Metropolitan Community Colleges — 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.

	Metropolitan Community Colleges	Sen	<u>nester</u>	Missouri S&T	
MATH 180	Analytic Geometry and Calculus I	5	MATH 1214	Calculus I Grade of C or better is required.	4
MATH 190	Analytic Geometry and Calculus II	5	MATH 1215	Calculus II Grade of C or better is required.	4
MATH 210	Analytic Geometry and Calculus III	5	MATH 2222	Calculus III Grade of C or better is required.	4
MATH 230	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHYS 220	Engineering Physics I	5	PHYSICS 1135	Engineering Physics I Grade of C or better is required.	4
PHYS 221	Engineering Physics II	5	PHYSICS 2135	Engineering Physics II Grade of C or better is required.	4
ENGR 101	Intro to the Engineering Profession	1	FR ENG 1100	Study and Careers in Engineering and Computing	1
ENGL 101	Composition and Reading I	3	ENGLISH 1120	Exposition and Argumentation	3
		Total Hours 22			Total Hours 27

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

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

Aerospace Engineering

Architectural Engineering

Biomedical Engineering/Biomanufacturing or Biomaterials

Ceramic Engineering

Chemical Engineering and Biochemistry Emphasis

Civil Engineering

Computer Engineering

Electrical Engineering

Engineering Management

Environmental Engineering

Geological Engineering

Mechanical Engineering

Metallurgical Engineering

Mining Engineering

Nuclear Engineering

Petroleum Engineering

Engineering Major Requirements are detailed on the following pages.

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

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

NGR 113	Metropolitan Community Colleges Engineering Design Microcomputer Applications	3	Semester	MECH ENG 1720	Missouri S&T Intro to Engineering Design	3
NGL 102 or NGL 215 or OMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
HEM 111	General College Chemistry I	5		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
SIS 123 or NGR 204	Programming Fundamentals or Programming for Engineers and Scientists	3		COMP SCI 1971, 1981 or COMP SCI 1972, 1982	Intro to Programming Method and Lab (C++) (3) or Intro to MATLAB Programming and Lab (3)	3
NGR 233	Circuit Analysis I	4		ELEC ENG2800	Electrical Circuits	3
NGR 229 NGR 230	Statics Dynamics	3		CIV ENG 2200 AERO ENG 2360	Engineering Mechanics-Statics Dynamics	3
NGR 223	Thermodynamics and Heat Transfer	4		MECH ENG 2519	Thermodynamics	3
NGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
NGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics Satisfies the Advanced Math/Comp Sci elective requirement.	3
PHIL 203	Ethics	3		PHILOS 1130	How Should I Live? An Intro to Ethics	3
	or other engineering, business, bio, social ethics approved by advisor	0:-!	0-:	neral Education Require	or other engineering, business, bio, social ethics approved by advisor	
	6 hours Humanit	ties and Fine al and Social 1200, 1300,	Arts from at le Sciences from 1310, or POL	•	nd nes.	
	Soloat		inities and Fi	ne Arts specific disciplines.		
NGL 220 or	British Literature to 1750 or	o nours no	n at least two	ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or	
NGL 220 or NG 221 or	British Literature to 1750 or British Literature 1750-Present or			ENGLISH 1211 or	British Literature II: 1800 to Present	
NGL 221 or	American Literature to 1860 or			ENGLISH 1221 or	American Literature: 1600 to 1865 or	
NGL 222 or	American Literature 1860-Present or			ENGLISH 1222 or	American Literature: 1865 to Present or	
NGL 254 or	World Literature I or			ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or	
IST 120* or	United States History to 1865* or	6		HISTORY 1300* or	American History to 1877* or	6
IST 120 or	United States History since 1865* or	Ü		HISTORY 1310* or	American History Since 1877* or	
RT 108 or				ART 1180 or	Art Appreciation or	
MUSI 108 or	Survey of Art or Music Appreciation or			MUSIC 1150 or		
PDR 106 01	Theatre Appreciation			THEATRE 1150	Music Understanding and Appreciation or Theatre for Social Change	
PDR 100	*Satisfies the State of Missouri government requirement.			THEATRE 1100	*Satisfies the State of Missouri government requirement.	
			ral and Socia			
IOT 400		6 hours from	m at least two	specific disciplines.	Factor Manager Of the other an	
IIST 133 or IIST 134* or GEOG 105 or	Foundations of Western Civilization or Modern Western Civilization* or World Geography or			HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or	Early Western Civilization or Modern Western Civilization* or World Regional Geography or	
HIL 100 or	Intro to Philosophy or			PHIL 1105 or	Self and World: Intro to Philosophy or	
HIL 200 or	Logic or	6		PHIL 1115 or	Logic and Reasoning: An Introduction or	6
OLS 136* or	Intro to US National Politics* or	ь		POL SCI 1200* or	American Government*or	t
SYC 140 or CON 211 or	General Psychology or Microeconomics or			PSYCH 1101 or ECON 1100 or	General Psychology or Principles of Microeconomics or	
					•	
CON 210 or	Macroeconomics or Elementary or Intermediate Foreign Language			ECON 1200 or Foreign Language	Principles of Macroeconomics or Elementary or Intermediate Foreign Language	
oreign Language	*Satisfies the State of Missouri government requirement.			Foreign Language	*Satisfies the State of Missouri government requirement.	
	н			ocial Sciences		
	Humanities, Arts, Social Sciences Elective: Any history, an		Select 3 hour	S.	Humanities, Arts, Social Sciences Elective: Any history, art,	
ASS Elective	music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	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	(
	Group 2 Major Requirements	52			Group 2 Major Requirements	5
	Group 1 Core Requirements	32			Group 1 Core Requirements	2
		Hours 84			Total Hours*	7
					*S&T advisor permission is required to transfer more than 68 credits toward the S&T	

