missouri government requirement.						
Humanities, Arts, and Social Sciences						
Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		30	Group 2 Major Requirements		29	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		64	Total Hours*		56	
*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>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab pending approval *CHEM 1310 will be substituted for CHEM 1305.
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 9 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 3 hours Behavioral and Social Sciences. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.				
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.				
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>
Behavioral and Social Sciences Select 3 hours.				
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	3	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>
<i>No free electives applied to the degree.</i>		0	Maximum Free Electives	
Group 2 Major Requirements		13	Group 2 Major Requirements	
Group 1 Core Requirements		34	Group 1 Core Requirements	
Total Hours		47	Total Hours*	
			41	

*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

Spelman College		Semester	Missouri S&T			
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)	3	
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4	
CHE 232, 234L or BIO 110 or	Organic Chemistry II (4) and Lab (1) or Biological Communities, Evolution, and Biodiversity (4)	4	CHEM 2220, 2229 or BIO SCI 1113, 1219	Organic Chemistry II and Lab or General Biology and Lab	4	
BIO 120	Cellular Dynamics	4	BIO SCI 2213, 2219	Cell Biology and Lab	4	
CIS 123 or	Computer Science I: Python or	4	COMP SCI 1500 or	Computational Problem Solving or	3	
CIS 131 or	Computer Science I: Matlab or		COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*		
CIS 121*	Computer Science I*		*Will be substituted for COMP SCI 1500.			
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines to include PHILOS 3223.						
PHILOS 295	Bio-Medical Ethics	3	PHILOS 3223	Bioethics	3	
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		37	Group 2 Major Requirements		35	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		71			Total Hours*	62
*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.						

*S&T advisor permission is required to transfer more than 69 credit hours toward the degree.

Biomedical Engineering-Biomaterials Group 2 Major Requirements

Spelman College			Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3	
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* *CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).	4	
CHE 232, 234L	Organic Chemistry II (4) and Lab (1)	5	CHEM 2220, 2229*	Organic Chemistry II and Lab* CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).	4	
BIO 110	Biological Communities, Evolution, and Biodiversity	4	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4	
BIO 120	Cellular Dynamics	4	BIO SCI 2213, 2219	Cell Biology and Lab	4	
CIS 123 or	Computer Science I: Python or	4	COMP SCI 1500 or	Computational Problem Solving or	3	
CIS 131 or	Computer Science I: Matlab or		COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*		
CIS 121*	Computer Science I*		*Will be substituted for COMP SCI 1500.			
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines to include PHILOS 3223.						
PHILOS 295	Bio-Medical Ethics	3	PHILOS 3223	Bioethics	3	
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		42	Group 2 Major Requirements		39	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		76			Total Hours*	66
*S&T advisor permission is required to transfer more than 69 credits toward the S&T Biomedical Engineering degree.						

Ceramic Engineering Group 2 Major Requirements

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CHE 231 or CHE 421	Organic Chemistry I (4) or Inorganic Chemistry (3)	3	CHEM 2210, 2219* or CHEM 3310	Organic Chemistry I (3) and Lab* (1) or Inorganic Chemistry I (3) Satisfies the advanced chemistry elective requirement. *The lab is not a degree requirement, transfers as general elective credit.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		26	Group 2 Major Requirements		26
Group 1 Core Requirements		34	Group 1 Core Requirements		27
Total Hours		60	Total Hours*		53
*S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.					

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

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis* (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CHEM 231,233L	Organic Chemistry I and Lab	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* *CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits See note below .	4
CHE 232 or CHE 301, 301L or BIO 120 or CHE 410 or	Organic Chemistry II or Analytical Chemistry and Lab or Cell Biology or Biochemical Principles or Select up to 8 hours from these options.	8	CHEM 2220 or CHEM 2510 or BIO SCI 2213, 2219 or CHEM 4610, 4619	Organic Chemistry II (3) or Analytical Chemistry (4) or Cell Biology and Lab (4) or General Biochemistry and Lab (5) Applies to the degree as required science elective credits. Select up to 9 hours from these options or CHEM 2219 Organic Chemistry Lab.	8
CIS 123 or CIS 131 or CIS 121*	Computer Science I: Python or Computer Science I: Matlab or Computer Science I*	4	COMP SCI 1500 or COMP SCI 1971,1981*	Computational Problem Solving or Intro to Programming Methodology and Lab* *Will be substituted for COMP SCI 1500.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		37	Group 2 Major Requirements		35
Group 1 Core Requirements		34	Group 1 Core Requirements		27
Total Hours		71	Total Hours*		62
*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

