

La Roche College
ENGINEERING CURRICULUM GUIDES
Combined Degree Articulation Agreement
 (Any Bachelor of Arts or Science degree from La Roche with Bachelor of Science in Engineering degree from University of Pittsburgh)

Student Name _____ _____ First Year Student
 I.D. Number _____ _____ Change of Major _____ Transfer Readmit

Unofficial Credit Evaluation Completed by/date: _____

This is the **unofficial evaluation** of your credits to date including transfer credits (if applicable) in your chosen major. **This evaluation is official when all official transcripts for all previous college work are received; and reviewed and approved for transferability by the Registrar's Office.** Beginning with your first semester of enrollment, your Degree Audit Report in My.LaRoche will automatically track your progress toward your degree, and guide you in planning future class schedules. Review your updated Degree Audit Report with your advisor prior to registering each semester.

PURPOSE: To create a pathway for engineering that is enhanced with the benefits of a liberal arts focus.

ENGINEERING TRACKS:

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|----------------------------|---|
| _____ Bioengineering | _____ Electrical Engineering |
| _____ Chemical Engineering | _____ Engineering Science (Nanotechnology: Chemistry/Bioengineering Emphasis) |
| _____ Computer Engineering | _____ Industrial Engineering |

REQUIREMENTS: To successfully complete the terms of the combined degree articulation agreement, the following is required:

- must be enrolled at LRC for at least the past 2 years
- must have a QPA of 3.0 or higher(3.5 for Bioengineering) at time of application to University of Pittsburgh engineering program.
- Must receive a favorable recommendation from the combined degree program liaison at LRC
- Must successfully complete all science and math pre-requisite course requirements in this guide for their intended engineering major with a grade C or better and a GPA of 3.0 or better.
- Must have completed the major requirements prescribed by their LRC program prior to commencing study at the University of Pittsburgh or have a written plan in place to show how these requirements will be completed at the University of Pittsburgh.

Credits Transfer Course #/Comments

FOUNDATION COURSES (Required for all engineering majors): 46 CREDITS

SCIENCE AND MATHEMATICS COMPONENT: 28 CREDITS

_____ MATH1032 Analytical Geometry & Calculus I	4	_____
_____ MATH1033 Analytical Geometry & Calculus II	4	_____
_____ CHEM1001/1003 General Chemistry I with Lab	4	_____
_____ CHEM1002/1004 General Chemistry II with Lab	4	_____
_____ PHYS1032/L Physics I with Lab	4	_____
_____ PHYS1033/L Physics II with Lab	4	_____
_____ CSCI1010/L Programming I with Lab	4	_____

HUMANITIES & SOCIAL SCIENCE COMPONENT: 18 CREDITS

Select courses from 3 different areas (not including science). One must be writing-intensive. 2 non-introductory courses from the same department or theme (suggestion: Modern language in lieu of Community/Global courses)

_____	3	_____	3
_____	3	_____	3
_____	3	_____	3

BIOENGINEERING (39-43 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

MATHEMATICS (13 credits)

_____ MATH2030 Analytical Geometry & Calculus III	4	_____
_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3015 Linear Algebra	3	_____
_____ MATH3040 Probability & Statistics I	3	_____

CHEMISTRY (4-8 credits)

_____ CHEM2015/L Organic Chemistry I & Lab	4	_____
_____ CHEM2016/L Organic Chemistry II & Lab	(4)	<u>(Optional: but recommended for medical school)</u>

BIOLOGICAL SCIENCES (16 credits)

_____ BIOL1003/1005 General Biology I & Lab	4	_____
_____ BIOL1004/1006 General Biology II & Lab	4	Prereq: BIOL1003/1005
_____ BIOL2021/L Comparative Vertebrate Anatomy I & Lab	4	Prereq: BIOL1004/1006
_____ BIOL2022/L Comparative Vertebrate Anatomy II & Lab	4	Prereq: BIOL2021/L

ENGINEERING (3 credits)

