## Columbia 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.

	Columbia College	Semest	er	Missouri S&T		
MATH 215 and MATH 226 and MATH 235	Differential Calculus and Integral Calculus, Part I and Integral Calculus, Part II	9	MATH 1214 and MATH 1215	Calculus for Engineers I and Calculus for Engineers II Grade of C or better is required.	8	
MATH 300	Multivariate Calculus	3	MATH 2222	Calculus III Grade of C or better is required.	4	
MATH 370	Differential Equations	3	MATH 3304	Elementary Differential Equations	3	
PHYS 211	Calculus-Based Physics I	5	PHYSICS 1135	Engineering Physics I Grade of C or better is required.	4	
PHYS 212	Calculus-Based Physics II	5	PHYSICS 2135	Engineering Physics II Grade of C or better is required.	4	
ENGL 133W	First-Year Writing Seminar	3	ENGLISH 1120	Exposition and Argumentation	3	
		Total Hours 29			Total Hours 26	:

## 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 En	gineering	g Grou	p 2 Major Ro	equirements	
	Columbia College		Semester		Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
CISS 241	C++ Programming I	3		COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 303 or MATH 338	Linear Algebra or Mathematical Statistics and Probability	3		MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics Will satisfy the Advanced Math/Comp Sci elective requirement.	3
Ethics	Ethics Elective  Any engineering, business, bio, social ethics approved by advisor	3		Ethics	Ethics Elective  Any engineering, business, bio, social ethics approved by advisor	3
	From the 6 hours H	e options listed in e Humanities and Fine ehavioral and Social	each group be Arts from at le Sciences from	eneral Education Requirelow, select 15 hours to include ast two specific disciplines at least two specific disciplines. SCI 1200 to satisfy the Sci	ude and lines.	
			nities and Fi			
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	Select 6 nours from	n at least two	o specific disciplines. ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 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 British Literature II: 1800 to Present 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 "Statisfies the State of Missouri government requirement.	6
			al and Socia			
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 6 hours from	n at least two	specific disciplines. HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200° or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
		•	Arts, and So Select 3 hour	ocial Sciences		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any hi music, theater, English and technical communicatic philosophy, political science, psychology, economic etymology, or foreign language.	story, art, on,	Scient o Hour	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. Group 2 Major Requirements Group 1 Core Requirements	0 32 28 Total Hours 60			Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 68 credits toward the S&T Aerospace Engineering degree.	0 32 26 58

	Architectural E	Engineerir	ıg Gro	up 2 Major	Requirements	
	Columbia College		Semester		Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
MATH 338	Mathematical Statistics and Probability	3		STAT 3115*	Engineering Statistics* *Will be substituted for STAT 3113.	3
GEOL 110	Intro to Physical Geology	3		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	From 6 hour	n the options listed in rs Humanities and Fine 3 hours Bel	each group be Arts from at le navioral and So	eneral Education Requi elow, select 9 hours to inc east two specific disciplines ocial Sciences.	lude s and	
	*At least one course must be selected from			•	State of Missouri government requirement.	
			nities and Fi	ne Arts specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6		ENGLISH 1211 or ENGLISH 1212 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 British Literature II: 1800 to Present 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
		Behavio	ral and Socia			
PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	Select 3 hour	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. Group 2 Major Requirements Group 1 Core Requirements	0 23 28 Total Hours 51			Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 69 credits toward the S&T Architectural Engineering degree.	0 23 26 49

			_	-Biomanufa equirements		
	Columbia College		Semester	•	Missouri S&T	
COMM 110	Intro to Speech	3		SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112, 112L	Chemistry II (3) and Lab (2)	5		CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
BIOL 110, 110L	Principles of Biology and Lab	5		BIO SCI 1113, 1219	General Biology and Lab Applies to degree as Track Elective.	4
CISS 241	C++ Programming I	3		COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*( C++) *Will be substituted for COMP SCI 1500.	3
	From the first term of the fir	he options listed in ear Humanities and Fine Behavioral and Social IISTORY 1200, 1300,	ach group be Arts from at le Sciences fron 1310, or POL	•	ude and lines.	
			nities and F	ine Arts o specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1310* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1800 to 1865 or American Literature: 1865 to Present or World 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
	Select 6 h	ours from at least two	o specific dis	sciplines to include PHILO	S 3223.	
PHIL 460	Biomedical Ethics	3		PHILOS 3223	Bioethics	3
GEOG 101 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or  American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3		HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography 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
			Arts, and So	ocial Sciences		
ENGL 204W	Technical Writing	3		ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements Group 1 Core Requirements	0 36 28 Total Hours 64			Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 69 credit hours toward the degree.	0 33 26 59

