

North Central Missouri College — Missouri S&T

General Engineering Transfer Guide

Effective as of Fall 2023

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

Group 1 - Core Requirements: All Majors Take All Courses

Engineering students take all Group 1 - Core Requirements and Group 2 - Major Requirements for major of choice. Math prerequisites: While they are not part of Missouri S&T engineering degree requirements, algebra and trigonometry skills are critical to success in calculus. To prepare for entry into calculus, students should follow math placement testing and advising recommendations at their college.

<u>North Central Missouri College</u>			<u>Semester</u>	<u>Missouri S&T</u>			
MT 150 and	Geometry and Calculus I and			MATH 1214 and	Calculus for Engineers I and		
MT 250	Geometry and Calculus II	10		MATH 1215	Calculus for Engineers II	8	
MT 260	Geometry and Calculus III	5		MATH 2222	Calculus III	4	
PS 210	General Physics I	5		PHYSICS 1135	Engineering Physics I	4	
PS 212	General Physics II	5		PHYSICS 2135	Engineering Physics II	4	
CH 110	General Chemistry I	5		CHEM 1310, 1319	General Chemistry I and Lab	5	
EN 101	English I	3		ENGLISH 1120	Exposition and Argumentation	3	
EC 252 or	Microeconomics or	3		ECON 1100 or	Principles of Microeconomics or	3	
EC 253	Macroeconomics			ECON 1200	Principles of Macroeconomics	3	
Total Hours			36	Total Hours			31

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
Ceramic Engineering
Chemical Engineering
Chemical Engineering/Biochemistry Emphasis
Civil Engineering
Computer Engineering
Electrical Engineering

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

Engineering Major Requirements are detailed on the following pages.

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

Humanities/Social Science (HSS) Electives: HSS electives may include any art, English and technical communication, etymology, foreign language, music, philosophy, speech and media studies, or theatre. Your campus may have additional acceptable options. Consult with your advisor or email transfer@mst.edu with questions. See Missouri S&T online catalog at <https://catalog.mst.edu/undergraduate/degreeprogramsandcourses/> for more information.

Aerospace Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
EN 102 or SP 175	English II or Speech Communications	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
IT 243	C++ Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
	Literature Elective	3		Literature Elective	3
	Ethics Elective	3		Ethics Elective <small>Engineering, business, bio, social or other ethics approved by advisor.</small>	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	15		Group 2 Major Requirements	15
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	51		Total Hours*	46

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

Architectural Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HI 102* (or HI 103 or HI 104)	Western Civilization Since 1700* or (American History to 1877 or American History since 1877) <small>*HI 102 is preferred; 103 or 104 will also be accepted.</small>	3	HISTORY 1200* (or HISTORY 1300 or HISTORY 1310)	Modern Western Civilization* (or American History to 1877 or American History since 1877) <small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>	3
HSS Elective	Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	HSS Elective	Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	6		Group 2 Major Requirements	6
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	42		Total Hours*	37

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

Ceramic Engineering Group 2 Major Requirements

North Central Missouri College		Semester	Missouri S&T		
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CH 112	General Chemistry II	5	CHEM 1320	General Chemistry II	3
EN 102 or SP 175 or HSS Elective	English II or Speech Communications or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Principles of Speech or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	14		Group 2 Major Requirements	12
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	50		Total Hours*	43

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

Chemical Engineering Group 2 Major Requirements

North Central Missouri College		Semester	Missouri S&T		
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CH 112	General Chemistry II	5	CHEM 1320	General Chemistry II	3
BI 243	Microbiology	4	BIO SCI 3313, 3319	Microbiology and Lab <small>Will partially satisfy 9-credit-hour science elective requirement.</small>	5
IT 243	C++ Programming	3	CS 1971, 1981*	Intro to Programming Method and Lab (C++)* <small>Course will be substituted for CS 1500</small>	3
SP 175	Speech Communications	3	SP&MS 1185	Principles of Speech	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	21		Group 2 Major Requirements	20
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	57		Total Hours*	51

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CH 112	General Chemistry II	5	CHEM 1320	General Chemistry II	3
BI 243	Microbiology	4	BIO SCI 3313, 3319	Microbiology and Lab <small>Will partially satisfy 9-credit-hour science elective requirement.</small>	5
IT 243	C++ Programming	3	CS 1971, 1981*	Intro to Programming Method and Lab (C++)* <small>Course will be substituted for CS 1500</small>	3
SP 175	Speech Communications	3	SP&MS 1185	Principles of Speech	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	21		Group 2 Major Requirements	20
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	57		Total Hours*	51

*S&T advisor permission is required to transfer more than 70 credits toward the S&T Chemical/Biochemical Engineering degree.