_____ ENGR 0135 Statics and Mechanics of Materials I	3	<u>Pitt (Summer year 3)</u>
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ENGINEERING/SCIENCE ELECTIVES (3 credits)

1 course in advanced life science, computer science or mathematics not already required by this program. Course must be pre-approved

_____	3	
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CHEMICAL ENGINEERING (33 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

MATHEMATICS (10 credits)

_____ MATH2030 Analytical Geometry & Calculus III	4	_____
_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3040 Probability & Statistics I	3	_____

CHEMISTRY (10 credits)

_____ CHEM2015/L Organic Chemistry I & Lab	4	_____
_____ CHEM2016 Organic Chemistry II	3	_____
_____ CHEM3036 Biochemistry	3	_____

ADVANCE SCIENCE & LAB (Choose one course: 3 credits)

_____ CHEM3011 Analytical Chemistry	3	_____
_____ CHEM3026 Inorganic Chemistry	3	_____
_____ CHEM3015 Polymer Chemistry	3	_____

ADVANCE SCIENCE LAB (Choose one course: 1 credit)

_____ CHEM2016L Organic Chemistry 2 Lab	1	_____
_____ CHEM3011L Analytical Chemistry 1 Lab	1	_____
_____ CHEM4033L Physical Chemistry 2 Lab	1	Prereq: CHEM4032 _____

ENGINEERING ELECTIVE (Choose one course: 3-4 credits)

_____ ENGR 0022 Materials Structure and Properties	3	Pitt (Summer Year 3) _____
_____ ENGR 0135 Statics and Mechanics of Materials I	3	Pitt (Summer Year 3) _____
_____ CSC12010/L Programming II/lab	4	_____

PROFESSIONAL ELECTIVES (6 credits)

2 courses in communication, advanced life science, computer science or mathematics not already required by this program. Course must be pre-approved

_____	3	
_____	3	

COMPUTER ENGINEERING (24 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required

MATHEMATICS (6 credits)

_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3015 Linear Algebra	3	_____

COMPUTER SCIENCE (3 credits)

_____ CSCI2010/L Programming II with Lab	4	prereq: CSCI1010/L
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COMMUNICATIONS (Choose one course: 3 credits)

_____ ENGL1012 College Writing II	3	_____
_____ SPCH1001 Public Speaking	3	_____
_____ ENGL2030 Business Communications	3	_____
_____ ENGL3038 Writing for Public Relations	3	_____
_____ ENGL2029 Technical Writing	3	_____

TECHNICAL ELECTIVES (6 credits)

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

_____	3
_____	3

OPEN ELECTIVES (6 credits)

Any two courses (6 credits total) that are NOT of a similar nature to, or lower level than, a required or previously taken course can be used to fulfill this requirement. Three credits of Physical Education may also be used.

_____	3
_____	3

ELECTRICAL ENGINEERING (28 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required:

MATHEMATICS (13 credits)

_____ MATH2030 Analytical Geometry & Calculus III	4	_____
_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3015 Linear Algebra	3	_____
_____ MATH3040 Probability & Statistics I	3	_____

COMMUNICATIONS (Choose one course: 3 credits)

_____ ENGL1012 College Writing II	3	_____
_____ SPCH1001 Public Speaking	3	_____
_____ ENGL2030 Business Communications	3	_____
_____ ENGL3038 Writing for Public Relations	3	_____
_____ ENGL2029 Technical Writing	3	_____

TECHNICAL ELECTIVES (6 credits)

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

_____	3
_____	3

OPEN ELECTIVES (6 credits)

Any two courses (6 credits total) that are NOT of a similar nature to, or lower level than, a required or previously taken course can be used to fulfill this requirement. Three credits of Physical Education may also be used.