				ing-Biomate		
	G	roup 2 N	<i>l</i> lajor R	equirements		
	Columbia College		Semeste	<u>r</u>	Missouri S&T	
COMM 110	Intro to Speech	3	3	SP&MS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab		5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112, 112L	Chemistry II (3) and Lab (2)		5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
BIOL 110, 110L	Principles of Biology and Lab	ŧ	5	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4
CISS 241	C++ Programming I	3	3	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*( C++) *Will be substituted for COMP SCI 1500.	3
	From the first transfer of the first transfe	ne options listed i Humanities and F Behavioral and So	in each group b ine Arts from at l cial Sciences fro	eneral Education Require elow, select 15 hours to incli- least two specific disciplines m at least two specific discipl L SCI 1200 to satisfy the St	ude and ines.	
			manities and F			
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or Satisfies the State of Missouri government requirement.	Gelect O Hours		os specific disciplines. ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1221 or ENGLISH 1221 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World 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
	Select 6 ho	ours from at least	t two specific di	sciplines to include PHILOS	S 3223.	
PHIL 460	Biomedical Ethics	3	3	PHILOS 3223	Bioethics	3
GEOG 101 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or  American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language "satisfies the State of Missouri government requirement.	\$	3	HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography 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
			es, Arts, and S NGLISH 3560 r	Social Sciences		
ENGL 204W	Technical Writing		3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements Group 1 Core Requirements	3	0 6 8 8 4		Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 69 credits toward the S&T Biomedical Engineering degree.	0 33 26 59

	Ceramic Engine	ering	Group	2 Major Re	quirements	
	Columbia College		Semester		Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112, 112L	Chemistry II (3) and Lab (2)	5		CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
MATH 338	Mathematical Statistics and Probability	3		STAT 3115	Engineering Statistics or any statistics course 3000-level or higher. Satisfies statistics elective requirement.	3
	From the optio 6 hours Humani	ns listed in e ties and Fine al and Social	each group be Arts from at le Sciences from	eneral Education Requi elow, select 15 hours to inc east two specific disciplines in at least two specific discip L SCI 1200 to satisfy the S	clude s and olines.	
	Select		anities and F	ine Arts o specific disciplines.	·	
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6		ENGLISH 1211 or ENGLISH 1212 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 British Literature II: 1800 to Present 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
	0.1.4		ral and Socia			
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6		o specific disciplines. HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
	ŀ		, <b>Arts, and S</b> o Select 3 hour	ocial Sciences		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, a music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	rt, 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 Group 1 Core Requirements Total	31 28 Hours 59			Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.	29 26 55

	Chemical Enginee		gineering or emical Engine	ering Emphasis	
	Gr	oup 2 Major	Requirements		
	Columbia College	Seme	ster	Missouri S&T Principles of Speech	
COMM 110	Intro to Speech	3	SP&MS 1185	Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112, 112L	Chemistry II (3) and Lab (2)	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis* (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
CISS 241	C++ Programming I	3	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab*( C++) "Will be substituted for COMP SCI 1500.	3
MATH 338	Mathematical Statistics and Probability	3	STAT 3115	Engineering Statistics*  *Will be substituted for STAT 3113.	3
	From the 6 hours H	options listed in each gro umanities and Fine Arts fror havioral and Social Science	es General Education Requir up below, select 15 hours to incl n at least two specific disciplines s from at least two specific discip r POL SCI 1200 to satisfy the S	ude and lines.	
		Humanities a	nd Fine Arts		
		Select 6 hours from at leas			
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or "Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1221 or ENGLISH 1231 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present 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			
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 6 hours from at leas	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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, a ENGLISH 35			
ENGL 204W	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements Group 1 Core Requirements	0 34 28 Total Hours 62		Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours  *S&T advisor permission is required to transfer more than 68 credits toward the S&T Chemical Engineering degree.	0 32 26 * 58

