

Engineering Program A.S. Degree

Engineering is a profession that integrates science and mathematics with design and laboratory study. It is and will continue to be the profession upon which the United States depends for its growth and ability to compete in world markets. Engineering offers more career options than any other discipline. It's a profession that can take you from the depths of the ocean to the far reaches of outer space, from within the microscopic structures of the human cell to the top of the tallest skyscrapers. Whether it's cell phones, digital cameras, DVDs, or facial recognition devices that can pick out a terrorist in a crowded football stadium, engineers are behind almost all of today's exciting technology. Engineers are problem solvers who search for quicker, better, and less expensive ways to use the forces and materials of nature to meet today's challenges.

At Brookdale Community College, the Engineering program parallels the first two years of the four-year engineering curriculum of most engineering schools throughout the country. The program leads to an Associate in Science degree in Engineering and transfers to most engineering schools. Brookdale has a Joint Admission Agreement with N.J.I.T. and an Articulation Agreement with Rutgers University. Students should consult a counselor.

There are five major areas of study:

- Chemical Engineering
- Civil Engineering
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Graduates of this program will be able to:

- Perform engineering analysis and problem solving
- Develop an engineering design to meet given specifications
- Describe the social and cultural context of the engineering and technology fields
- Work well in diverse teams and organizations
- Communicate effectively in oral, graphic and written form
- Recognize the need for continued learning throughout their career

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ASEE http://www.engineeringk12.org/students/what_is_engineering/default.htm

Requirements

General Education - 31 credits as described on page 51 of the Catalog. The following general education courses are recommended for the program:

(Credit hours listed with each course)

ENGL 121 English Composition: 3

The Writing Process

ENGL 122 English Composition: 3

Writing and Research

ECON 107 Economics 3

MATH 171 Calculus I 4

CHEM 101 General Chemistry I 5

HIST 105 World Civilization I 3

PHYS 121 General Physics I 4

Humanities 3

Humanities or Social Sciences 3

Career Studies - 39 credits as follows:

CADD 121 Engineering Graphics with 4

CAD

CHEM 102 General Chemistry II 5

COMP 137 Programming for Engineers 3

ENGI 101 Engineering Mechanics I 3

ENGI 102 Engineering Mechanics II 3

ENGI 105* Introduction to Engineering 1

MATH 172 Calculus II 4

MATH 273 Calculus III 4

MATH 274 Elementary Differential 4

Equations

PHYS 122 General Physics II 4

PHYS 223 General Physics III 4

Technical Electives - 6-14 credits

(choose one set of courses)

CHEMICAL ENGINEERING

CHEM 203 Organic Chemistry I 5

CHEM 204 Organic Chemistry II 5

CIVIL ENGINEERING

ENGI 205 Strength of Materials 3

ENGI 206 Material Properties and 3

Processes

ENGI 261 Surveying I 4

ELECTRICAL ENGINEERING

ENGI 241 Properties of EE I (Circuits) 4

ENGI 242 Properties of EE II (Electronics) 4

ENGI 251 Digital I 3

ENGI 252 Properties of EE III (Circuits) 3

MECHANICAL ENGINEERING

ENGI 205 Strength of Materials 3

ENGI 206 Material Properties and 3

Processes

ENGI 216 Kinematics and Dynamics 3

of Machinery

INDUSTRIAL ENGINEERING

ENGI 205 Strength of Materials 3

ENGI 206 Material Properties and 3
Processes

Suggested Sequence - Engineering Program A.S. Degree

The following sequence is an example of how this degree can be completed in two years.

This sequence is based on satisfaction of all Basic Skills requirements and prerequisites**

and presumes a Fall Term start date. An individual's program may vary depending on transfer institution, career objectives, or individual needs. See your counselor for other options and to monitor your progress. This program is part of a joint admissions agreement program with N.J.I.T. Students completing this program may work toward a

Baccalaureate degree or may continue in the Baccalaureate Degree Program at N.J.I.T.

The following prerequisites must be taken prior to admission:

Course Code Credits Course Code Credits

SEMESTER 1 SEMESTER 2

ENGI 105* 1 CADD 121 4

CHEM 101 5 CHEM 102 5

ENGL 121 3 ENGL 122 3

MATH 171 4 MATH 172 4

Humanities 3 PHYS 122 4

PHYS 121 4 20

20

SUMMER II SEMESTER

Technical Elective 0-4

SEMESTER 3 SEMESTER 4

COMP 137 3 ENGI 102 3

ENGI 101 3 ECON 107 3

MATH 273 4 MATH 274 4

HIST 105 3 PHYS 223 4

Technical Elective 3-5 Social Sciences or Humanities 3

Technical Elective 0-4 Technical Elective 3-5

16-22 Technical Elective 0-4

20-26

Total Credits for Degree 76-84

**MATH 151, MATH 152 and/or MATH 153 may be required if MATH requirements are not met.

*Students are required to take ENGI 105 in the first term and declare a major area of study toward the end of this course. Students should work with a counselor to satisfy requirements for major career

areas.

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