Spelman College		Semester	Missouri S&T	
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab
Humanities, Arts, and Social Sciences General Education Requirements				
From the options listed in each group below, select 15 hours to include				
6 hours Humanities and Fine Arts from at least two specific disciplines and				
6 hours Behavioral and Social Sciences from at least two specific disciplines.				
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.				
Humanities and Fine Arts				
Select 6 hours from at least two specific disciplines.				
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.
Behavioral and Social Sciences				
Select 6 hours from at least two specific disciplines.				
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.
Humanities, Arts, and Social Sciences				
Select 3 hours.				
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.
No free electives applied to the degree.		0	Maximum Free Electives	
Group 2 Major Requirements		19	Group 2 Major Requirements	
Group 1 Core Requirements		34	Group 1 Core Requirements	
Total Hours		53	Total Hours*	
*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

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
MAT 234	Discrete Mathematics	4	COMP SCI 1200	Discrete Math for Computer Science	3
CIS 123 or	Computer Science I: Python or	4	COMP SCI 1500 or	Computational Problem Solving or	3
CIS 131 or	Computer Science I: Matlab or		COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*	
CIS 121*	Computer Science I*		*Will be substituted for COMP SCI 1500.		
CHE 231 or	Organic Chemistry I or	4	CHEM 2210, 2219* or	Organic Chemistry I (3) and Lab* (1) or	3
BIO 120	Cell Biology		BIO SCI 2213	Cell Biology (3)	
			Satisfies a required engineering/science elective. *CHEM 2219 is not a degree requirement; transfers as general elective credit.		
MAT 214 or	Linear Algebra and Applications or	4	MATH 3108 or	Linear Algebra or	3
MAT 233	Foundations of Mathematics		MATH 3109	Foundations of Mathematics	
			Satisfies a required math elective.		
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 12 hours to include					
6 hours Humanities and Fine Arts from at least two specific disciplines and					
6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 307 or	Early and Middle English Literature or	6	ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or	6
ENG 323 or	19th-Century U.S. Literature or		ENGLISH 1221 or	American Literature: 1600 to 1865 or	
ENG 324 or	U.S. Literature After 1900 or		ENGLISH 1222 or	American Literature: 1865 to Present or	
ENG 211 or	World Literature: Ancient to 1600 or		ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or	
HIS 211* or	Survey of American History I* or		HISTORY 1300* or	American History to 1877* or	
HIS 212* or	Survey of American History II* or		HISTORY 1310* or	American History Since 1877* or	
ART 110 or	Survey of Visual Arts or		ART 1180 or	Art Appreciation or	
MUS 120	Music History and Appreciation		MUSIC 1150	Music Understanding and Appreciation	
			*Satisfies the State of Missouri government requirement.		
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines.					
PHI 220 or	Intro to Philosophy or	6	PHILOS 1105 or	Self and World: Intro to Philosophy or	6
PHI 201 or	Formal Logic or		PHILOS 1115 or	Logic and Reasoning: An Introduction or	
PSC 201* or	National Government in the US* or		POL SCI 1200* or	American Government*or	
PSY 200 or	General Psychology or		PSYCH 1101 or	General Psychology or	
ECON 242 or	Principles of Microeconomics or		ECON 1100 or	Principles of Microeconomics or	
ECON 241 or	Principles of Macroeconomics or		ECON 1200 or	Principles of Macroeconomics or	
Foreign Language	Elementary or Intermediate Foreign Language		Foreign Language	Elementary or Intermediate Foreign Language	
			*Satisfies the State of Missouri government requirement.		
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	35		Group 2 Major Requirements	32
	Group 1 Core Requirements	34		Group 1 Core Requirements	27
	Total Hours	69		Total Hours*	59
			*S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.		

*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

Spelman College			Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CIS 123 or CIS 131 or CIS 121*	Computer Science I: Python or Computer Science I: Matlab or Computer Science I*	4	COMP SCI 1500 or COMP SCI 1971,1981* or COMP SCI 1570, 1580*	Computational Problem Solving or Intro to Programming Methodology and Lab* or Intro to Programming (C++) and Lab* (4) *Will be substituted for COMP SCI 1500.	3	
CHE 231 or BIO 120	Organic Chemistry I or Cell Biology	4	CHEM 2210, 2219* or BIO SCI 2213	Organic Chemistry I (3) and Lab* (1) or Cell Biology (3) Satisfies a required engineering/science elective. *CHEM 2219 is not a degree requirement; transfers as general elective credit.	3	
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra	3	
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.						
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6	
	Group 2 Major Requirements	34		Group 2 Major Requirements	32	
	Group 1 Core Requirements	34		Group 1 Core Requirements	27	
	Total Hours	68		Total Hours*	59	
*S&T advisor permission is required to transfer more than 68 credits toward the S&T Electrical Engineering degree.						

