

Principia 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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MATH 181 and MATH 182	Calculus I and Calculus II	8	MATH 1214 and MATH 1215	Calculus I and Calculus II <small>The combination of Principia MATH 181 and 182 is equivalent to the combination of S&T MATH 1214 and 1215. A grade of C or better in both courses is required.</small>	8
MATH 283	Multivariable Calculus	4	MATH 2222	Calculus III <small>Grade of C or better is required.</small>	4
MATH 284	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHYS 201 and PHYS 202 and PHYS 203 and PHYS 204	Physics for Scientists and Engineers I (4) and Physics for Scientists and Engineers II (4) and Physics for Scientists and Engineers III (4) and Physics for Scientists and Engineers IV (5)	17	PHYSICS 1135 and PHYSICS 2135	Engineering Physics I and Engineering Physics II* <small>*The combination of PHYS 201, 202, 203, and 204 is equivalent to the combination of PHYSICS 1135 and 2135. A grade of C or better in all courses is required.</small>	8
CHEM 131	Fundamentals of Chemistry I	4	CHEM 1310, 1319	General Chemistry I and Lab	5
ENGR 160	Intro to the Engineering Profession	2	FR ENG 1100	Study and Careers in Engineering and Computing	1
WRIT 151	Fundamentals of Academic Writing	3	ENGLISH 1120	Exposition and Argumentation	3
ECON 203 or ECON 204	Principles of Microeconomics or Principles of Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		44			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/Biomufacturing 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 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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
CSCI 171	Intro to Programming	4	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2800	Electrical Circuits	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 273 or MATH 364	Linear Algebra or Mathematical Statistics	3	MATH 3108 or STAT 3117*	Linear Algebra I or Intro to Probability and Statistics*	3
	Literature Elective	3		Literature Elective	3
Ethics	Ethics Elective <small>Engineering, business, bio, social or other ethics approved by advisor.</small>	3	Ethics	Ethics Elective <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	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	73		Total Hours*	62

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <small>*Will be substituted for STAT 3113.</small>	3
GEOL 111	Introductory Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: GEN 101, WRIT 158, MCOM 140	3	Humanities or Social Science or Communication	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language or one communication course from this list: ENGLISH 1160, 1600, 3560 or SPMS 1185.	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	17
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	63		Total Hours*	52

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MCOM 140	Public Speaking	3	SP&MS 1185	Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 262	Organic Chemistry I	4	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHEM 263	Organic Chemistry II	4	CHEM 2220, 2229	Organic Chemistry II and Lab <small>Applies to degree as Track Elective.</small>	4
CSCI 171	Intro to Programming	3	CS 1971*, 1981*	Intro to Programming Method and Lab* (C++) <small>*Course will be substituted for CS 1500</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	23
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	68		Total Hours*	58

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

Biomedical Engineering-Biomaterials Group 2 Major Requirements

<u>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MCOM 140	Public Speaking	3	SP&MS 1185	Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 262	Organic Chemistry I	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <small>*CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
CHEM 263	Organic Chemistry II	4	CHEM 2220, 2229*	Organic Chemistry II and Lab* <small>CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).</small>	4
CSCI 171	Intro to Programming	3	CS 1971*, 1981*	Intro to Programming Method and Lab* (C++) <small>*Course will be substituted for CS 1500</small>	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2100*	Circuits I *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100. Applies to the degree as a Track Elective (Engineering).	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	44		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	61

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
CHEM 262	Organic Chemistry I	4	CHEM 2210	Organic Chemistry I <i>Will satisfy the advanced chemistry elective requirement.</i>	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</i>	3
MATH 364	Mathematical Statistics	3	STAT 3117	Intro to Probability and Statistics <i>or any statistics course 3000-level or higher. Satisfies statistics elective requirement.</i>	3
GEN 101 or WRIT 158 or MCOM 140 or HSS Elective	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Principles of Speech or Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	29		Group 2 Major Requirements	27
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	73		Total Hours*	62