	Civil Engine	ering Gı	oup 2	Major Requ	uirements	
	Columbia College		Semester		Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
GEOL 110	Intro to Physical Geology	3		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
MATH 338	Mathematical Statistics and Probability	3		STAT 3115*	Engineering Statistics* *Will be substituted for STAT 3113.	3
	From the 6 hours H	options listed in e umanities and Fine navioral and Social	ach group be Arts from at le Sciences from	eneral Education Requi elow, select 15 hours to inc east two specific disciplines at least two specific disci at SCI 1200 to satisfy the	clude s and plines.	
			nities and Fi	•	out of misseum government requirement.	
		Select 6 hours from	n at least two	specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II or World Literature II or American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6		ENGLISH 1211 or ENGLISH 1212 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 British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World 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
			al and Socia			
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6		specific disciplines. HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
			Arts, and So Select 3 hour	ocial Sciences s.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any his music, theater, English and technical communication philosophy, political science, psychology, economics etymology, or foreign language.	٦, 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	29			Group 2 Major Requirements	29
	Group 1 Core Requirements	28 Total Hours 57			Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 69 credits toward the S&T Civil Engineering degree.	26 55

	Computer En	gineering	Group 2 Majo	r Requirements	
	Columbia College	,	Semester	Missouri S&T	
COMM 110	Intro to Speech	3	SPMS 1185	Principles of Speech	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 131	Applies to degree as Gen Ed Communication requirement.  9 General Chemistry I and Lab	5
CHEWITTO, TITL	Chemistry rand Lab	3	COMP SCI 1200		3
CISS 241	C++ Programming I	3	COMP SCI 1971	Intro to Decreasing Mathedalage and Laht	3
MATH 303 or MATH 380	Linear Algebra or Advanced Calculus I	3	MATH 3108 or MATH 3109	Linear Algebra or Foundations of Mathematics Satisfies a required math elective.	3
MATH 338	Mathematical Statistics and Probability	3	STAT 3115*	Engineering Statistics*  *Will be substituted for STAT 3113.	3
	6 hours 6 hours B	Humanities and Fine A ehavioral and Social S STORY 1200, 1300, 1	ch group below, select 15 hounts from at least two specific disciences from at least two specifications or POL SCI 1200 to satisfities and Fine Arts	sciplines and	
			at least two specific disciplin	es.	
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II or World Literature I American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfes the State of Missouri government requirement.	6	ENGLISH 12110 ENGLISH 12120 ENGLISH 12210 ENGLISH 12220 ENGLISH 12310 HISTORY 1300* HISTORY 1310* ART 1180 or MUSIC 1150	British Literature II: 1800 to Present 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	6
		Behaviora	I and Social Sciences	, , , , , , , , , , , , , , , , , , ,	
			at least two specific disciplin	es.	
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 2110 of PHILOS 1105 or PHILOS 1105 or POL SCI 1200* c PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Languag	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	6
			Arts, and Social Sciences elect 3 hours.		
ENGL 204W	Technical Writing	3	ENGLISH 3560	Technical Writing	3
Electives	Maximum Free Electives	3	Electives	Maximum Free Electives	3
	Group 2 Major Requirements Group 1 Core Requirements	35 28 Total Hours 63	LICOUYCO	Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 68 credits toward the S&T Computer Engineering degree.	38 26