*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

Spelman College		Semester	Missouri S&T			
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CS 121	Computer Science I	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 12 hours to include						
6 hours Humanities and Fine Arts from at least two specific disciplines and						
6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines to include PSYCH 1101.						
PSY 200	General Psychology	3	PSYCH 1101	General Psychology Required	3	
PHI 220 or PHI 201 or PSC 201* or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	
No free electives applied to the degree.		0	Electives		0	
Group 2 Major Requirements		20	Group 2 Major Requirements		20	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		54			Total Hours*	61
*S&T advisor permission is required to transfer more than 61 credits toward the S&T Engineering Management degree.						

Environmental Engineering Group 2 Major Requirements

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
BIO 110	Biological Communities, Evolution, and Biodiversity	4	BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) *The lab is not a degree requirement, transfers as general elective credit.	3
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 9 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 3 hours Behavioral and Social Sciences.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences					
Select 3 hours.					
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
No free electives applied to the degree.		0	Maximum Free Electives		0
Group 2 Major Requirements		21	Group 2 Major Requirements		20
Group 1 Core Requirements		34	Group 1 Core Requirements		27
Total Hours		55	Total Hours*		47
*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

Spelman College			Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CIS 123 or CIS 131 or CIS 121	Computer Science I: Python or Computer Science I: Matlab or Computer Science I	4	COMP SCI 1500 or COMP SCI 1971, 1981	Computational Problem Solving or Intro to Programming Methodology and Lab	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	
Humanities, Arts, and Social Sciences						
Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		23	Group 2 Major Requirements		23	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		57			Total Hours*	50
*S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.						

Mechanical Engineering Group 2 Major Requirements

<u>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310*, 1319	General Chemistry I and Lab pending approval *CHEM 1310 will be substituted for CHEM 1305.
CS 121	Computer Science I	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)
MAT 214	Linear Algebra and Applications	4	MATH 3108	Linear Algebra I Satisfies the Advanced Math/Statistics elective requirement.
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.				
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.				
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation <i>*Satisfies the State of Missouri government requirement.</i>
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.				
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language <i>*Satisfies the State of Missouri government requirement.</i>
Humanities, Arts, and Social Sciences Select 3 hours.				
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.
<i>No free electives applied to the degree.</i>		0	Maximum Free Electives	0
Group 2 Major Requirements		27	Group 2 Major Requirements	26
Group 1 Core Requirements		34	Group 1 Core Requirements	27
Total Hours		61	Total Hours*	53
*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

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CHE 112, 112L	General Chemistry II (3) and Lab (1)	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) *CHEM 1510 is not an S&T degree requirement; transfer as general credit.	3
CHE 231 or CHE 421 or CHE 345 or MAT 367	Organic Chemistry I (4) or Inorganic Chemistry (3) or Physical Chemistry (3) or Applied Mathematics (4)	3	CHEM 2210 or CHEM 2310 or CHEM 3410 or MATH 5325	Organic Chemistry I (4) or Inorganic Chemistry I (3) or Chemical Thermodynamics I (3) or Partial Differential Equations (3) Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.	3
Humanities, Arts, and Social Sciences General Education Requirements From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines. *At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts Select 6 hours from at least two specific disciplines.					
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6
Behavioral and Social Sciences Select 6 hours from at least two specific disciplines.					
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
Humanities, Arts, and Social Sciences Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
Maximum Free Electives		3	Maximum Free Electives		3
Group 2 Major Requirements		29	Group 2 Major Requirements		29
Group 1 Core Requirements		34	Group 1 Core Requirements		27
Total Hours		63	Total Hours*		56
*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>Spelman College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab
Humanities, Arts, and Social Sciences General Education Requirements				
From the options listed in each group below, select 12 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.				
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.				
Humanities and Fine Arts				
Select 6 hours from at least two specific disciplines.				
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.
Behavioral and Social Sciences				
Select 6 hours from at least two specific disciplines.				
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.
No free electives applied to the degree.		0	Maximum Free Electives	
Group 2 Major Requirements		16	Group 2 Major Requirements	
Group 1 Core Requirements		34	Group 1 Core Requirements	
Total Hours		50	Total Hours*	
			44	
*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