	Architectural En	gineer	ring	Group 2 Majo	or Requirements	
	Metropolitan Community Colleges		Se	emester	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications		3	MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech		3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I		5	CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	5
ENGR 229	Statics		3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics		3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 223	Thermodynamics and Heat Transfer		4	MECH ENG 2519*	Thermodynamics* *Will be substituted for MECH ENG 2527.	3
ENGR 240	Mechanics of Materials		3	CIV ENG 2210	Mechanics of Materials	3
SRVY 135	Elementary Surveying		3	CIV ENG 2401	Fundamentals of Surveying	3
ENGR 215	Engineering Statistics and Computation		3	STAT 3115	Engineering Statistics Will be substituted for STAT 3113.	3
GEOL 101	Physical Geology		5	GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
	6 hours Beha *At least one course must be selected from HIST	avioral and So ORY 1200, 1 Hi	ocial Scie 300, 131 umaniti	s from at least two specific disci- ences from at least two specific 0, or POL SCI 1200 to satisfy es and Fine Arts t least two specific disciplines	disciplines. the State of Missouri government requirement.	
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120° or HIST 121° or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *satisfies the State of Missouri government requirement.		6	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 or THEATRE 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 or Theatre for Social Change "Satisfies the State of Missouri government requirement.	6
		Beha	vioral a	and Social Sciences		
		from at least	two spe	ecific disciplines to include HI		
HIST 134*	Modern Western Civilization* *Satisfies the State of Missouri Government requirement.		3	HISTORY 1200*	Modern Western Civilization* *Satisfies the State of Missouri Government requirement.	3
PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.		3	PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
	No free electives applied to the degree.		0		Maximum Free Electives	0
	Group 2 Major Requirements		47		Group 2 Major Requirements	43
	Group 1 Core Requirements		32 79		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.	27 70

	Biomedic	al Engine	ering-Biomanufa	cturina	
			or Requirements		
	Metropolitan Community Colleges		Semester	Missouri S&T	
COMM 100	Fundamentals of Speech	3	SP&MS 1185	Principles of Speech	3
CHEM 111	General College Chemistry I	5	CHEM 1310, 1319	Applies to degree as Gen Ed Communication requirement. General Chemistry I and Lab	5
	,		•	General Chemistry II (3) and Qualitative Analysis (2)	3
CHEM 112	General College Chemistry II	5	CHEM 1320, 1510*	*CHEM 1510 is not a degree requirement, transfers as general elective credit.	
CHEM 221	Organic Chemistry I	5	CHEM 2210, 2219	Organic Chemistry I and Lab	4
CHEM 222 or BIOL 101 or BIOL 204	Organic Chemistry II (5) or General Biology (5) or Genetics (3)	3	CHEM 2220, 2229 or BIO SCI 1113, 1219 or BIO SCI 2223	Organic Chemistry II and Lab or General Biology and Lab or General Gongtics General General Grack Elective.	4
CSIS 223 or CSIS 271 or CSIS 123 or ENGR 204	Object-Oriented Programming With C++ or Data Structures and Algorithm Analysis or Programming Fundamentals or Programming for Engineers and Scientists	3	COMP SCI 1500 or COMP SCI 1971,1981* or COMP SCI 1570, 1580* or COMP SCI 1972, 1982*	Computational Problem Solving (3) or Intro to Programming Methodology and Lab*(C++) (3) or	3
ENGR 223	Thermodynamics and Heat Transfer	4	MECH ENG 2519*	Thermodynamics* "The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the biomedical engineering department. Students must complete both courses to receive credit.	3
	6 hours Be *At least one course must be selected from HIS	ehavioral and Social Sci STORY 1200, 1300, 13 Humanit	ties and Fine Arts	ines.	
		Select 6 hours from a	at least two specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change **Satisfies the State of Missouri government requirement.	6
			and Social Sciences		
HIST 133 or HIST 134* or GEOG 105 or POLS 136* or PSC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Sel	elect 3 hours. HISTORY 1100 or HISTORY 2100* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
ENCL 245	Taskalad Walting	ENGLIS	rts, and Social Sciences SH 3560 required.	Taskeisal William	2
ENGL 215	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements	0 40		Maximum Free Electives Group 2 Major Requirements	0 37
	Group 2 Major Requirements Group 1 Core Requirements	32		Group 2 Major Requirements Group 1 Core Requirements	27
		Total Hours 72		Total Hours' *S&T advisor permission is required to transfer more than 69 credit hours toward the degree.	64

