

# AS: Pre-Engineering

2017 - 2018

The Associate of Science degree program in (Pre) Engineering is designed to prepare students for continued study in a baccalaureate degree program in engineering.

## Program Courses

| Course No. | Course Title                           | Credits | Goal Area | Comments/Substitution |
|------------|----------------------------------------|---------|-----------|-----------------------|
| ENGR1000   | Introduction to Engineering and Design | 3       |           |                       |

## General Education Courses

| Course No.                                      | Course Title                                   | Credits | Goal Area | Comments/Substitution |
|-------------------------------------------------|------------------------------------------------|---------|-----------|-----------------------|
| CHEM1061                                        | Principles of Chemistry I (minimum grade 1.67) | 4       |           |                       |
| CHEM1062                                        | Principles of Chemistry II                     | 4       |           |                       |
| ECON1060                                        | Principles of Economics Macro                  | 3       |           |                       |
| MATH1221                                        | Calculus I (minimum grade 1.67)                | 5       |           |                       |
| MATH1222                                        | Calculus II (minimum grade 1.67)               | 5       |           |                       |
| MATH2220                                        | Calculus III                                   | 5       |           |                       |
| MATH2300                                        | Linear Algebra                                 | 3       |           |                       |
| MATH2400                                        | Differential Equations                         | 3       |           |                       |
| PHIL1020                                        | Ethics                                         | 3       |           |                       |
| PHYS1601                                        | General Physics I                              | 5       |           |                       |
| PHYS1602                                        | General Physics II                             | 5       |           |                       |
| <b>College Writing I:</b>                       |                                                |         |           |                       |
| ENGL1200                                        | Gateway College Writing <i>or</i>              | 4       |           |                       |
| ENGL1201                                        | College Writing I                              | 4       |           |                       |
| <b>CSCI1120, CSCI1130, CSCI1190 - 1 course:</b> |                                                |         |           |                       |
| CSCI1120                                        | Programming in C/C++ <i>or</i>                 | 4       |           |                       |
| CSCI1130                                        | Introduction to Programming in Java <i>or</i>  | 4       |           |                       |
| CSCI1190                                        | Introduction to C++ Programming                | 4       |           |                       |
| <b>BIOL1000, BIOL1001, BIOL1200 - 1 course:</b> |                                                |         |           |                       |
| BIOL1000                                        | Life Science <i>or</i>                         | 4       |           |                       |
| BIOL1001                                        | Biology I <i>or</i>                            | 4       |           |                       |
| BIOL1200                                        | Current Environmental Issues                   | 4       |           |                       |

## NHCC Residency and GPA

| Course No.                                | Course Title | Credits | Goal Area | Comments/Substitution |
|-------------------------------------------|--------------|---------|-----------|-----------------------|
| <b>15 Credits must be earned at NHCC:</b> |              |         |           |                       |
| <b>2.00 overall GPA for NHCC courses</b>  |              |         |           |                       |

**Total Credit Required 60**

## Degree Requirements

2.00 overall GPA for NHCC courses

### Program Outcomes

Knowledge of Human Cultures and the Physical and Natural World:

- Understand the major principles of calculus-based mathematics and their relationship to engineering problems and solutions.
- Understand the major principles of general physics and chemistry and their relationship to engineering problems and solutions.

Intellectual and Practical Skills:

- Appropriately communicate technical material orally and in writing.

Personal and Social Responsibility:

- Appropriately and safely use laboratory equipment in physics and chemistry coursework Integrative Learning

Integrative Learning:

- Apply the major principles of calculus-based mathematics to engineering problems and solutions.
- Apply the major principles of general physics and chemistry to their engineering courses.

## Notes

Engr 1200 - Engineering Graphics is an additional recommended course.

## Degree Information

The Associate of Science (A.S.) degree is intended for students whose primary goal is to complete the credentials for a specific career and/or prepare for transfer to complete a bachelor's degree at a college or university with whom North Hennepin Community College has an articulation agreement. The A.S. degree provides a balance of general education courses and the required scientific, professional or technical courses in the degree program.

A student shall:

- Earn a minimum of 60 semester credits as required in the program, with a grade point average of 2.00 (C) or above in courses taken at North Hennepin Community College. Specific programs may have additional requirements or a higher minimum grade point average.
- Earn a minimum of 15 semester credits at North Hennepin Community College. A student must complete at least 50% of career specific courses at North Hennepin Community College.
- Earn 30 credits in at least 6 Minnesota Transfer Curriculum (MnTC) goal areas.
- Earn 30 professional/technical credits.
- Have four years to complete the graduation requirements as published in the catalog in effect at the time of their initial enrollment. Students taking more than four years to complete their graduation requirements may follow any catalog published during the four-year period preceding their graduation.

Completion of an A.S. degree fulfills the Goal Area 2 requirement of the Minnesota Transfer Curriculum (MnTC).

## Developmental Courses

Some students may need preparatory course(s) in Math and/or English. Courses numbered below 1000 will not apply toward a degree.

## Equal Opportunity Employer and Disability Access Information

North Hennepin Community College is a member of Minnesota State Colleges and Universities system and an equal opportunity employer and educator. This document is available in alternative formats to individuals with disabilities by calling 763-493-0555 or through the Minnesota Relay Service at 1-800-627-3529.

## Transfer Information

If you are planning on transferring to another institution, follow the guidelines available on our transfer resources web page to help you plan the process: [Transfer Information](#)

## Career Opportunities

Information on careers, including salary and employment outlook data, is available on the iseek and Bureau of Labor Statistics websites: [www.iseek.org](http://www.iseek.org) and [www.bls.gov](http://www.bls.gov).

## Accreditation

North Hennepin Community College is accredited by the:  
Higher Learning Commission  
30 N. LaSalle Street, Suite 2400  
Chicago, IL 60602-2504  
1-800-621-7440