Spelman College		Semester	Missouri S&T		
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5
CS 121	Computer Science I	4	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++) (3).	3
MAT 214 or	Linear Algebra and Applications or	4	MATH 3108 or	Linear Algebra or	3
MAT 233	Foundations of Mathematics		MATH 3109	Foundations of Mathematics	
Humanities, Arts, and Social Sciences General Education Requirements					
From the options listed in each group below, select 15 hours to include					
6 hours Humanities and Fine Arts from at least two specific disciplines and					
6 hours Behavioral and Social Sciences from at least two specific disciplines.					
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.					
Humanities and Fine Arts					
Select 6 hours from at least two specific disciplines.					
ENG 307 or	Early and Middle English Literature or		ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or	
ENG 323 or	19th-Century U.S. Literature or		ENGLISH 1221 or	American Literature: 1600 to 1865 or	
ENG 324 or	U.S. Literature After 1900 or		ENGLISH 1222 or	American Literature: 1865 to Present or	
ENG 211 or	World Literature: Ancient to 1600 or		ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or	
HIS 211* or	Survey of American History I* or	6	HISTORY 1300* or	American History to 1877* or	6
HIS 212* or	Survey of American History II* or		HISTORY 1310* or	American History Since 1877* or	
ART 110 or	Survey of Visual Arts or		ART 1180 or	Art Appreciation or	
MUS 120	Music History and Appreciation		MUSIC 1150	Music Understanding and Appreciation	
*Satisfies the State of Missouri government requirement.			*Satisfies the State of Missouri government requirement.		
Behavioral and Social Sciences					
Select 6 hours from at least two specific disciplines to include either ECON 1100 or 1200.					
ECON 242 or	Principles of Microeconomics or		ECON 1100 or	Principles of Microeconomics or	
ECON 241	Principles of Macroeconomics	3	ECON 1200	Principles of Macroeconomics	3
PHI 220 or	Intro to Philosophy or		PHILOS 1105 or	Self and World: Intro to Philosophy or	
PHI 201 or	Formal Logic or		PHILOS 1115 or	Logic and Reasoning: An Introduction or	
PSC 201* or	National Government in the US* or	3	POL SCI 1200* or	American Government* or	3
PSY 200 or	General Psychology or		PSYCH 1101 or	General Psychology or	
Foreign Language	Elementary or Intermediate Foreign Language		Foreign Language	Elementary or Intermediate Foreign Language	
*Satisfies the State of Missouri government requirement.			*Satisfies the State of Missouri government requirement.		
Humanities, Arts, and Social Sciences					
Select 3 hours.					
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
Maximum Free Electives		0	Maximum Free Electives		0
Group 2 Major Requirements		27	Group 2 Major Requirements		26
Group 1 Core Requirements		34	Group 1 Core Requirements		27
Total Hours		61	Total Hours*		53
*S&T advisor permission is required to transfer more than 69 credits toward the S&T Nuclear Engineering degree.					

Petroleum Engineering Group 2 Major Requirements

Spelman College		Semester	Missouri S&T			
CHE 111, 111L	General Chemistry I and Lab	4	CHEM 1310, 1319	General Chemistry I and Lab	5	
CIS 123 or CIS 131	Computer Science I: Python or Computer Science I: Matlab	4	COMP SCI 1500	Computational Problem Solving	3	
Humanities, Arts, and Social Sciences General Education Requirements						
From the options listed in each group below, select 15 hours to include 6 hours Humanities and Fine Arts from at least two specific disciplines and 6 hours Behavioral and Social Sciences from at least two specific disciplines.						
*At least one course must be selected from HISTORY 1200, 1300, 1310, or POL SCI 1200 to satisfy the State of Missouri government requirement.						
Humanities and Fine Arts						
Select 6 hours from at least two specific disciplines.						
ENG 307 or ENG 323 or ENG 324 or ENG 211 or HIS 211* or HIS 212* or ART 110 or MUS 120	Early and Middle English Literature or 19th-Century U.S. Literature or U.S. Literature After 1900 or World Literature: Ancient to 1600 or Survey of American History I* or Survey of American History II* or Survey of Visual Arts or Music History and Appreciation *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation *Satisfies the State of Missouri government requirement.	6	
Behavioral and Social Sciences						
Select 6 hours from at least two specific disciplines.						
PHI 220 or PHI 201 or PSC 201* or PSY 200 or ECON 242 or ECON 241 or Foreign Language	Intro to Philosophy or Formal Logic or National Government in the US* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	
Humanities, Arts, and Social Sciences						
Select 3 hours.						
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3	
No free electives applied to the degree.		0	Maximum Free Electives		0	
Group 2 Major Requirements		23	Group 2 Major Requirements		23	
Group 1 Core Requirements		34	Group 1 Core Requirements		27	
Total Hours		57			Total Hours*	50
*S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.						

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