

# Western Kentucky University — 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>Western Kentucky University</u>			<u>Semester</u>	<u>Missouri S&amp;T</u>			
MATH 126	Calculus and Analytical Geometry I	4.5	MATH 1214	Calculus for Engineers I	Grade of C or better is required.	4	
MATH 227	Calculus and Analytical Geometry II	4.5	MATH 1215	Calculus for Engineers II	Grade of C or better is required.	4	
MATH 327	Multivariable Calculus	4	MATH 2222	Calculus with Analytic Geometry III	Grade of C or better is required.	4	
MATH 331	Differential Equations	3	MATH 3304	Elementary Differential Equations		3	
PHYS 250, 251	University Physics I and Lab	4	PHYSICS 1135	Engineering Physics I	Grade of C or better is required.	4	
PHYS 260, 261	University Physics II and Lab	4	PHYSICS 2135	Engineering Physics II	Grade of C or better is required.	4	
CHEM 120, 121	College Chemistry I and Lab	5	CHEM 1310, 1319	General Chemistry I and Lab		5	
ENG 100	Intro to College Writing	3	ENGLISH 1120	Exposition and Argumentation		3	
ECON 202 or ECON 203	Principles of Economics (Micro) or Principles of Economics (Macro)	3	ECON 1100 or ECON 1200	Principles of Microeconomics or Principles of Macroeconomics		3	
Total Hours			35	Total Hours			34

### 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](http://ugs.mst.edu). Your campus may have additional acceptable options. Consult with your advisor or email [transfer@mst.edu](mailto:transfer@mst.edu) with questions.

## Aerospace Engineering Group 2 Major Requirements

	<u>Western Kentucky University</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Principles of Speech or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
	<i>See your advisor for course options.</i>			Literature Elective
	<i>See your advisor for course options.</i>			Ethics Elective
	<i>No free electives applied to the degree.</i>			Maximum Free Electives
	Group 2 Major Requirements	9		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	44		Total Hours*
				15
				34
				49

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Aerospace Engineering degree.

## Architectural Engineering Group 2 Major Requirements

	<u>Western Kentucky University</u>	<u>Semester</u>	<u>Missouri S&amp;T</u>	
HIST 120 or	Western Civilization since 1700 or		HISTORY 1200*	Modern western Civilization*
HIST 240 or	US History to 1865 or	3	(or HISTORY 1300 or	(or American History to 1877 or
HIST 241	US History Since 1865		HISTORY 1310)	American History since 1877)
				<small>*HISTORY 1200 is preferred; 1300 or 1310 will also be accepted.</small>
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 350	Classical Mechanics I	3	MECH ENG 2350	Engineering Mechanics-Dynamics
			ENGLISH 1160 or	Writing and Research or
	Writing in the Disciplines or		SPMS 1185 or	Public Speaking or
ENG 300 or	Fundamentals of Public Speaking	3	HSS Elective	Humanities/Social Science Elective: history, economics,
COMM 145				political science, sociology, psychology, philosophy, fine
	<i>No free electives applied to the degree.</i>			art, literature, foreign language
				Maximum Free Electives
	Group 2 Major Requirements	12		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	47		Total Hours*
				12
				34
				46

\*S&T advisor permission is required to transfer more than 60 credits toward the S&T Architectural Engineering degree.

## Ceramic Engineering Group 2 Major Requirements

<u>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3
CHEM 340, 341	Organic Chemistry I and Lab	5	CHEM 2210/2219	Organic Chemistry I and Lab (Not a specific requirement. Will satisfy technical elective requirement.)	5
CHEM 222, 223	College Chemistry II and Lab	5	CHEM 1320	General Chemistry II	3
ENG 300 or COMM 145	Writing in the Disciplines or Fundamentals of Public Speaking	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>					
<i>No free electives applied to the degree.</i>					0
		19			20
		35			34
Total Hours		54			Total Hours*
					54

\*S&T advisor permission is required to transfer more than 65 credits toward the S&T Ceramic Engineering degree.