	Electrical En	gineering G	roup 2 Major Re	quirements	
	Columbia College	Se	emester	Missouri S&T	
COMM 110	Intro to Speech	3	SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CISS 241	C++ Programming I	3	COMP SCI 1971,1981*	Intro to Programming Methodology and Lab* *Will be substituted for COMP SCI 1500.	3
MATH 303	Linear Algebra	3	MATH 3108	Linear Algebra	3
MATH 338	Mathematical Statistics and Probability	3	STAT 3115*	Engineering Statistics*  *Will be substituted for STAT 3117.	3
	6 hours	Humanities and Fine Arts Behavioral and Social Scie IISTORY 1200, 1300, 131	group below, select 15 hours to inclifrom at least two specific disciplines ences from at least two specific discipl 0, or POL SCI 1200 to satisfy the Step and Fine Arts	and lines.	
			least two specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 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 British Literature II: 1800 to Present 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
			nd Social Sciences least two specific disciplines.		
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
			s, and Social Sciences ect 3 hours.		
ENGL 204W	Technical Writing	3	ENGLISH 3560	Technical Writing	3
Electives	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements	6 38 28 Total Hours 66	Electives	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total  **S&T advisor permission is required to transfer more than 68 credits toward the 5 Electrical Engineering degree.	6 38 26 Hours* 64

	Engineering Ma	anagem	ent Gro	up 2 Major R	Requirements	
	Columbia College		Semester		Missouri S&T	
COMM 110	Intro to Speech	:	3	SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab		5	CHEM 1310, 1319	General Chemistry I and Lab	5
CISS 241	C++ Programming I		3	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 338	Mathematical Statistics and Probability	;	3	STAT 3115	Engineering Statistics	3
	From the first term of the fir	he options listed Humanities and F Behavioral and So	n each group be ine Arts from at le cial Sciences fron	eneral Education Require elow, select 15 hours to inclu- east two specific disciplines a n at least two specific discipli SCI 1200 to satisfy the Sta	ide and ines.	
		Hu	manities and F	ine Arts		
		Select 6 hours	from at least two	specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature I			ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World Literature I: Beginnings to the Renaissance or	
HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or "Satisfies the State of Missouri government requirement.		5	HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	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
	Salaat 6 b		rioral and Socia	al Sciences ciplines to include PSYCH	1101	
	Select of the		•	•		_
PSY 101	General Psychology	;	3	PSYCH 1101	General Psychology Required	3
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language "Satisfies the State of Missouri government requirement.		3	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
		Humaniti	es, Arts, and S Select 3 hou			
ENGL 204W	Technical Writing	;	3 Select 3 flou	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements Group 1 Core Requirements	2	9 8 7	Electives	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 61 credits toward the S&T Engineering Management degree.	0 29 26 61

	Environmental	Engineeri	ng Gro	oup 2 Major	Requirements	
	Columbia College		Semester		Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
GEOL 110	Intro to Physical Geology	3		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112, 112L	Chemistry II (3) and Lab (2)	5		CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
BIOL 110, 110L	Principles of Biology and Lab	5		BIO SCI 1113, 1219*	General Biology (3) and Lab* (1)  *The lab is not a degree requirement, transfers as general elective credit.	3
MATH 338	Mathematical Statistics and Probability	3		STAT 3115*	Engineering Statistics*  *Will be substituted for STAT 3113.	3
	From	the options listed in s Humanities and Fine 3 hours Bel	each group be Arts from at le navioral and So		ude and	
			anities and F			
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or 'Satisfies the State of Missouri government requirement.	6		o specific disciplines. ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1223 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present 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
		Behavio	ral and Social Select 3 hour			
PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language 'Satisfies the State of Missouri government requirement.	3	Ociect o Hour	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. Group 2 Major Requirements Group 1 Core Requirements	0 33 28 Total Hours 61			Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 69 credits toward the S&T Environmental Engineering degree.	0 29 26 55

	Geological Engi	neering G	roup 2 Major Re	equirements	
	Columbia College	<u>Semester</u>		Missouri S&T	
ENGL 204W	Technical Writing	3	ENGLISH 3560	Technical Writing Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CISS 241	C++ Programming I	3	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3
GEOL 110	Intro to Physical Geology	3	GEO ENG 1150 (GEOLOGY 1110)	Physical and Environmental Geology	3
MATH 338	Mathematical Statistics and Probability	3	STAT 3115	Engineering Statistics	3
	From the op 6 hours Huma	tions listed in each g anities and Fine Arts fr ioral and Social Scien	ices General Education Require roup below, select 15 hours to incliron at least two specific disciplines ces from at least two specific discipl or POL SCI 1200 to satisfy the SI	ude and ines.	
			and Fine Arts		
	Sele	ect 6 hours from at le	east two specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II American History to 1877* or American History to 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1221 or ENGLISH 1231 or HISTORY 1300° or HISTORY 1310° or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present 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
			d Social Sciences		
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
			and Social Sciences t 3 hours.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.		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. Group 2 Major Requirements Group 1 Core Requirements Tot	0 32 28 al Hours 60		Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.	0 32 26 58