	Biome	dical Engine	eering-Biomater	ials	
			Requirements		
	Metropolitan Community Colleges	Sem	nester	Missouri S&T	
COMM 100	Fundamentals of Speech	3	SP&MS 1185	Principles of Speech	3
CHEM 111	General College Chemistry I	5	CHEM 1310, 1319	Applies to degree as Gen Ed Communication requirement. General Chemistry I and Lab	5
CHEM 112	General College Chemistry II	5	CHEM 1320, 1510*	General Chemistry II (3) and Qualitative Analysis (2)	3
CHEM 221	Organic Chemistry I	5	CHEM 2210, 2219*	*CHEM 1510 is not a degree requirement, transfers as general elective credit. Organic Chemistry I and Lab* *CHEM 2219 Lab applies to the degree as a Track Elective (non-engineering).	4
CHEM 222	Organic Chemistry II	5	CHEM 2220, 2229*	Organic Chemistry II and Lab* CHEM 2229 Lab applies to the degree as a Track Elective (non-engineering).	4
BIOL 101	General Biology	5	BIO SCI 1113*, 1219*	General Biology* and Lab* *Applies to degree as Track Elective (Non-engineering).	4
CSIS 223 or CSIS 271 or CSIS 123 or ENGR 204	Object-Oriented Programming With C++ or Data Structures and Algorithm Analysis or Programming Fundamentals or Programming for Engineers and Scientists	3	COMP SCI 1500 or COMP SCI 1971,1981* or COMP SCI 1570, 1580* or COMP SCI 1972, 1982*	Computational Problem Solving (3) or Intro to Programming Methodology and Lab*(C++) (3) or Intro to Programming and Lab* (C++) (4) or Intro to MATLAB Programming and Lab* (3) "Will be substituted for COMP SCI 1500.	3
ENGR 229	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 233, 234	Circuit Analysis I (4) and Lab (1)	5	ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) 'A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100. Applies to the degree as a Track Elective (Engineering).	4
			ces General Education Requirer		
	6 hours	Humanities and Fine Arts from the Arts from the Humanities and Social Science STORY 1200, 1300, 1310,	•	nd nes.	
			and Fine Arts ast two specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change 'Satisfies the State of Missouri government requirement.	6
			Social Sciences		
HIST 133 or HIST 134* or GEOG 105 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 3	3 hours. HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
			and Social Sciences 3560 required.		
ENGL 215	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree. Group 2 Major Requirements Group 1 Core Requirements	0 51 32 Total Hours 83		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 45 27 s* 72

	Ceramic Enginee	ring	Group	2 Major Re	quirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3		MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Cen Ed Communication requirement.	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112	General College Chemistry II	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
CHEM 221	Organic Chemistry I	5		CHEM 2210, 2219*	Organic Chemistry I (3) and Lab* (1) Satisfies the advanced chemistry elective requirement. *The lab is not a degree requirement, transfers as general elective credit.	3
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics or any statistics course 3000-level or higher. Satisfies statistics elective requirement.	3
	6 hours Behavioral *At least one course must be selected from HISTORY 1	and Socia 200, 1300 Hum	al Sciences fron D, 1310, or POL nanities and F	ine Arts	iplines.	
ENO. 000		nours tro	om at least two	specific disciplines.	Deltish Literature I. The Device is used to 4000 as	
ENGL 220 or ENG 221 or	British Literature to 1750 or British Literature 1750-Present or			ENGLISH 1211 or ENGLISH 1212 or	British Literature I: The Beginnings to 1800 or British Literature II: 1800 to Present	
ENGL 221 or	American Literature to 1860 or			ENGLISH 1212 or	American Literature: 1600 to 1865 or	
ENGL 223 or	American Literature 1860-Present or			ENGLISH 1222 or	American Literature: 1865 to Present or	
ENGL 254 or	World Literature I or			ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or	
HIST 120* or	United States History to 1865* or	6		HISTORY 1300* or	American History to 1877* or	6
HIST 121* or	United States History since 1865* or			HISTORY 1310* or	American History Since 1877* or	
ART 108 or	Survey of Art or			ART 1180 or	Art Appreciation or	
MUSI 108 or	Music Appreciation or			MUSIC 1150 or	Music Understanding and Appreciation or	
SPDR 106	Theatre Appreciation *Satisfies the State of Missouri government requirement.			THEATRE 1150	Theatre for Social Change *Satisfies the State of Missouri government requirement.	
	Satisfies the State of Missouri government requirement.	Behavio	oral and Socia	I Sciences	Satisfies the State of Missouri government requirement.	
		hours fro	om at least two	specific disciplines.		
HIST 133 or	Foundations of Western Civilization or			HISTORY 1100 or	Early Western Civilization or	
HIST 134* or	Modern Western Civilization* or			HISTORY 1200* or	Modern Western Civilization* or	
GEOG 105 or	World Geography or			HISTORY 2110 or	World Regional Geography or	
PHIL 100 or PHIL 200 or	Intro to Philosophy or Logic or			PHIL 1105 or PHIL 1115 or	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or	
POLS 136* or	Intro to US National Politics* or	6		POL SCI 1200* or	American Government*or	6
PSYC 140 or	General Psychology or	·		PSYCH 1101 or	General Psychology or	Ŭ
ECON 211 or	Microeconomics or			ECON 1100 or	Principles of Microeconomics or	
ECON 210 or	Macroeconomics or			ECON 1200 or	Principles of Macroeconomics or	
Foreign Language	Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.			Foreign Language	Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	
		manities	s, Arts, and Se Select 3 hour	ocial Sciences s.		
	Humanities, Arts, Social Sciences Elective: Any history, art				Humanities, Arts, Social Sciences Elective: Any history, art,	
HASS Elective	music, theater, English and technical communication,	3		HASS Elective	music, theater, English and technical communication,	3
	philosophy, political science, psychology, economics, etymology, or foreign language.	3			philosophy, political science, psychology, economics, etymology, or foreign language.	•
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	45			Group 2 Major Requirements	41
	Group 1 Core Requirements	32			Group 1 Core Requirements	27
	I otal H	ours 77			Total Hours' *S&T advisor permission is required to transfer more than 68 credits toward the S&T Ceramic Engineering degree.	* 68