## Chemical Engineering Group 2 Major Requirements

<u>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
ENG 300 or ENG 307	Writing in the Disciplines or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
CHEM 222, 223	College Chemistry II and Lab	5	CHEM 1320	General Chemistry II	5
CHEM 340, 341	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I	3
CHEM 342, 343	Organic Chemistry II and Lab	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
<i>See your advisor for course options.</i>					3
<i>See your advisor for course options.</i>					3
<i>No free electives applied to the degree.</i>					0
		21			23
		35			34
Total Hours		56			Total Hours*
					57

\*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>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>		
ENG 300 or ENG 307	Writing in the Disciplines or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3
CHEM 222, 223	College Chemistry II and Lab	5	CHEM 1320	General Chemistry II	5
CHEM 340, 341	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I	3
CHEM 342, 343	Organic Chemistry II and Lab	5	CHEM 2220	Organic Chemistry II (Will satisfy science elective requirement.)	3
<i>See your advisor for course options.</i>					3
<i>See your advisor for course options.</i>					3
<i>No free electives applied to the degree.</i>					0
		21			23
		35			34
Total Hours		56			Total Hours*
					57

\*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

Western Kentucky University	Semester	Missouri S&T
ENG 300 or COMM 145 or ENG 307 HIST 240 or HIST 241 or HIST 120	Writing in the Disciplines or Fundamentals of Public Speaking or Technical Writing US History to 1865 or US History Since 1865 or Western Civilization since 1700	ENGLISH 1160 or SPMS 1185 or ENGLISH 3560 HISTORY 1300 or HISTORY 1310 or HISTORY 1200
PHYS 227 PHYS 350	Engineering Statics Classical Mechanics I	CIV ENG 2200 MECH ENG 2350
	Writing and Research or Public Speaking or Technical Writing American History to 1877 or American History since 1877 or Modern Western Civilization	3 3 3 3 3 3
	Engineering Mechanics-Statics Engineering Mechanics-Dynamics Humanities/Social Science Elective Maximum Free Electives	3 3 3 0
<i>See your advisor for course options.</i>		
<i>No free electives applied to the degree.</i>		
	Group 2 Major Requirements Group 1 Core Requirements	12 35
	Total Hours	47
		Group 2 Major Requirements Group 1 Core Requirements
		15 34
		Total Hours* 49

\*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

Western Kentucky University	Semester	Missouri S&T
COMM 145 ENG 300 or ENG 307 HIST 240 or HIST 241 or HIST 120	Fundamentals of Public Speaking Writing in the Disciplines or Technical Writing US History to 1865 or US History Since 1865 or Western Civilization since 1700	SPMS 1185 ENGLISH 1160 or ENGLISH 3560 HISTORY 1300 or HISTORY 1310 or HISTORY 1200
PHYS 227 and PHYS 350	Engineering Statics and Classical Mechanics I	CIV ENG 2200 and MECH ENG 2350
	Public Speaking Writing and Research or Technical Writing American History to 1877 or American History since 1877 or Modern Western Civilization	3 3 3 3 3
	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	6
	Humanities/Social Science Elective Maximum Free Electives	3 3
<i>See your advisor for course options.</i>		
<i>See your advisor for course options.</i>		
	Group 2 Major Requirements Group 1 Core Requirements	12 35
	Total Hours	47
		Group 2 Major Requirements Group 1 Core Requirements
		21 34
		Total Hours* 55

\*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

Western Kentucky University	Semester	Missouri S&T
COMM 145 ENG 300 or ENG 307 HIST 240 or HIST 241 or HIST 120	Fundamentals of Public Speaking Writing in the Disciplines or Technical Writing US History to 1865 or US History Since 1865 or Western Civilization since 1700	SPMS 1185 ENGLISH 1160 or ENGLISH 3560 HISTORY 1300 or HISTORY 1310 or HISTORY 1200
PHYS 227 and PHYS 350	Engineering Statics and Classical Mechanics I	CIV ENG 2200 and MECH ENG 2350
	Public Speaking Writing and Research or Technical Writing American History to 1877 or American History since 1877 or Modern Western Civilization	3 3 3 3 3
	Engineering Mechanics-Statics and Engineering Mechanics-Dynamics (Both courses combined will satisfy a required engineering science elective.)	6
	Humanities/Social Science Elective Maximum Free Electives	3 3
<i>See your advisor for course options.</i>		
<i>See your advisor for course options.</i>		
	Group 2 Major Requirements Group 1 Core Requirements	12 35
	Total Hours	47
		Group 2 Major Requirements Group 1 Core Requirements
		21 34
		Total Hours* 55

\*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>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
PSY 100	Psychology	3	PSYCH 1101	General Psychology
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Principles of Speech or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 350	Classical Mechanics I	3	MECH ENG 2350	Engineering Mechanics-Dynamics
	<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	15		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	50		Total Hours*
				55

