

Donnelly College — Missouri S&T
General Engineering Transfer Guide
 Effective as of Fall 2017

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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MT 231	Calculus and Analytic Geometry I	5	MATH 1214	Calculus for Engineers I	Grade of C or better is required. 4
MT 232	Calculus and Analytic Geometry II	5	MATH 1215	Calculus for Engineers II	Grade of C or better is required. 4
MT 233	Calculus and Analytic Geometry III	5	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required. 4
MT 235	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PX 201	Engineering Physics I	5	PHYSICS 1135	Engineering Physics I	Grade of C or better is required. 4
PX 202	Engineering Physics II	5	PHYSICS 2135	Engineering Physics II	Grade of C or better is required. 4
CH 101	General College Chemistry I	5	CHEM 1310, 1319	General Chemistry I and Lab	5
EG 108	Advanced CAD	3	MECH ENG 1720	Engineering Design with Computer Appl	3
EN 111	English Composition I	3	ENGLISH 1120	Exposition and Argumentation	3
EC 202 or	Principles of Microeconomics or	3	ECON 1100 or	Principles of Microeconomics or	3
EC 201	Principles of Macroeconomics		ECON 1200	Principles of Macroeconomics	3
Total Hours		42	Total Hours		37

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 history, economics, political science, sociology, psychology, philosophy, fine art, literature, or foreign language. Missouri S&T approved HSS courses are listed at ugs.mst.edu. Your campus may have additional acceptable options. Consult with your advisor or email transfer@mst.edu with questions.

Aerospace Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EN 112 or EN 140	English Composition II or Fundamentals of Speech	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech	3
EG 228 or EG 230	Introductory Circuits or Circuits	3	EE 2800	Circuit Analysis I	3
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 222	Thermodynamics	3	MECH ENG 2519	Thermodynamics	3
<i>See your advisor for course options.</i>				Literature Elective	3
<i>See your advisor for course options.</i>				Ethics Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		15	Group 2 Major Requirements		21
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		57	Total Hours*		58

*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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HS 112 or HS 121 or HS 122	Western Civilization II or Early American History or Late American History	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
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350 ENGLISH 1160 or SPMS 1185 or HSS Elective	Engineering Mechanics-Dynamics Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	3
EN 112 or EN 140	English Composition II or Fundamentals of Speech	3			3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		12	Group 2 Major Requirements		12
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		54	Total Hours*		49

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

Ceramic Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CH 211	Organic Chemistry I	5	CHEM 2210/2219	Organic Chemistry I and Lab (Not a specific requirement. Will satisfy technical elective requirement.)	5
CH 102	General College Chemistry II	5	CHEM 1320	General Chemistry II	3
EN 112 or EN 140	English Composition II or Fundamentals of Speech	3	ENGLISH 1160 or SPMS 1185 or HSS Elective	Writing and Research or Public Speaking or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		19	Group 2 Major Requirements		20
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		61	Total Hours*		57

*S&T advisor permission is required to transfer more than 66 credits toward the S&T Ceramic Engineering degree.

Chemical Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112	English Composition II	3	ENGLISH 1160	Writing and Research	3
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CH 102	General College Chemistry II	5	CHEM 1320	General Chemistry II	5
CH 211	Organic Chemistry I	5	CHEM 2210	Organic Chemistry I	3
CH 212	Organic Chemistry II	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		21	Group 2 Major Requirements		23
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		63	Total Hours*		60

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

Chemical Engineering - Biochemical Engineering Emphasis Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112	English Composition II	3	ENGLISH 1160	Writing and Research	3
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
CH 102	General College Chemistry II	5	CHEM 1320	General Chemistry II	5
CH 211	Organic Chemistry I	5	CHEM 2210	Organic Chemistry I	3
CH 212	Organic Chemistry II	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		21	Group 2 Major Requirements		23
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		63	Total Hours*		60

*S&T advisor permission is required to transfer more than 71 credits toward the S&T Chemical/Biochemical Engineering degree.