		Chemic <u>al</u>	l Engineering or		
	Chemical Enginee	ring - Bio	ochemical Engir	neering Emphasis	
	Gre	oup 2 Ma	ajor Requiremen	ts	
	Metropolitan Community Colleges		Semester	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3	MECH ENG 1720	Intro to Engineering Design Principles of Speech	3
COMM 100	Fundamentals of Speech	3	SP&MS 1185	Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5	CHEM 1310, 1319	General Chemistry II (3) and Qualitative Analysis* (3)	5
CHEM 112	General College Chemistry II	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
CHEM 221	Organic Chemistry I	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* "CHEM 2210 is a degree requirement. CHEM 2219 applies to the degree as 1 of 9 required science elective credits See note below.	4
CHEM 221	Organic Chemistry I	5	CHEM 2210, 2219*	Organic Chemistry I and Lab* *The lab will apply to the degree as 1 of the 9 science elective credits (below).	4
CHEM 222	Organic Chemistry II	5	CHEM 2220, 2229*	Organic Chemistry II (3) and Lab* (1) CHEM 2220 Will satisfy 3 of 9 required hours of science electives CHEM 2229 is not required for the degree, will transfer as general credit.	4
BIOL 208	Microbiology	5	BIO SCI 3313, 3319	Microbiology and Lab (5) Will satisfy 5 of 9 required hours of science electives.	5
CSIS 223 or CSIS 271 or CSIS 123 or ENGR 204	Object-Oriented Programming With C++ or Data Structures and Algorithm Analysis or Programming Fundamentals or Programming for Engineers and Scientists	3	COMP SCI 1500 or COMP SCI 1972, 198	Computational Problem Solving or Intro to MATLAB Programming and Lab* "Will be substituted for COMP SCI 1500.	3
ENGR 215	Engineering Statistics and Computation	3	STAT 3115	Engineering Statistics Will be substituted for STAT 3113.	3
ENGR 223	Thermodynamics and Heat Transfer	4	MECH ENG 2519*	Thermodynamics* 'The combination of MECH ENG 2519 AND CHEM ENG 4000 (an independent study, online S&T course) will be substituted for CHEM ENG 2110 by the chemical engineering department. Students must complete both courses to receive credit.	3
	6 hours Bel *At least one course must be selected from HIS	TORY 1200, 1300,	Sciences from at least two specific di 1310, or POL SCI 1200 to satisfy the nities and Fine Arts		
	5		n at least two specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation 'Satisfies the State of Missouri government requirement.	6	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1222 or ENGLISH 1300° or HISTORY 1310° or HISTORY 1310° or ART 1180 or MUSIC 1150 or THEATRE 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 or Theatre for Social Change 'Satisfies the State of Missouri government requirement.	6
	S		al and Social Sciences n at least two specific disciplines.		
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6	HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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 Social Sciences LISH 3560 required.		
ENGL 215	Technical Writing	3	ENGLISH 3560	Technical Writing	3
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements	61 32		Group 2 Major Requirements Group 1 Core Requirements	55 27
		Total Hours 93		Total Hours *S&T advisor permission is required to transfer more than 68 credits toward the S&T Chemical Engineering degree.	

	Civil Enginee	ring (Gr	oup 2	Major Requ	irements	
	Metropolitan Community Colleges			Semester		Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications		3		MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech		3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I		5		CHEM 1310, 1319	General Chemistry I and Lab	5
GEO 101	Physical Geology		5		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 229	Statics		3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics		3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 240	Mechanics of Materials		3		CIV ENG 2210	Mechanics of Materials	3
SRVY 135	Elementary Surveying		3		CIV ENG 2401	Fundamentals of Surveying	3
ENGR 215	Engineering Statistics and Computation		3		STAT 3115	Engineering Statistics	3
		and Soc	rial	Sciences Ge	neral Education Require	Will be substituted for STAT 3113.	
	6 hours Human	nities and Foral and Sc Y 1200, 1	Fine ocial 300,	Arts from at le Sciences from 1310, or POL		and lines.	
	Colo			nities and Fi	ne Arts specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106 HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or	British Literature to 1750 or British Literature 1750-Present or American Literature 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation 'Satisfies the State of Missouri government requirement.	Beha	6 vio r	al and Socia	ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1310° or HISTORY 1310° or ART 1180 or MUSIC 1150 or THEATRE 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 or Theatre for Social Change *Satisfies the State of Missouri government requirement. Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or	6
POLS 136* or PSYC 140 or ECON 211 or ECON 20 or Foreign Language	Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.			Arts, and So Select 3 hour	POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	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
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.		3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.		0			Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements Tota	;	46 32 78			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 Civil Engineering degree.	43 27 70