\*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>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Public Speaking or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
CHEM 222, 223	College Chemistry II and Lab	5	CHEM 1320	General Chemistry II
BIOL 115	General Biology	3	BIO SCI 1113	General Biology
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 350	Classical Mechanics I	3	MECH ENG 2350	Engineering Mechanics-Dynamics
	<i>See your advisor for course options.</i>			Humanities/Social Science Elective
	<i>No free electives applied to the degree.</i>			Maximum Free Electives
	Group 2 Major Requirements	20		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	55		Total Hours*
				56

\*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>Western Kentucky University</u>		<u>Semester</u>	<u>Missouri S&amp;T</u>	
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Public Speaking or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
PHYS 350	Classical Mechanics I	3	MECH ENG 2350	Engineering Mechanics-Dynamics
BIOL 115 or	General Biology or		BIO SCI 1113 or	General Biology or
CHEM 222, 223	College Chemistry II or	3	CHEM 1320 or	General Chemistry II or
or CHEM 340,	Organic Chemistry I		CHEM 2210	Organic Chemistry I
341				<i>or any 3-hour course in chemistry, geochemistry, or biology</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>No free electives applied to the degree.</i>			Maximum Free Electives
	Group 2 Major Requirements	15		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	50		Total Hours*
				52

\*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>Western Kentucky University</u>	<u>Semester</u>		<u>Missouri S&amp;T</u>
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Principles of Speech or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
				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	3		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	38		Total Hours*
				43

\*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>Western Kentucky University</u>	<u>Semester</u>		<u>Missouri S&amp;T</u>
ENG 300 or	Writing in the Disciplines or		ENGLISH 1160 or	Writing and Research or
COMM 145 or	Fundamentals of Public Speaking or	3	SPMS 1185 or	Public Speaking or
ENG 307	Technical Writing		ENGLISH 3560	Technical Writing
HIST 240 or	US History to 1865 or		HISTORY 1300 or	American History to 1877 or
HIST 241 or	US History Since 1865 or	3	HISTORY 1310 or	American History since 1877 or
HIST 120	Western Civilization since 1700		HISTORY 1200	Modern Western Civilization
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics
CHEM 222, 223	College Chemistry II and Lab	5	CHEM 1320	General Chemistry II
CHEM 340, 341	Organic Chemistry I and Lab	5	CHEM 2210	Organic Chemistry I
				<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	19		Group 2 Major Requirements
	Group 1 Core Requirements	35		Group 1 Core Requirements
	Total Hours	54		Total Hours*
				60

\*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>Western Kentucky University</u>	<u>Semester</u>		<u>Missouri S&amp;T</u>		
ENG 300 or ENG 307	Writing in the Disciplines or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3	
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3	
PHYS 227	Engineering Statics	3	CIV ENG 2200*	Engineering Mechanics-Statics	3	
PHYS 350	Classical Mechanics I	3	MECH ENG 2350*	Engineering Mechanics-Dynamics	3	
			*The combination of CIV ENG 2200 and MECH ENG 2350 will be substituted for MECH ENG 2340.			
			Humanities/Social Science Elective			3
			Humanities/Social Science Elective			3
			Maximum Free Electives			0
		Group 2 Major Requirements			Group 2 Major Requirements	18
		Group 1 Core Requirements			Group 1 Core Requirements	34
		Total Hours			Total Hours*	52
			*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>Western Kentucky University</u>	<u>Semester</u>		<u>Missouri S&amp;T</u>		
ENG 300 or ENG 307	Writing in the Disciplines or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3	
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3	
PHYS 227	Engineering 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			Group 2 Major Requirements	21
		Group 1 Core Requirements			Group 1 Core Requirements	34
		Total Hours			Total Hours*	55
			*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>Western Kentucky University</u>	<u>Semester</u>		<u>Missouri S&amp;T</u>		
ENG 300 or ENG 307	Writing in the Disciplines or Technical Writing	3	ENGLISH 1160 or ENGLISH 3560	Writing and Research or Technical Writing	3	
HIST 240 or HIST 241 or HIST 120	US History to 1865 or US History Since 1865 or Western Civilization since 1700	3	HISTORY 1300 or HISTORY 1310 or HISTORY 1200	American History to 1877 or American History since 1877 or Modern Western Civilization	3	
PHYS 227	Engineering Statics	3	CIV ENG 2200	Engineering Mechanics-Statics	3	
PHYS 350	Classical Mechanics I	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			Group 2 Major Requirements	12
		Group 1 Core Requirements			Group 1 Core Requirements	34
		Total Hours			Total Hours*	46
			*S&T advisor permission is required to transfer more than 68 credits toward the S&T Petroleum Engineering degree.			