Civil Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112 or EN 140 HS 121 or HS 122 or HS 112 or PS 111	English Composition II or Fundamentals of Speech Early American History or Late American History or Western Civilization II or American Government	3	ENGLISH 1160 or SPMS 1185 HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	Writing and Research or Principles of Speech American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		12			15
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		54	Total Hours*		52

*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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 140 EN 112 HS 121 or HS 122 or HS 112 or PS 111	Fundamentals of Speech English Composition II Early American History or Late American History or Western Civilization II or American Government	3	SPMS 1185 ENGLISH 1160 HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	Public Speaking Writing and Research American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EG 220 and EG 221	Statics and Dynamics	3	CIV ENG 2200 and MECH ENG 2350	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	6
EG 228 or EG 230	Introductory Circuits or Circuits	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
Group 2 Major Requirements		15	Group 2 Major Requirements		24
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		57	Total Hours*		61

*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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 140 EN 112 HS 121 or HS 122 or HS 112 or PS 111	Fundamentals of Speech English Composition II Early American History or Late American History or Western Civilization II or American Government	3	SPMS 1185 ENGLISH 1160 HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	Public Speaking Writing and Research American History to 1877 or American History since 1877 or Modern Western Civilization or American Government	3
EG 220 and EG 221	Statics and Dynamics	3	CS 1570, 1580 CIV ENG 2200 and MECH ENG 2350	Intro to Programming and Lab (C++) Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	4
EG 228 or EG 230	Introductory Circuits or Circuits	3	EE 2100**	Circuits I **A passing grade on the Missouri S&T EE Advancement Exam I is required to receive credit for EE 2100.	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
Group 2 Major Requirements		15	Group 2 Major Requirements		28
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		57	Total Hours*		65

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

Engineering Management Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PY 101	General Psychology	3	PSYCH 1101	General Psychology	3
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 or	
HS 122 or	Late American History or	3	HISTORY 1310 or	American History since 1877 or	3
HS 112 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
PS 111	American Government		POL SCI 1200	American Government	
EN 112 or	English Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
EN 140	Fundamentals of Speech		SPMS 1185	Principles of Speech	
EG 228 or	Introductory Circuits or	3			3
EG 230	Circuits		EE 2800	Circuit Analysis I	
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Maximum Free Electives	3
Group 2 Major Requirements		18			24
Group 1 Core Requirements		42			37
Total Hours		60			61

*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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112 or	English Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
EN 140	Fundamentals of Speech		SPMS 1185	Principles of Speech	
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 (preferred) or	
HS 122 or	Late American History or	3	HISTORY 1310 or	American History since 1877 (preferred) or	3
HS 112	Western Civilization II		HISTORY 1200	Modern Western Civilization	
CH 102	General College Chemistry II	5	CHEM 1320	General Chemistry II	3
BL 101	Principles of Biology	5	BIO SCI 1113	General Biology	4
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		22			22
Group 1 Core Requirements		42			37
Total Hours		64			59

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

Geological Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112 or	English Composition II or	3	ENGLISH 1160 or	Writing and Research or	3
EN 140	Fundamentals of Speech		SPMS 1185	Principles of Speech	
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 or	
HS 122 or	Late American History or	3	HISTORY 1310 or	American History since 1877 or	3
HS 112 or	Western Civilization II or		HISTORY 1200 or	Modern Western Civilization or	
PS 111	American Government		POL SCI 1200	American Government	
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
BL 101 or	Principles of Biology or	5	BIO SCI 1113 or	General Biology or	
CH 102 or	General Chemistry II or		CHEM 1320 or	General Chemistry II or	
CH 211	Organic Chemistry I		CHEM 2210	Organic Chemistry I	
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>See your advisor for course options.</i>				Humanities/Social Science Elective	3
<i>No free electives applied to the degree.</i>				Maximum Free Electives	0
Group 2 Major Requirements		17			18
Group 1 Core Requirements		42			37
Total Hours		59			55