	Mechanical Er	gineerin	ıg Grou	ıp 2 Major R	equirements	
	Columbia College		Semester	r	Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3		ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
CISS 241	C++ Programming I	3		COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 303 or MATH 338	Linear Algebra or Mathematical Statistics and Probability	3		MATH 3108 or STAT 3115	Linear Algebra I or Engineering Statistics Will satisfy the Advanced Math/Statistics elective requirement.	3
				eneral Education Requir		
	6 hours	Humanities and Fir Behavioral and Soci	ne Arts from at le al Sciences fror	elow, select 15 hours to incleast two specific disciplines in at least two specific disciplines.  I. SCI 1200 to satisfy the S	and lines.	
	At least one course must be selected from the		nanities and F		tate of missouri government requirement.	
				o specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II or World Literature I American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfes the State of Missouri government requirement.	6		ENGLISH 1211 or ENGLISH 1212 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 British Literature II: 1800 to Present 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
			oral and Socia			
GEOG 101 or	Intro to Geography or	Select 6 hours fr	om at least two	o specific disciplines. HISTORY 2110 or	World Regional Geography or	
PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or 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
		Humanitie	s, Arts, and S Select 3 hou	ocial Sciences rs.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any h music, theater, English and technical communicat philosophy, political science, psychology, econom etymology, or foreign language.	ion,		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 Group 1 Core Requirements	29 28 Total Hours 57			Group 2 Major Requirements Group 1 Core Requirements  Total Hours*  *S&T advisor permission is required to transfer more than 68 credits toward the S&T  Mechanical Engineering degree.	29 26 55

	Metallurgical Er	ngineering G	iroup 2 Major	Requirements	
	Columbia College	Seme	ster	Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3	ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
MATH 338 CHEM 110, 111L	Mathematical Statistics and Probability Chemistry I and Lab	3 5	STAT 3115 CHEM 1310, 1319	Engineering Statistics General Chemistry I and Lab	3 5
CHEM 112, 112L	Chemistry II (3) and Lab (2)	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)  *CHEM 1510 is not a degree requirement, transfers as general elective credit.	3
	From th	e options listed in each groud Humanities and Fine Arts from Ehavioral and Social Sciences STORY 1200, 1300, 1310, ou	<u>.</u>	nclude es and eiplines.	
		Humanities a			
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	Select 6 hours from at least	ETWO Specific disciplines. ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1221 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present 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 3-Satisfies the State of Missouri government requirement.	6
		Behavioral and S			
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 6 hours from at leas	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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 Miscouri government requirement.	6
		Humanities, Arts, ar Select 3			
HASS Elective	Humanities, Arts, Social Sciences Elective: Any hi music, theater, English and technical communicati philosophy, political science, psychology, economic etymology, or foreign language.	on,	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 Group 1 Core Requirements	34 28 Total Hours 62		Group 2 Major Requirements Group 1 Core Requirements Total Hour  *S&T advisor permission is required to transfer more than 68 credits toward the S&T Metallurgical Engineering degree.	32 26 s* 58

	Mining Engi	neering Gro	oup 2 Major Red	quirements	
	Columbia College	<u>Sen</u>	<u>nester</u>	Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3	ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
MATH 338 CHEM 110, 111L	Mathematical Statistics and Probability Chemistry I and Lab	3 5	STAT 3115 CHEM 1310, 1319	Engineering Statistics General Chemistry I and Lab	3 5
GEOL 110	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	From the 6 hours	ne options listed in each g Humanities and Fine Arts for ehavioral and Social Scien	nces General Education Requiroup below, select 12 hours to in rom at least two specific discipline ces from at least two specific disc or POL SCI 1200 to satisfy the	nclude es and ciplines.	
			s and Fine Arts east two specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or American Literature II or World Literature I American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1230 or HISTORY 1300* or HISTORY 1310* or ART 1180 or MUSIC 1150	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present 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
			d Social Sciences		
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 6 hours from at it	east two specific disciplines. HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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. Group 2 Major Requirements Group 1 Core Requirements	0 26 28 Total Hours 54		Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hc  'S&T advisor permission is required to transfer more than 68 credits toward the S&T Mining Engineering degree.	0 26 26 ours* 52

