

# Engineering

## **(Pre) Engineering (See also: Drafting, Mechanical Engineering, Architectural Construction Engineering Technology)**

*Associate of Science Degree (Transfer)*

### **Program Overview and Opportunities:**

Engineers are problem-solvers, inquisitive, analytical, detail oriented, and creative. They need to be able to work equally well on their own and on a team, as well as possess effective oral and written communication skills.

Engineering work involves the application of mathematical and scientific principles to technical or practical problems.

Engineering work "is the link between scientific discoveries and the commercial applications that meet societal and consumer needs." (Bureau of Labor Statistics, 2008-2009)

Most engineers specialize in one of the 17 disciplines covered in the Federal Government's Standard Occupational Classification: aerospace, agricultural, biomedical, chemical, civil, computer hardware, electrical, electronics, environmental, health & safety, industrial, marine, materials, mechanical, mining & geological, nuclear, and petroleum.

Students interested in pursuing a bachelor's degree in engineering can do from one to two years of pre-engineering coursework at WITCC within the framework of the Associate of Arts (AA) Degree. Most of the science, math, distribution, concentration, and elective credits within the AA framework will come from engineering program pre-requisites such as MAT 211, MAT 217, PHY 212, PHY 222, etc.

Students are strongly advised to familiarize themselves with the engineering program at the college they plan to transfer to and work with their WITCC advisor to plan a program that meets those requirements.

According to the Bureau of Labor Statistics, employment growth between 2006 and 2016 for all areas of engineering is projected to be good, but employment projections for the specialties of biomedical, civil, environmental, and industrial engineering are projected to be even better (2008 - 2009 Occupational Outlook Handbook).

### **Program Advisor**

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### **Engineering (Pre) Associate of Science Degree**

Students are eligible for the Associate of Science degree upon successful completion of 64 transfer credits, including a minimum in each of the following requirements:

#### **I. General Education Core**

##### **A. English and Speech (minimum of 9 credits)**

ENG 105 and 106  
SPC 112

##### **B. Mathematics and Laboratory Sciences (minimum of 6 credits)**

Must include one math course and one lab science course from the following:  
MAT 110, 121, 129, 130, 141, 157, 201, 211  
PHS 120, 151  
BIO 105, 116, 125, 151, 163, 169, 197  
CHM 122, 166  
ENV 111  
PHY 162, 212

##### **C. Social and Behavioral Sciences (minimum of 6 credits)**

Choose one course from each section:

###### **Section 1. History and Diverse Cultures**

ANT 105  
GEO 121  
HIS 110, 111, 151, 152, 211  
SOC 200, 210

###### **Section 2. Social and Political Sciences**

ECN 120, 130  
POL 111, 112, 121, 125, 151, 211  
PSY 111, 121  
SOC 110, 120

##### **D. Humanities (minimum of 6 credits)**

Choose three courses from at least two of the following disciplines  
ART 101, 203, 204  
DRA 101, 112  
ENG 221  
FLF 141, 142  
FLG 141, 142, 231, 232  
FLS 141, 142, 231, 232  
HUM 101, 220  
LIT 101, 124, 133, 185, 189  
MMS 101  
MUS 100, 202  
PHI 101, 105, 111  
REL 101, 150  
SPC 122, 140

##### **E. Computer Literacy/Computer Technology (minimum of 3 credits)**

CSC 110  
Computer literacy may be demonstrated through completion of this course, an approved equivalent course, or assessment.

##### **F. Distribution Requirement (minimum of 4 credits)**

Minimum of 4 additional credits from B, C, or D above)

#### **II. Mathematics and Sciences (14 credits)**

Course selections should be made with mathematics/science advisor's recommendation.

#### **III. Electives (16 additional credits)**

Consult advisor when selecting electives

**TOTAL CREDITS ..... (Minimum) 64**