_____	3
_____	3

ENGINEERING SCIENCE – NANOTECHNOLOGY: CHEMISTRY/BIOENGINEERING EMPHASIS (28-30 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required:

MATHEMATICS (16 credits)

_____ MATH2030 Analytical Geometry & Calculus III	4	_____
_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3015 Linear Algebra	3	_____
_____ MATH3035 Complex Variables	3	_____
_____ MATH3040 Probability & Statistics I	3	_____

CHEMISTRY (Choose 3 courses below: 9-11 credits)

_____ CHEM2015/L Organic Chemistry I with Lab	4	_____
_____ CHEM2016/L Organic Chemistry I with Lab	4	_____
_____ CHEM3026 Inorganic Chemistry	3	_____
_____ CHEM4032 Physical Chemistry I	3	_____
_____ CHEM4033 Physical Chemistry II	3	_____
_____ CHEM3036 Biochemistry	3	_____

ENGINEERING (3 credits)

_____ ENGR 0022 Materials Structure and Properties	3	<u>Pitt (Summer Year 3)</u>
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INDUSTRIAL ENGINEERING (28-38 credits)

Complete Foundation courses on page 1 and in addition, the following courses are required:

MATHEMATICS (13 credits)

_____ MATH2030 Analytical Geometry & Calculus III	4	_____
_____ MATH2031 Ordinary & Differential Equations	3	_____
_____ MATH3015 Linear Algebra	3	_____
_____ MATH3040 Probability & Statistics I	3	_____
_____ MATH3041 Probability & Statistics II	3	_____

ENGINEERING (6 credits)

_____ CSCI2055 Database Theory	3	_____
_____ IE 1040 Engineering Economic Analysis	3	<u>PCHE at Pitt: Spring Year 3</u>

ENGINEERING ELECTIVES (maximum of 3 courses)

_____ ENGR 0022 Materials Structure and Properties	3	<u>Pitt: Summer Year 3</u>
_____ ENGR 0135 Statics and Mechanics of Materials	3	<u>Pitt: Summer Year 3</u>
_____ MEMS 0051 Intro to Thermodynamics	3	<u>Pitt: Summer Year 3</u>
_____ CSCI2010/L Programming II/lab	4	_____

COMMUNICATIONS (3 credits)

_____ SPCH1001 Public Speaking	3	_____
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TECHNICAL ELECTIVES (6 credits)

Two courses (6 credits total) in advanced life science, computer science, or math. Course must be pre-approved.

_____	3	
_____	3	

Prospective IE majors must complete their international requirement with their Humanities/Social Science electives while at LRC (see http://www.engineering.pitt.edu/Industrial/Undergraduate/International_Requirement/).

PRE-APPROVED TECHNICAL/PROFESSIONAL ELECTIVES

Must be courses not already designated as required in your engineering track

ADVANCED LIFE SCIENCE

BIOL2025/L Microbiology with Lab
BIOL3013 Genetics
BIOL3015 General Ecology
BIOL3026 Cell Biology
BIOL3036 Biochemistry
BIOL4019 Immunology
BIOL4030 Molecular Biology

COMMUNICATIONS

ENGL1012 College Writing II
SPCH1001 Public Speaking
ENGL2030 Business Communications
ENGL3038 Writing for Public Relations
ENGL2029 Technical Writing

COMPUTER SCIENCE

CSCI2010/L Programming II & Lab
CSCI2020/L Algorithm Analysis
CSCI2025/L Systems Programming & Lab
CSCI2055 Database Theory
CSCI3025 Computer Organization
CSCI3040 Operating Systems
CSCI4045 Telecommunications
CSCI4055 Advanced Database Theory

MATHEMATICS

MATH2050 Discrete Mathematics I
MATH2051 Discrete Mathematics II
MATH3041 Probability & Statistics II
MATH3035 Complex Variables
MATH4003 History of Mathematics
MATH4015 Modern Abstract Algebra
MATH4020 Geometry
MATH4035 Real Analysis

Any other LRC course taken as a Technical or Professional elective must be pre-approved by the University of Pittsburgh, Swanson School of Engineering's Coordinator of Transfer Student Services