*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>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government
EN 112 or EN 140	English Composition II or Fundamentals of Speech	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech
EG 228 or EG 230	Introductory Circuits or Circuits	3	EE 2800	Circuit Analysis I
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
EG 222	Thermodynamics	3	MECH ENG 2519	Thermodynamics
				Literature Elective
				Humanities/Social Science Elective
				Maximum Free Electives
<i>See your advisor for course options.</i>				
<i>No free electives applied to the degree.</i>				
Group 2 Major Requirements		9	Group 2 Major Requirements	
Group 1 Core Requirements		42	Group 1 Core Requirements	
Total Hours		51	Total Hours*	
			15	
			37	
			52	

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

Metallurgical Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>	
EN 112 or EN 140	English Composition II or Fundamentals of Speech	3	ENGLISH 1160 or SPMS 1185	Writing and Research or Principles of Speech
HS 121 or HS 122 or HS 112 or PS 111	Early American History or Late American History or Western Civilization II or American Government	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200 or POL SCI 1200	American History to 1877 or American History since 1877 or Modern Western Civilization or American Government
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
CH 102	General College Chemistry II	5	CHEM 1320	General Chemistry II
CH 211 or EG 228 or EG 230	Organic Chemistry I or Introductory Circuits or Circuits	3	CHEM 2210 or EE 2800	Organic Chemistry I or Electrical Circuits
				<i>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement</i>
<i>See your advisor for course options.</i>				Humanities/Social Science Elective
<i>See your advisor for course options.</i>				Humanities/Social Science Elective
<i>See your advisor for course options.</i>				Maximum Free Electives
Group 2 Major Requirements		17	Group 2 Major Requirements	
Group 1 Core Requirements		42	Group 1 Core Requirements	
Total Hours		59	Total Hours*	
			26	
			37	
			63	

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

Mining Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112	English Composition II	3	ENGLISH 1160	Writing and Research	3
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 or	
HS 122 or	Late American History or		HISTORY 1310 or	American History since 1877 or	
HS 112 or	Western Civilization II or	3	HISTORY 1200 or	Modern Western Civilization or	3
PS 111	American Government		POL SCI 1200	American Government	
EG 220	Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3
			<small>*The combination of CIV ENG 2200 and MECH ENG 2350 will be substituted for MECH ENG 2340.</small>		
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					0
Group 2 Major Requirements		12	Group 2 Major Requirements		18
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		54	Total Hours*		55
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Mining Engineering degree.</small>					

Nuclear Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112	English Composition II	3	ENGLISH 1160	Writing and Research	3
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 or	
HS 122 or	Late American History or		HISTORY 1310 or	American History since 1877 or	
HS 112 or	Western Civilization II or	3	HISTORY 1200 or	Modern Western Civilization or	3
PS 111	American Government		POL SCI 1200	American Government	
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					6
Group 2 Major Requirements		9	Group 2 Major Requirements		21
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		51	Total Hours*		58
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Nuclear Engineering degree.</small>					

Petroleum Engineering Group 2 Major Requirements

<u>Donnelly College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
EN 112	English Composition II	3	ENGLISH 1160	Writing and Research	3
HS 121 or	Early American History or		HISTORY 1300 or	American History to 1877 or	
HS 122 or	Late American History or		HISTORY 1310 or	American History since 1877 or	
HS 112 or	Western Civilization II or	3	HISTORY 1200 or	Modern Western Civilization or	3
PS 111	American Government		POL SCI 1200	American Government	
EG 220	Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
EG 221	Dynamics	3	MECH ENG 2350	Engineering Mechanics-Dynamics	3
					Humanities/Social Science Elective
					3
					Humanities/Social Science Elective
					3
					Maximum Free Electives
					0
Group 2 Major Requirements		6	Group 2 Major Requirements		12
Group 1 Core Requirements		42	Group 1 Core Requirements		37
Total Hours		48	Total Hours*		49
<small>*S&T advisor permission is required to transfer more than 68 credits toward the S&T Petroleum Engineering degree.</small>					