Civil Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102 or SP 175	English II or Speech Communications	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	9		Group 2 Major Requirements	9
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	45		Total Hours*	40

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

Computer Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
SP 175	Speech Communications	3	SPMS 1185	Principles of Speech	3
EN 102	English II	3	ENGLISH 1160	Writing and Research	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	15		Group 2 Major Requirements	15
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	51		Total Hours*	46

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

Electrical Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
SP 175	Speech Communications	3	SPMS 1185	Principles of Speech	3
EN 102	English II	3	ENGLISH 1160	Writing and Research	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	15		Group 2 Major Requirements	15
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	51		Total Hours*	46

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

Engineering Management Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PY 121	General Psychology	3	PSYCH 1101	General Psychology	3
HI 102 or	Western Civilization Since 1700 or		HISTORY 1200 or	Modern Western Civilization or	
HI 103 or	American History to 1877 or	3	HISTORY 1300 or	American History to 1877 or	3
HI 104 or	American History since 1877 or		HISTORY 1310 or	American History since 1877 or	
PL 216	National Government		POL SCI 1200	American Government	
SP 175	Speech Communications	3	SPMS 1185	Principles of Speech	3
EN 102	English II	3	ENGLISH 1160	Writing and Research	3
IT 243	C++ Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	3		Maximum Free Electives	3
	Group 2 Major Requirements	21		Group 2 Major Requirements	21
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	57		Total Hours*	52

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

Environmental Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102 or	English II or	3	ENGLISH 1160 or	Writing and Research or	3
SP 175	Speech Communications		SPMS 1185	Principles of Speech	
HI 102 or	Western Civilization Since 1700 or		HISTORY 1200 or	Modern Western Civilization or	
HI 103 or	American History to 1877 or	3	HISTORY 1300 or	American History to 1877 or	3
HI 104	American History since 1877		HISTORY 1310	American History since 1877	
CH 112	General Chemistry II	5	CHEM 1320	General Chemistry II	3
BI 100	General Biology	5	BIO SCI 1113	General Biology	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	19		Group 2 Major Requirements	15
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	55		Total Hours*	46

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

Geological Engineering Group 2 Major Requirements

	<u>North Central Missouri College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
BI 100 or CH 112	General Biology or General Chemistry II	5	BIO SCI 1113 or CHEM 1320	General Biology or General Chemistry II or any 3-hour course in chemistry, geochemistry, or biology. Satisfies chemistry/geochemistry elective requirement.	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	14		Group 2 Major Requirements	12
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	50		Total Hours*	43

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

Mechanical Engineering Group 2 Major Requirements

	<u>North Central Missouri College</u>	<u>Semester</u>		<u>Missouri S&T</u>	
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
EN 102 or SP 175	English II or Speech Communications	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
IT 243	C++ Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
	Literature Elective	3		Literature Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	15		Group 2 Major Requirements	15
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	51		Total Hours*	46

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

Metallurgical Engineering Group 2 Major Requirements

Metallurgical Engineering Group 2 Major Requirements					
<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102 or SP 175	English II or Speech Communications	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
CH 112	General Chemistry II	5	CHEM 1320	General Chemistry II	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	5		Maximum Free Electives	3
	Group 2 Major Requirements	22		Group 2 Major Requirements	18
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	58		Total Hours*	49

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

Mining Engineering Group 2 Major Requirements

Mining Engineering Group 2 Major Requirements					
<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102	English II	3	ENGLISH 1160	Writing and Research	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	12		Group 2 Major Requirements	12
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	48		Total Hours*	43

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

Nuclear Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102 or SP 175	English II or Speech Communications	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
IT 243	C++ Programming	3	CS 1971, 1981	Intro to Programming Method and Lab (C++)	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Maximum Free Electives	6		Maximum Free Electives	6
	Group 2 Major Requirements	21		Group 2 Major Requirements	21
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	57		Total Hours*	52

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

Petroleum Engineering Group 2 Major Requirements

<u>North Central Missouri College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 102	English II	3	ENGLISH 1160	Writing and Research	3
HI 102 or HI 103 or HI 104 or PL 216	Western Civilization Since 1700 or American History to 1877 or American History since 1877 or National Government	3	HISTORY 1200 or HISTORY 1300 or HISTORY 1310 or POL SCI 1200	Modern Western Civilization or American History to 1877 or American History since 1877 or American Government	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	Humanities/Social Science Elective	3		Humanities/Social Science Elective	3
	<i>No free electives applied to the degree.</i>	0		Maximum Free Electives	0
	Group 2 Major Requirements	12		Group 2 Major Requirements	12
	Group 1 Core Requirements	36		Group 1 Core Requirements	31
	Total Hours	48		Total Hours*	43

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