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MCOM 140	Public Speaking	3	SP&MS 1185	Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <i>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</i>	3
CHEM 262	Organic Chemistry I	4	CHEM 2210, 2219*	Organic Chemistry I and Lab* <i>*The lab will apply to the degree as 1 of the 9 science elective credits (below).</i>	4
CHEM 263	Organic Chemistry II	4	CHEM 2220, 2229*	Organic Chemistry II (3) and Lab* (1) CHEM 2220 will partially satisfy the 9-hour science elective requirement. <i>*CHEM 2229 is not an S&T degree requirement, will transfer as general elective credit.</i>	8
CSCI 171	Intro to Programming	3	CS 1971*, 1981*	Intro to Programming Method and Lab* (C++) <i>*Course will be substituted for CS 1500</i>	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <i>*Will be substituted for STAT 3113.</i>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	27		Group 2 Major Requirements	30
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	71		Total Hours*	65

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
ERTH 111	Introductory Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <small>*Will be substituted for STAT 3113.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	44		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	58

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MCOM 140	Public Speaking	3	SPMS 1185	Principles of Speech	3
GEN 101 or WRIT 158	FYE: Integrated Learning or Reading and Writing Inquiry	3	ENGLISH 1160	Writing and Research	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
MATH 261	Discrete Math	3	CS 1200	Discrete Math for Computer Science	3
CSCI 171	Intro to Programming	4	CS 1971,1981*	Intro to Programming Methodology and Lab* <small>*Will be substituted for CS 1500.</small>	3
ENGR 201 or ENGR 202 or CHEM 262	Engineering Mechanics: Statics or Engineering Mechanics: Dynamics or Organic Chemistry I	3	CIV ENG 2200 or MECH ENG 2350 CHEM 2210	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Organic Chemistry I (3) <small>Satisfies a required engineering/science elective.</small>	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MATH 273	Linear Algebra	3	MATH 3108	Linear Algebra <small>Will satisfy a required math elective.</small>	3
MATH 364	Mathematical Statistics	3	STAT 3117	Intro to Probability and Statistics	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	35		Group 2 Major Requirements	33
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	79		Total Hours*	68

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MCOM 140	Public Speaking	3	SPMS 1185	Principles of Speech	3
GEN 101 or WRIT 158	FYE: Integrated Learning or Reading and Writing Inquiry	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CSCI 171	Intro to Programming	4	CS 1971,1981*	Intro to Programming Methodology and Lab* <small>*Will be substituted for CS 1500.</small>	3
ENGR 201 and ENGR 202 <small>BOTH of the courses above or ONE of the courses below.</small> OR CHEM 262	Engineering Mechanics: Statics and Engineering Mechanics: Dynamics <small>Both courses combined will satisfy a required engineering science elective.</small> OR Organic Chemistry I	3	CIV ENG 2200 and MECH ENG 2350 <small>BOTH of the courses above or ONE of the courses below.</small> OR CHEM 2210	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (2) <small>Both courses combined will satisfy a required engineering science elective.</small> OR Organic Chemistry I (3)	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2100**	Circuits I <small>**A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.</small>	3
MATH 273	Linear Algebra	3	MATH 3108	Linear Algebra	3
MATH 364	Mathematical Statistics	3	STAT 3117 or STAT 3115*	Intro to Probability and Statistics or Engineering Statistics* <small>*Will be substituted for STAT 3117.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	76		Total Hours*	65

