Engineering Broad Field AS DEGREE

Program Overview

Engineering is a profession that uses basic knowledge from the mathematical and natural sciences and utilizes the materials and forces of nature to develop systems that will perform optimally and economically for the benefit of mankind. The Engineering Broad Field program is designed to provide for a student's first two years of a four-year Engineering degree. The curriculum is designed to meet the needs of those students who have not yet decided on a specific engineering field. The program focuses on developing a fundamental knowledge of physics, chemistry, and mathematics.

Career Opportunities

Engineering occupations are expected to grow by more than 10% through 2020 according to the Bureau of Labor Statistics. Engineering includes careers with branches in civil, agricultural, chemical, electrical, mechanical, and aerospace sciences to name a few. This degree is part of a state-wide articulation program and designed to transfer easily.

Program Outcomes

1. Apply knowledge of mathematics and science in the solution of problems.
2. Conduct experiments as well as analyze and interpret results from experiments.
3. Apply iterative engineering design process to formulate, test and revise solutions to open-ended problems.

Transfer Opportunities

Saint Paul College has transfer agreements & partnerships between many post-secondary institutions. For more information please go to saintpaul.edu/Transfer.

Minimum Program Entry Requirements
Students entering this program must meet the following minimum program entry requirements:

Reading: Score of 250+ or grade of "C" or better in READ 0722 or READ 0724 or EAPP 0900

Writing: Score of 250+ on Reading Comprehension or grade of "C" or better in ENGL 0922 or EAPP 0900

Adv. Algebra & Functions: Score of 276+

Assessment Results and Prerequisites: Students admitted into Saint Paul College programs may need to complete additional courses based on assessment results and course prerequisite requirements. Certain MATH, READ, and ENGL courses have additional prerequisites.

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Program Faculty

Pam Schumacher
pam.schumacher@saintpaul.edu

Part-Time/Full-Time Options
This program can be completed by using a combination of day, evening, Saturday, hybrid, and online courses. Part-time and full-time options are available.

Program Requirements

☑ Check off when completed

Course	Cr
☐ ENGR 1707 Introduction to Engineering	3

Choose a focus:

Electrical

☐ CHEM 1712 Principles of Chemistry 2	4
☐ ENGR 1709 Digital Electronics	3
☐ ENGR 1717 Circuit Analysis 1	4
☐ ENGR 2705 Statics	3
☐ ENGR 2710 Dynamics	3

Mechanical or Manufacturing or Composite

☐ CHEM 1712 Principles of Chemistry 2	4
☐ ENGR 1717 Circuit Analysis 1	4
☐ ENGR 2705 Statics	3
☐ ENGR 2710 Dynamics	3
☐ ENGR 2712 Deformable Body Mechanics	3

Civil

☐ CHEM 1712 Principles of Chemistry 2	4
☐ ENGR 2705 Statics	3
☐ ENGR 2710 Dynamics	3
☐ ENGR 2712 Deformable Body Mechanics	3
☐ ENGR 2715 Thermodynamics	3
☐ ENGR Elective	1

Computer

☐ CSCI 1410 Comp. Science & Info Systems	4
☐ CSCI Electives	6
☐ ENGR 1709 Digital Electronics	3
☐ ENGR 1717 Circuit Analysis 1	4

Integrated

☐ CHEM 1712 Principles of Chemistry 2	4
☐ ENGR 1717 Circuit Analysis 1	4
☐ ENGR 2705 Statics	3
☐ ENGR 2710 Dynamics	3
☐ ENGR Elective	3
Subtotal	**20**

General Education/MnTC Requirements	Cr

Refer to the Minnesota Transfer Curriculum Course List for each Goal Area

☐ Goal 1: Communication ENGL 1711 Composition 1 – 4cr	4
☐ Goal 3: Natural Sciences CHEM 1711 Principles of Chemistry 1 – 4 cr PHYS 2700 General Physics 1 – 5 cr PHYS 2710 General Physics 2 – 5 cr	14
☐ Goal 4: Mathematical/Logical Reasoning MATH 2749 Calculus 1 – 4 cr MATH 2750 Calculus 2 – 4 cr MATH 2753 Multivariable Calculus – 4 cr MATH 2760 Differential Equations & Linear Algebra – 4 cr	16
☐ Goal 5: History, Social Science and Behavioral Sciences	3
☐ Goal 6: Humanities and Fine Arts. *The course selected for goal area 5 or 6 must also satisfy goal 7, 8, 9, or 10.	3
General Education Requirements	**40**
Total Program Credits	**60**

Information is subject to change.
This Program Requirements Guide is not a contract.

Program Start Dates

Fall, Spring, Summer

Course Sequence

This course sequence is recommended for a full-time student. Not all courses are offered every semester. Students should consult with the Program Faculty each semester.

First Semester

ENGR 1707 Introduction to Engineering	3
Goal 1: ENGL 1711 Composition 1	4
Goal 3: CHEM 1711 Principles of Chemistry 1	4
Goal 4: MATH 2749 Calculus 1	4
Total Semester Credits	**15**

Second Semester

Goal 3: CHEM 1712 Principles of Chemistry 2	4
Goal 3: PHYS 2700 General Physics 1	5
Goal 4: MATH 2750 Calculus 2	4
Goal 5: History, Social Science and Behavioral Sciences	3
Total Semester Credits	**16**

Third Semester

ENGR 2705 Statics	3
Goal 3: PHYS 2710 General Physics 2	5
Goal 4: MATH 2760 Differential Equations & Linear Algebra (fall only)	4
Goal 6: Humanities and Fine Arts	3
Total Semester Credits	**15**

Fourth Semester

ENGR 1717 Circuit Analysis	4
ENGR 2710 Dynamics	3
ENGR 2712 Deformable Body Mechanics	3
Goal 4: MATH 2753 Multivariable Calculus (spring only)	4
Total Semester Credits	**14**

Total Program Credits **60**

SAINT PAUL COLLEGE
A Community & Technical College
235 Marshall Avenue
Saint Paul, MN 55102
TEL: 651.846.1600
www.saintpaul.edu

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