	Computer Enginee	ring	Grou	p 2 Major Red	quirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
COMM 100	Fundamentals of Speech	3		SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
MATH 121* and MATH 122*	Discrete Structures for Computer Science I* and Discrete Structures for Computer Science II* "The combination of MCC MATH 121 AND 122 is equivalent to Missouri S&T CS 1200. Both courses must be taken to receive credit for Missouri S&T CS 1200.	6		CS 1200*	Discrete Mathematics for Computer Science* *The combination of MCC MATH 121 AND 122 is equivalent to Missouri S&T CS 1200. Both courses must be taken to receive credit for Missouri S&T CS 1200.	3
CSIS 223 or CSIS 271	Object-Oriented Programming with C++ or Data Structures and Algorithm Analysis	3		COMP SCI 1500	Computational Problem Solving	3
ENGR 229 or ENGR 230 or ENGR 223 or CHEM 221 or BIOL 214	Statics (3) or Dynamics (3) Thermodynamics and Heat Transfer (4) or Organic Chemistry I (5) or Principles of Genetics (4)	3		CIV ENG 2200 or ENG 2350 or MECH ENG 2519 or CHEM 2210 or BIO SCI 2223	Engineering Mechanics-Statics (3) or Engineering Mechanics-Dynamics (2) or Thermodynamics (3) or Organic Chemistry I (4)or General Genetics (3)	3
ENGR 233, 234	Circuit Analysis I (4) and Lab (1)	5		ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100.	4
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics Will be substituted for STAT 3117.	3
	From the options lis 6 hours Humanities a	sted in e and Fine d Social	each group be Arts from at le Sciences fron	eneral Education Requirent elow, select 15 hours to include east two specific disciplines and the all two specific disciplines. SCI 1200 to satisfy the State	e d es.	
			nities and F	•		
	Select 6 ho	ours fro	m at least two	specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 233 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
			ral and Socia			
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	ours fro	m at least two	o specific disciplines. HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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.	6
	Hum	anities	Arts, and Select 3 hour	ocial Sciences		
ENGL 102 or ENGL 215	Composition and Reading II or Technical Writing	3	Gelect 3 Hou	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
Electives	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements Total Hour	3 46 32 rs 78		Electives	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 Computer Engineering degree.	3 42 27 69

	Electrical Enginee	ering	Group	2 Major Rec	quirements	
ENGR 113	Metropolitan Community Colleges	3	Semester	MECH ENG 1720	Missouri S&T	3
	Engineering Design Microcomputer Applications	3			Intro to Engineering Design Principles of Speech	
COMM 100	Fundamentals of Speech			SPMS 1185	Applies to degree as Gen Ed Communication requirement.	3
CHEM 111 CSIS 223 or	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
SIS 271	Object-Oriented Programming with C++ or Data Structures and Algorithm Analysis	3		COMP SCI 1500	Computational Problem Solving	3
ENGR 229 and ENGR 230 OTH of the courses above or ONE of he courses below. DR ENGR 223 or CHEM 221 or	Statics (3) and Dynamics (3) Both courses above combined or any one of the following courses will satisfy a require engineering science elective. OR Thermodynamics and Heat Transfer (4) or Organic Chemistry I (5) or Principles of Genetics (4)	ed 4		CIV ENG 2200 and MECH ENG 2350 BOTH of the courses above or ONE of the courses below. OR MECH ENG 2519 or CHEM 2210 or	Engineering Mechanics-Statics (3) and Engineering Mechanics-Dynamics (3) Both courses above combined or any one of the following courses will satisfy a required engineering science elective. OR Thermodynamics (3) or Organic Chemistry I (4) or General Genetics (3)	3
BIOL 214 ENGR 233, 234	Circuit Analysis I (4) and Lab (1)	5		BIO SCI 2223 ELEC ENG 2100*, 2101	Circuits I* (3) and Circuit Analysis Lab (1) *A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for ELEC ENG 2100.	4
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	credit for ELEC ENG 2100. Engineering Statistics Will be substituted for STAT 3117.	3
	From the options 6 hours Humanitie	listed in one sand Fine and Socia 200, 1300	each group be Arts from at le Sciences from , 1310, or POL	•	de nd es.	
	Select 6		anities and Fi m at least two	ne Arts specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature 1 or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation '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 or THEATRE 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 or Theatre for Social Change "Satisfies the State of Missouri government requirement.	6
	0-140		ral and Socia			
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or POLS 136* or PSYC 140 or ECON 211 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language "Satisfies the State of Missouri government requirement.	6		specific disciplines. HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
	Hu	manities	, Arts, and So Select 3 hour	ocial Sciences s.		
ENGL 102 or ENGL 215	Composition and Reading II or Technical Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
lectives	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements Total Ho	6 44 32 ours 76		Electives	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 Electrical Engineering degree.	6 45 27 72

	Engineering Ma	anageme	ent Gro	up 2 Major R	equirements	
	Metropolitan Community Colleges		Semester	•	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3		MECH ENG 1720	Intro to Engineering Design	3
COMM 100	Fundamentals of Speech			SPMS 1185	Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CSIS 123 or CSIS 223 or ENGR 204	Programming Fundamentals or Object-Oriented Programming in C++ or Programming for Engineers and Scientists	3		COMP SCI 1971, 1981 or COMP SC 1972, 1982	Intro to Programming Method and Lab (C++) or Intro to MATLAB Programming and Lab	3
ENGR 233	Circuit Analysis I	4		ELEC ENG 2800	Electrical Circuits	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3		MECH ENG 2350	Engineering Mechanics-Otatios Engineering Mechanics-Dynamics	2
ENGR 223	Thermodynamics and Heat Transfer	4		MECH ENG 2527	Thermal Analysis	3
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics	3
	6 hours	Humanities and Fir Behavioral and Soci ISTORY 1200, 130	ne Arts from at le al Sciences fron 0, 1310, or POL	•	nd nes.	
			nanities and F om at least two	ine Arts o specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120* or	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or	6		ENGLISH 1211 or ENGLISH 1212 or ENGLISH 1221 or ENGLISH 1222 or ENGLISH 1231 or HISTORY 1300* 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 American History to 1877* or	6
HIST 121* or ART 108 or MUSI 108 or SPDR 106	United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *Satisfies the State of Missouri government requirement.			HISTORY 1310* or ART 1180 or MUSIC 1150 or THEATRE 1150	American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missouri government requirement.	
	Select 6 ho		oral and Socia two specific dis	al Sciences ciplines to include PSYCH	1101.	
PSYC 140	General Psychology	3	•	PSYCH 1101	General Psychology Required	3
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or POLS 136* or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *satisfies the State of Missouri government requirement.	3		HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
		Humanitie	s, Arts, and Select 3 hour	ocial Sciences rs.		
ENGL 102 or ENGL 215	Composition and Reading II or Technical Writing	3		ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
	No free electives applied to the degree.	0		Electives	Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements	46 32 Total Hours 78		Licouved	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.	46 27