		neering Gr	oup 2 Major Red		
	Columbia College	<u>Se</u>	<u>mester</u>	Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3	ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
CISS 241	C++ Programming I	3	COMP SCI 1971, 1981	Intro to Programming Method and Lab (C++)	3
MATH 303 or	Linear Algebra or	3	MATH 3108 or	Linear Algebra or	3
MATH 380	Advanced Calculus I		MATH 3109	Foundations of Mathematics	
MATH 338	Mathematical Statistics and Probability	3	STAT 3115	Engineering Statistics	3
			nces General Education Require		
	6 hours H	umanities and Fine Arts havioral and Social Scier	group below, select 15 hours to inclifrom at least two specific disciplines inces from at least two specific disciplines, or POL SCI 1200 to satisfy the St	and ines.	
		Humanitie	s and Fine Arts	·	
		Select 6 hours from at	least two specific disciplines.		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature I or American Literature II or World Literature II or World Literature II American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 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 British Literature II: 1800 to Present American Literature: 1600 to 1865 or American Literature: 1865 to Present or World 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
			nd Social Sciences		
		Select 6 hours from at	least two specific disciplines.		
ECON 294 or ECON 293	Microeconomics or Macroeconomics	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or Foreign Language	World Regional Geography or Self and World: Intro to Phillosophy or Logic and Reasoning: An Introduction or American Government*or General Psychology or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
			t, and Social Sciences at 3 hours.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any his music, theater, English and technical communicatio philosophy, political science, psychology, economic etymology, or foreign language.	n, 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	32		Group 2 Major Requirements	32
	Group 1 Core Requirements	28 Total Hours 60		Group 1 Core Requirements  Total Hours  *S&T advisor permission is required to transfer more than 69 credits toward the S&T  Nuclear Engineering degree.	26 * 58

	Petroleum Eng	ineering Gr	oup 2 Major R	equirements	
	Columbia College	<u>Sem</u>	<u>ester</u>	Missouri S&T	
COMM 110 or ENGL 204W	Intro to Speech or Technical Writing	3	ENGLISH 3560 or SPMS 1185	Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 110, 111L	Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab	5
GEOL 110	Intro to Physical Geology	3	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	From the 6 hours Hu	options listed in each gr manities and Fine Arts fro avioral and Social Science	ces General Education Requipment below, select 15 hours to in at least two specific discipline es from at least two specific discor POL SCI 1200 to satisfy the	iclude is and iplines.	
	_		and Fine Arts		
ENGL 231W or ENGL 232W or ENGL 241W or ENGL 242W or ENGL 263W or HIST 121* or HIST 122* or ARTS 105 or MUSI 120 or	British Literature I or British Literature II or American Literature II or American Literature II or World Literature I American History to 1877* or American History since 1877* or Art Appreciation or Music and the Human Experience or *Satisfies the State of Missouri government requirement.	6	ast two specific disciplines.  ENGLISH 1211 or  ENGLISH 1221 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 British Literature II: 1800 to Present American Literature: 1800 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
	S		Social Sciences ast two specific disciplines.		
GEOG 101 or PHIL 101 or PHIL 210 or POSC 111* or PSYC 101 or ECON 294 or ECON 293 or Foreign Language	Intro to Geography or Intro to Philosophy or Logic and Critical Thinking or American National Government* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 2110 or PHILOS 1105 or PHILOS 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	World Regional Geography or 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
			and Social Sciences 3 hours.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any hist 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. Group 2 Major Requirements Group 1 Core Requirements	0 26 28 Total Hours 54		Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements  Total Hours  *S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.	0 26 26 * 52