

Lyon 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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
MTH 210	Calculus I	4	MATH 1214	Calculus for Engineers I	Grade of C or better is required. 4
MTH 220	Calculus II	4	MATH 1215	Calculus for Engineers II	Grade of C or better is required. 4
MTH 230	Calculus III	4	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required. 4
MTH 300	Differential Equations	3	MATH 3304	Elementary Differential Equations	3
PHY 240, 241	Fundamentals of Physics I, Lab	4	PHYSICS 1135	Engineering Physics I	Grade of C or better is required. 4
PHY 250, 251	Fundamentals of Physics II, Lab	4	PHYSICS 2135	Engineering Physics II	Grade of C or better is required. 4
CHM 110	General Chemistry I	4	CHEM 1310, 1319	General Chemistry I and Lab	5
EGR 101	Engineering Careers	1	FR ENG 1100	Study and Careers in Engineering	1
ENG 101	English Composition I	3	ENGLISH 1120	Exposition and Argumentation	3
ECO 102 or ECO 101	Principles of Economics II or Principles of Economics I	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics	3
Total Hours		34	Total Hours		35

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

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

Aerospace Engineering
Architectural Engineering
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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
CSC 140 or CSC 145	Intro to Programming I or Introduction to Programming II	3	CS 1971, 1981 or CS 1570, 1580	Intro to Programming Method and Lab (C++) or Intro to Programming and Lab (C++)	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MTH 330	Linear Algebra	3	MATH 3108	Linear Algebra I <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	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	34		Group 1 Core Requirements	35
	Total Hours	49		Total Hours*	56

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 202	Western Civilization II	3	HISTORY 1200	Modern Western Civilization	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
ENG 102	English Composition II	3	ENGLISH 1160 or HSS Elective	Writing and Research or 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>			Maximum Free Electives	0
	Group 2 Major Requirements	9		Group 2 Major Requirements	9
	Group 1 Core Requirements	34		Group 1 Core Requirements	35
	Total Hours	43		Total Hours*	44

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 210	Organic Chemistry I	4	CHEM 2210/2219	Organic Chemistry I and Lab <small>(Not a specific requirement. Will satisfy technical elective requirement.)</small>	5
CHM 120	General Chemistry II	4	CHEM 1320	General Chemistry II	3
ENG 102	English Composition II	3	ENGLISH 1160 or HSS Elective	Writing and Research or Humanities/Social Science Elective: history, economics, political science, sociology, psychology, philosophy, fine art, literature, foreign language	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	Group 2 Major Requirements		20
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		51	Total Hours*		55

*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

<u>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
CHM 120	General Chemistry II	4	CHEM 1320	General Chemistry II	5
CHM 210	Organic Chemistry I	4	CHEM 2210	Organic Chemistry I	3
CHM 220	Organic Chemistry II	4	CHEM 2220	Organic Chemistry II <small>(Will satisfy science elective requirement.)</small>	3
CSC 140 or CSC 145	Intro to Programming I or Introduction to Programming II	3	CS 1971, 1981 or CS 1570, 1580	Intro to Programming Method and Lab (C++) or Intro to Programming and Lab (C++)	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		26
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		55	Total Hours*		61

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
CHM 120	General Chemistry II	4	CHEM 1320	General Chemistry II	5
CHM 210	Organic Chemistry I	4	CHEM 2210	Organic Chemistry I	3
CHM 220	Organic Chemistry II	4	CHEM 2220	Organic Chemistry II <small>(Will satisfy science elective requirement.)</small>	3
CSC 140 or CSC 145	Intro to Programming I or Introduction to Programming II	3	CS 1971, 1981 or CS 1570, 1580	Intro to Programming Method and Lab (C++) or Intro to Programming and Lab (C++)	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		26
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		55	Total Hours*		61

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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		9	Group 2 Major Requirements		12
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		43	Total Hours*		47