	Environmental Er	igineer	ing Gro	oup 2 Major	Requirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3		MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
GEO 101	Physical Geology	5		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112	General College Chemistry II	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 101	General Biology	5		BIO SCI 1113, 1219*	General Biology (3) and Lab* (1) *The lab is not a degree requirement, transfers as general elective credit.	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics Will be substituted for STAT 3113.	3
ENGL 999	*At least one course must be selected from HIST	ORY 1200, 130 Hum	<mark>0, 1310, or POL</mark> anities and Fi	ine Arts o specific disciplines.	State of Missouri government requirement.	
ENGL 220 or ENG 221 or ENGL 222 or ENGL 233 or ENGL 254 or HIST 120* or HIST 120* or HIST 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature 1 or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
	Select 6 hours		oral and Socia	ai Sciences ciplines to include HISTO	RV 1200	
HIST 134*	Modern Western Civilization* *Satisfies the State of Missouri Government requirement.	3	ro opcomo dioc	HISTORY 1200*	Modern Western Civilization* 'Satisfies the State of Missouri Government requirement.	3
PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3		PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Self and World: Intro to Philosophy or Logic and Reasoning: An Introduction or American Government* or General Psychology or Principles of Microeconomics or Principles of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements	50			Group 2 Major Requirements	43
	Group 1 Core Requirements	otal Hours 82			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.	27 70

	Geological Engin	eerin	g Grou	p 2 Major Re	equirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3	_	MECH ENG 1720	Intro to Engineering Design	3
ENGL 215	Technical Writing			ENGLISH 3560	Technical Writing Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CSIS 223 or	Object-Oriented Programming With C++ or					
CSIS 271 or	Data Structures and Algorithm Analysis or	3		COMP SCI 1500 or	Computational Problem Solving or	3
CSIS 123 or ENGR 204	Programming Fundamentals or Programming for Engineers and Scientists			COMP SCI 1972, 1982	Intro to MATLAB Programming and Lab	
	· · · · · · · · · · · · · · · · · · ·	-		GEO ENG 1150	Physical and Frankram antal Cooks and	_
GEO 101	Physical Geology	5		(GEOLOGY 1110)	Physical and Environmental Geology	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 215	Engineering Statistics and Computation	3	l Caianasa Ca	STAT 3115 eneral Education Require	Engineering Statistics	3
	6 hours Human	nities and Fin ral and Soci	e Arts from at le	elow, select 15 hours to include ast two specific disciplines at least two specific disciplines SCI 1200 to satisfy the SI	and ines.	
			anities and F	•	and or misosair government roquironion.	
	Selec			specific disciplines.		
ENGL 220 or	British Literature to 1750 or			ENGLISH 1211 or	British Literature I: The Beginnings to 1800 or	
ENG 221 or	British Literature 1750-Present or			ENGLISH 1212 or	British Literature II: 1800 to Present	
ENGL 222 or ENGL 223 or	American Literature to 1860 or American Literature 1860-Present or			ENGLISH 1221 or ENGLISH 1222 or	American Literature: 1600 to 1865 or American Literature: 1865 to Present or	
ENGL 254 or	World Literature I or			ENGLISH 1231 or	World Literature I: Beginnings to the Renaissance or	
HIST 120* or	United States History to 1865* or	6		HISTORY 1300* or	American History to 1877* or	6
HIST 121* or	United States History since 1865* or			HISTORY 1310* or	American History Since 1877* or	
ART 108 or	Survey of Art or			ART 1180 or	Art Appreciation or	
MUSI 108 or SPDR 106	Music Appreciation or Theatre Appreciation			MUSIC 1150 or THEATRE 1150	Music Understanding and Appreciation or Theatre for Social Change	
OI DIV 100	*Satisfies the State of Missouri government requirement.			MEATRE 1100	*Satisfies the State of Missouri government requirement.	
			oral and Socia			
		t 6 hours fr	om at least two	specific disciplines.		
HIST 133 or	Foundations of Western Civilization or			HISTORY 1100 or	Early Western Civilization or	
HIST 134* or GEOG 105 or	Modern Western Civilization* or World Geography or			HISTORY 1200* or HISTORY 2110 or	Modern Western Civilization* or World Regional Geography or	
PHIL 100 or	Intro to Philosophy or			PHIL 1105 or	Self and World: Intro to Philosophy or	
PHIL 200 or	Logic or			PHIL 1115 or	Logic and Reasoning: An Introduction or	
POLS 136* or	Intro to US National Politics* or	6		POL SCI 1200* or	American Government*or	6
PSYC 140 or ECON 211 or	General Psychology or Microeconomics or			PSYCH 1101 or ECON 1100 or	General Psychology or Principles of Microeconomics or	
ECON 211 or	Macroeconomics or			ECON 1100 or ECON 1200 or	Principles of Macroeconomics or Principles of Macroeconomics or	
Foreign Language	Elementary or Intermediate Foreign Language			Foreign Language	Elementary or Intermediate Foreign Language	
	*Satisfies the State of Missouri government requirement.				*Satisfies the State of Missouri government requirement.	
		Humanitie	s, Arts , and S o Select 3 hour	ocial Sciences		
	Humanities, Arts, Social Sciences Elective: Any history,	art,	35.55t 0 110til		Humanities, Arts, Social Sciences Elective: Any history, art,	
HASS Elective	music, theater, English and technical communication,	3		HASS Elective	music, theater, English and technical communication,	3
50 2.00000	philosophy, political science, psychology, economics,	3			philosophy, political science, psychology, economics,	J
	etymology, or foreign language.				etymology, or foreign language.	
	No free electives applied to the degree.	0 43			Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements	43 32			Group 2 Major Requirements Group 1 Core Requirements	43 27
		l Hours 75			Total Hours*	
					*S&T advisor permission is required to transfer more than 65 credits toward the S&T Geological Engineering degree.	

