

Engineering (A.S.)

A Dual Admissions Program with NJIT

Division of Mathematics, Engineering Technologies and Computer Sciences — Curriculum Code: 0399

Will Earn Upon Program Completion: Associate in Science (A.S.) Degree

Engineering design processes and materials are used to manufacture equipment, structures, devices, and systems of all types and sizes based on scientific and technological principles. The challenge is to continually improve these processes and materials to meet the needs of society with respect to health, safety, the environment, and energy while maintaining cost effectiveness. ECC's Engineering associate's degree program closely matches the first two years of bachelor's degree programs in Engineering offered at four-year colleges. Students select one of the following branches of engineering: civil, computer, electrical, industrial, or mechanical.

Program Requirements

GENERAL EDUCATION REQUIREMENTS (30 CREDITS)

Written & Oral Communications (6 credits)

[ENG 101](#) (3 credits)

[ENG 102](#) (3 credits)

Quantitative Knowledge & Skills (8 credits)

[MTH 121](#) (4 credits)

[MTH 122](#) (4 credits)

Scientific Knowledge & Reasoning (4 credits)

[CHM 103](#) (4 credits)

Society & Human Behavior (3 credits)

Choose one of the following courses: [ECO 101](#) (3 credits), [ANT 101](#)[ANT 105](#); [ECO 102](#)[POL 101](#)[POL 104](#)[PSY 101](#)[PSY 102](#)[PSY 219](#)[SOC 101](#)[SOC 108](#) or [SOC 219](#) (one 3-credit course)

Humanistic Perspective (6 credits)

Choose one of the following literature courses: [ENG 205](#)[ENG 208](#)[ENG 215](#)[ENG 221](#)[ENG 222](#)[ENG 232](#)[ENG 237](#)[ENG 238](#)[ENG 242](#)[ENG 250](#)[ENG 263](#) or [ENG 264](#) (one 3-credit course)

AND

Choose one of the following art or music courses: [ART 100](#)[ART 101](#)[ART 102](#)[MUS 100](#)[MUS 108](#) or [MUS 109](#) (one 3-credit course)

Historical Perspective (3 credits)

Choose one of the following history courses: [HST 101](#)[HST 102](#)[HST 111](#)[HST 112](#)[HST 121](#)[HST 122](#)[HST 131](#)[HST 132](#)[HST 134](#)[HST 135](#)[HST 136](#)[HST 137](#)[HST 161](#) or [HST 162](#) (one 3-credit course)

MAJOR COURSE REQUIREMENTS

[ENR 100](#) Intro. to Engineering (2 credits)

[ENR 103](#) Engineering Graphics (2 credits)

[ENR 105](#) Applied Computer-Aided Design (2 credits)

Choose three Engineering Major electives* (three 3- to 4-credit courses)

**Note: Students should select the three Engineering Major elective courses depending on the branch of engineering they wish to pursue. This means the following:*

Civil Engineering students should choose three of the following courses: [CET 111](#) Construction Methods and Materials, [CET 211](#) Surveying I, [CET 212](#) Surveying II, [ENR 211](#) Engineering Mechanics/Statics and [ENR 221](#) Strength of Materials.

Computer Engineering students should take [ELC 218](#) Pulse and Digital Circuits, [ELC 228](#) Introduction to Microprocessors, and [ELC 230](#) Circuits and Systems for Engineering.

Electrical Engineering students should take [ELC 218](#) Pulse and Digital Circuits, [ELC 228](#) Introduction to Microprocessors, and [ELC 230](#) Circuits and Systems for Engineering.

Mechanical Engineering students should take [ENR 211](#) Engineering Mechanics I Statics, [ENR 212](#) Engineering Mechanics II Dynamics, and [ENR 221](#) Strength of Materials.

Industrial Engineering students should choose three of the following four courses: [ENR 211](#) Engineering Mechanics I Statics, [ENR 212](#) Engineering Mechanics II Dynamics, [ENR 221](#) Strength of Materials, and [MET 202](#) Modern Manufacturing Systems and Robotics.

ADDITIONAL COURSE REQUIREMENTS

[CSC 112](#) Computer Programming for Engineering and Technology (3 credits)

[MTH 221](#) Calculus with Analytic Geometry III (4 credits)

[MTH 222](#) Differential Equations (4 credits)

[PHY 103](#) General Physics I (4 credits)

[PHY 104](#) General Physics II (4 credits)

RECOMMENDED SEQUENCE OF COURSES

Total Credits Required for Degree: 65 – 68

First Semester

[ENG 101](#) College Composition I (3 credits)

[ENG 100](#) Intro. to Engineering (2 credits)

[ENR 103](#) Engineering Graphics (2 credits)

[MTH 121](#) Calculus with Analytic Geometry I (4 credits)
[PHY 103](#) General Physics I (4 credits)

Second Semester

[CHM 103](#) General Chemistry I (4 credits)
[ENG 102](#) College Composition II (3 credits)
[ENR](#) Engineering Graphics (2 credits)
[ENR 105](#) Applied Computer-Aided Design (2 credits)
[MTH 122](#) Calculus with Analytic Geometry II (4 credits)
[PHY 104](#) General Physics II (4 credits)

Summer Session

Historical Perspective requirement (one 3-credit course)

Third Semester

[CSC 112](#) Computer Programming for Engineering and Technology (3 credits)
[MTH 221](#) Calculus with Analytic Geometry III (4 credits)
[ENR 105](#) Applied Computer-Aided Design (2 credits)
Engineering Major elective (one 3- or 4-credit course)
Engineering Major elective (one 3- or 4-credit course)

Fourth Semester

[ECO 101](#) Principles of Economics (Macro) (3 credits)
[MTH 222](#) Differential Equations (4 credits)
Engineering Major elective (one 3- or 4-credit course)
Humanistic Perspective literature requirement (one 3-credit course)
Humanistic Perspective art or music requirement (one 3-credit course)

NOTES:

(1) The two General Education Integrated Course Goals, Ethical Reasoning & Action and Information Literacy, are both addressed by the required curriculum described above, regardless of specific choices made by the individual student.

(2) This plan assumes the completion of all required developmental courses in Reading, English, and Mathematics as well as other [pre-requisites](#) and [co-requisites](#) for some of the courses, as listed in the Course Descriptions section.