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
MCOM 140	Public Speaking	3	SPMS 1185	Principles of Speech	3
GEN 101	FYE: Integrated Learning or	3	ENGLISH 1160	Writing and Research	3
WRIT 158	Reading and Writing Inquiry	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
CSCI 171	Intro to Programming	3	EE 2800	Electrical Circuits	3
ENGR 206	Electrical Engineering Circuit Analysis	4	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 201	Engineering Mechanics: Statics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 202	Engineering Mechanics: Dynamics	3	CIV ENG 2210	Mechanics of Materials	3
ENGR 203	Mechanics of Materials	3	STAT 3117	Intro to Probability and Statistics	3
MATH 364	Mathematical Statistics	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Electives	Maximum Free Electives	0
	<i>No free electives applied to the degree.</i>	3		Group 2 Major Requirements	29
	Group 2 Major Requirements	34		Group 1 Core Requirements	35
	Group 1 Core Requirements	44		Total Hours*	61
	Total Hours	78		*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
ERTH 111	Introductory Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2) <small>*CHEM 1510 is not an S&T degree requirement. Will transfer as general credit.</small>	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <small>*Will be substituted for STAT 3113.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	44		Group 1 Core Requirements	35
	Total Hours	70		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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CSCI 171	Intro to Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ERTH 111	Introductory Geology	4	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	44		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	61

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

Mechanical Engineering Group 2 Major Requirements

<u>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
CSCI 171	Intro to Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2800	Electrical Circuits	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 273 or MATH 364	Linear Algebra or Mathematical Statistics	3	MATH 3108 or STAT 3117*	Linear Algebra I or Intro to Probability and Statistics*	3
	Literature Elective	3		Literature Elective	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	27
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	62

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <small>*Will be substituted for STAT 3113.</small>	3
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
CHEM 132	Fundamentals of Chemistry II	4	CHEM 1320	General Chemistry II	3
CHEM 262 or ENGR 206	Organic Chemistry I or Electrical Engineering Circuit Analysis	4	CHEM 2210 or EE 2800	Organic Chemistry I or Electrical Circuits <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement.</small>	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements	32		Group 2 Major Requirements	30
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	76		Total Hours*	65

*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>Principia College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
GEN 101 or WRIT 158	FYE: Integrated Learning or Reading and Writing Inquiry	3	ENGLISH 1160	Writing and Research	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
MATH 364	Mathematical Statistics	3	STAT 3117*	Intro to Probability and Statistics <small>*Will be substituted for STAT 3113.</small>	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
ERTH 111	Introductory Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	44		Group 1 Core Requirements	35
	Total Hours	72		Total Hours*	61

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

Nuclear Engineering Group 2 Major Requirements

Principia College		Semester	Missouri S&T		
GEN 101 or WRIT 158 or MCOM 140	FYE: Integrated Learning or Reading and Writing Inquiry or Public Speaking	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
CSCI 171	Intro to Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 273 or MATH 360	Linear Algebra or Numerical Analysis	3	MATH 3108 or CS 3200	Linear Algebra or Intro to Numerical Methods	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
MATH 364	Mathematical Statistics	3	STAT 3117	Intro to Probability and Statistics	3
ENGR 206	Electrical Engineering Circuit Analysis	4	EE 2800	Electrical Circuits	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Electives	Maximum Free Electives	6	Electives	Maximum Free Electives	6
	Group 2 Major Requirements	37		Group 2 Major Requirements	36
	Group 1 Core Requirements	44		Group 1 Core Requirements	35
	Total Hours	81		Total Hours*	71

*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

Principia College		Semester	Missouri S&T		
GEN 101 or WRIT 158	FYE: Integrated Learning or Reading and Writing Inquiry	3	ENGLISH 1160	Writing and Research	3
POLS 120	American Government and Politics	3	POL SCI 1200	American Government	3
ERTH 111	Introductory Geology	4	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 201	Engineering Mechanics: Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 202	Engineering Mechanics: Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 203	Mechanics of Materials	3	CIV ENG 2210	Mechanics of Materials	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3
Humanities or Social Science	Any history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language.	3	Humanities or Social Science	Any history, economics, political science, sociology, 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	44		Group 1 Core Requirements	35
	Total Hours	69		Total Hours*	58

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