	Mechanical Engir	neerin	g Grou	ıp 2 Major Re	equirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3		MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310*, 1319	General Chemistry I and Lab *CHEM 1310 will be substituted for CHEM 1305.	
CSIS 123 or CSIS 223 or ENGR 204	Programming Fundamentals or Object-Oriented Programming in C++ or Programming for Engineers and Scientists	3		COMP SCI 1971, 1981 or COMP SCI 1972, 1982	Intro to Programming Method and Lab (C++) or Intro to MATLAB Programming and Lab	3
ENGR 233	Circuit Analysis I	4		ELEC ENG 2800	Electrical Circuits	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3		MECH ENG 2360	Dynamics	3
ENGR 223	Thermodynamics and Heat Transfer	4		MECH ENG 2519	Thermodynamics	3
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics Satisfies the Advanced Math/Statistics elective requirement.	3
	6 hours Human	nities and Find ral and Socia Y 1200, 1300	Arts from at le Sciences from	•	nd nes.	
	Selec			specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 233 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature to 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation '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 or THEATRE 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 or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
	Selec		ral and Socia	al Sciences o specific disciplines.		
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6		HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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, and S Select 3 hou	ocial Sciences rs.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	art, 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	49 32 I Hours 81			Group 2 Major Requirements Group 1 Core Requirements Total Hours*	42 27 69
					*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mechanical Engineering degree.	

	Metallurgical Engi	neeri	ng Gro	oup 2 Major	Requirements	
	Metropolitan Community Colleges		Semeste	r	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	:	3	MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	:	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Applies to degree as Gen Ed Communication requirement.	3
ENGR 215	Engineering Statistics and Computation		3	STAT 3115	Engineering Statistics	3
ENGR 229	Statics	;	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 240	Mechanics of Materials		3	CIV ENG 2210	Mechanics of Materials	3
CHEM 111	General College Chemistry I		5	CHEM 1310, 1319	General Chemistry I and Lab	5
CHEM 112	General College Chemistry II	;	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
CHEM 221 or ENGR 233	Organic Chemistry 1 or Circuit Analysis I		4	CHEM 2210 or ELEC ENG 2800	Organic Chemistry I (3) or Electrical Circuits (3) Not specifically required for the degree but satisfies out-of-department technical elective requirement	3
	6 hours Huma	nities and Foral and So Y 1200, 13	ine Arts from at cial Sciences fro	•	s and iplines.	
	Sele	ct 6 hours	from at least tw	o specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 223 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature 1 or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation "Satisfies the State of Missouri government requirement.	,	3	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 or THEATRE 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: Beginnings to the Renaissance or American History to 1877* or American History Since 1877* or Art Appreciation or Music Understanding and Appreciation or Theatre for Social Change *Satisfies the State of Missourl government requirement.	6
			ioral and Soci			
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.		from at least tw	o specific disciplines. HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
		Humaniti	es, Arts, and S Select 3 hou	Social Sciences		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.		3	HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	Maximum Free Electives Group 2 Major Requirements Group 1 Core Requirements Tota	4	3 .7 .2 9		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 Metallurgical Engineering degree.	3 44 27 * 71

	Mining Engir	neering (Group 2 Major Re	quirements	
	Metropolitan Community Colleges		Semester	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3	MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3	ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech	3
ENGR 215	Engineering Statistics and Computation	3	STAT 3115	Applies to degree as Gen Ed Communication requirement. Engineering Statistics	3
CHEM 111	General College Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
ENGR 229	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 223	Thermodynamics and Heat Transfer	4	MECH ENG 2530 MECH ENG 2527	Thermal Analysis	3
ENGR 240	Mechanics of Materials	3	CIV ENG 2210	•	3
			GEOLOGY 1110	Mechanics of Materials	
GEO 101	Physical Geology	5	(GEO ENG 1150)	Physical and Environmental Geology	3
		havioral and Social TORY 1200, 1300,	Arts from at least two specific disciplin Sciences from at least two specific dis , 1310, or POL SCI 1200 to satisfy the anities and Fine Arts	ciplines.	
		Select 6 hours fro	m at least two specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 233 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change Satisfies the State of Missouri government requirement.	6
			ral and Social Sciences		
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	Select 6 hours fro	m at least two specific disciplines. HISTORY 1200 or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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 Pinciples of Macroeconomics or Elementary or Intermediate Foreign Language *Satisfies the State of Missouri government requirement.	6
	No free electives applied to the degree.	0		Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements	44 32 Total Hours 76		Group 2 Major Requirements Group 1 Core Requirements	40 27 otal Hours* 67