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
CSC 145	Introduction to Programming II	3	CS 1570, 1580	Intro to Programming and Lab (C++)	4
CSC 240	Data Structures with C++	3	CS 1575	Data Structures	3
MTH 330	Linear Algebra	3	MATH 3108	Linear Algebra (Will satisfy a required math elective.)	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		22
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		49	Total Hours*		57

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
CSC 145	Introduction to Programming II	3	CS 1570, 1580	Intro to Programming and Lab (C++)	4
MTH 330	Linear Algebra	3	MATH 3108	Linear Algebra	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		12	Group 2 Major Requirements		19
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		46	Total Hours*		54

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
PSY 101	Intro to Psychology	3	PSYCH 1101	General Psychology	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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		12	Group 2 Major Requirements		18
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		46	Total Hours*		53

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202	Western Civilization II	3	HISTORY 1200	Modern Western Civilization	3
CHM 120	General Chemistry II	4	CHEM 1320	General Chemistry II	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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		13	Group 2 Major Requirements		15
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		47	Total Hours*		50

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 120 or CHM 210	General Chemistry II or Organic Chemistry I	4	CHEM 1320 or CHEM 2210	General Chemistry II or Organic Chemistry I	
<i>See your advisor for course options.</i>			<i>or any 3-hour course in chemistrv. geochemistrv. or bioloav</i>		
<i>See your advisor for course options.</i>			Humanities/Social Science Elective		3
<i>No free electives applied to the degree.</i>			Humanities/Social Science Elective		3
<i>No free electives applied to the degree.</i>			Maximum Free Electives		0
Group 2 Major Requirements		13	Group 2 Major Requirements		15
Group 1 Core Requirements		34	Group 1 Core Requirements		35
Total Hours		47	Total Hours*		50

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
CSC 140 or CSC 145	Intro to Programming I or Introduction to Programming II	3	CS 1971, 1981 or CS 1570, 1580	Intro to Programming Method and Lab (C++) or Intro to Programming and Lab (C++)	3 4
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
MTH 330	Linear Algebra	3	MATH 3108	Linear Algebra I <small>(Will satisfy the Advanced Math/Comp Sci elective requirement.)</small>	3
				Literature Elective	3
				Humanities/Social Science Elective	3
				Maximum Free Electives	0
				Group 2 Major Requirements	12
				Group 1 Core Requirements	35
Total Hours			40	Total Hours*	47

See your advisor for course options.
No free electives applied to the degree.

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHM 120	General Chemistry II	4	CHEM 1320	General Chemistry II	3
CHM 210	Organic Chemistry I	4	CHEM 2210	Organic Chemistry I <small>Not specifically required for the degree but will satisfy Out-of-Department Technical Elective Requirement</small>	3
				Humanities/Social Science Elective	3
				Humanities/Social Science Elective	3
				Maximum Free Electives	5
				Group 2 Major Requirements	26
				Group 1 Core Requirements	35
Total Hours			48	Total Hours*	61

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	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	6		Group 2 Major Requirements	12
	Group 1 Core Requirements	34		Group 1 Core Requirements	35
	Total Hours	40		Total Hours*	47

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
					3
CSC 140 or CSC 145	Intro to Programming I or Introduction to Programming II	3	CS 1971, 1981 or CS 1570, 1580	Intro to Programming Method and Lab (C++) or Intro to Programming and Lab (C++)	3 4
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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>See your advisor for course options.</i>			Maximum Free Electives	6
	Group 2 Major Requirements	12		Group 2 Major Requirements	21
	Group 1 Core Requirements	34		Group 1 Core Requirements	35
	Total Hours	46		Total Hours*	56

*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>Lyon College</u>		<u>Semester</u>	<u>Missouri S&T</u>		
ENG 102	English Composition II	3	ENGLISH 1160	Writing and Research	3
HIS 202 or PSL 101	Western Civilization II or US Government Perspectives	3	HISTORY 1200 or POL SCI 1200	Modern Western Civilization or American Government	3
EGR 201	Engineering Mechanics- Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	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	3		Group 2 Major Requirements	9
	Group 1 Core Requirements	34		Group 1 Core Requirements	35
	Total Hours	37		Total Hours*	44

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