	Nuclear Engine	eering	Group	2 Major Req	uirements	
	Metropolitan Community Colleges		Semester	•	Missouri S&T	
ENGR 113	Engineering Design Microcomputer Applications	3		MECH ENG 1720	Intro to Engineering Design	3
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Apples to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CSIS 123 or ENGR 204	Programming Fundamentals or Programming for Engineers and Scientists	3		COMP SCI 1971, 1981 or COMP SCI 1972, 1982	Intro to Programming Method and Lab (C++) (3) or Intro to MATLAB Programming and Lab (3)	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 215	Engineering Statistics and Computation	3		STAT 3115	Engineering Statistics	3
ENGR 233	Circuit Analysis I	4		ELEC ENG 2800	Electrical Circuits	3
ENGR 223	Thermodynamics and Heat Transfer	4		MECH ENG 2519	Thermodynamics	3
				eneral Education Require elow, select 15 hours to inclu-		
		ioral and Socia RY 1200, 1300	al Sciences fron		nes.	
	Sele			specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 230 or ENGL 254 or HIST 120* or HIST 121* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature 1860 or American Literature 1860-Present or World Literature I or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation '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 or THEATRE 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 or Theatre for Social Change 'Satisfies the State of Missouri government requirement.	6
	0.1		oral and Socia			
50011044		ect 6 nours tro	om at least two	specific disciplines.	Drive in Least Miles and American	
ECON 211 or ECON 210	Microeconomics or Macroeconomics	3		ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Elementary or Intermediate Foreign Language "Satisfies the State of Missouri government requirement.	6		HISTORY 1100 or HISTORY 1200* or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or Foreign Language	Early Western Civilization or Modern Western Civilization* or World Regional Geography or Self and World: Intro to Philosophy 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
			s, Arts, and So Select 3 hour	ocial Sciences rs.		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	, art, 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	49			Group 2 Major Requirements	44
	Group 1 Core Requirements Tot	32 al Hours 81			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.	27 71

	Petroleum Engine	erinç	g Grou	p 2 Major Re	quirements	
	Metropolitan Community Colleges		Semester		Missouri S&T	
ENGL 102 or ENGL 215 or COMM 100 or	Composition and Reading II or Technical Writing or Fundamentals of Speech	3		ENGLISH 1160 or ENGLISH 3560 or SPMS 1185	Writing and Research or Technical Writing or Principles of Speech Apples to degree as Gen Ed Communication requirement.	3
CHEM 111	General College Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5
CSIS 271	Data Structures and Algorithm Analysis	3		COMP SCI 1500	Computational Problem Solving	3
ENGR 204	Programming for Engineers and Scientists	3		COMP SCI 1972, 1982	Intro to MATLAB Programming and Lab	3
GEO 101	Physical Geology	5		GEOLOGY 1110 (GEO ENG 1150)	Physical and Environmental Geology	3
ENGR 229	Statics	3		CIV ENG 2200	Engineering Mechanics-Statics	3
ENGR 230	Dynamics	3		MECH ENG 2350	Engineering Mechanics-Dynamics	2
ENGR 240	Mechanics of Materials	3		CIV ENG 2210	Mechanics of Materials	3
ENGR 223	Thermodynamics and Heat Transfer	4		MECH ENG 2527	Thermal Analysis	3
	From the options 6 hours Humanities	listed in o s and Fine and Socia	each group be Arts from at le I Sciences fron	eneral Education Require elow, select 15 hours to inclu- east two specific disciplines a n at least two specific disciplin SCI 1200 to satisfy the Sta	de nd nes.	
			anities and F			
	Select 6			specific disciplines.		
ENGL 220 or ENG 221 or ENGL 222 or ENGL 233 or ENGL 254 or HIST 120* or HIST 120* or ART 108 or MUSI 108 or SPDR 106	British Literature to 1750 or British Literature 1750-Present or American Literature to 1860 or American Literature 1860-Present or World Literature 1 or United States History to 1865* or United States History since 1865* or Survey of Art or Music Appreciation or Theatre Appreciation *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 or THEATRE 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 or Theatre for Social Change *Satisfies the State of Missouri government requirement.	6
			ral and Socia	al Sciences o specific disciplines.		
HIST 133 or HIST 134* or GEOG 105 or PHIL 100 or PHIL 200 or POLS 136* or PSYC 140 or ECON 211 or ECON 210 or Foreign Language	Foundations of Western Civilization or Modern Western Civilization* or World Geography or Intro to Philosophy or Logic or Intro to US National Politics* or General Psychology or Microeconomics or Macroeconomics or Elementary or Intermediate Foreign Language "Satisfies the State of Missouri government requirement.	6	m at least two	HISTORY 1100 or HISTORY 1100 or HISTORY 2110 or HISTORY 2110 or PHIL 1105 or PHIL 1115 or POL SCI 1200* or PSYCH 1101 or ECON 1100 or ECON 1200 or Foreign Language	Early Western Civilization or Modern Western Civilization* or 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
	Hui	manities	, Arts, and Select 3 hou	ocial Sciences		
HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3		HASS Elective	Humanities, Arts, Social Sciences Elective: Any history, art, music, theater, English and technical communication, philosophy, political science, psychology, economics, etymology, or foreign language.	3
	No free electives applied to the degree.	0			Maximum Free Electives	0
	Group 2 Major Requirements Group 1 Core Requirements	47 32 ours 79			Group 2 Major Requirements Group 1 Core Requirements	43 27
	Total Ho	ours 79			Total Hours* *S&T advisor permission is required to transfer more than 69 credits toward the S&T Petroleum Engineering degree.	70