

Career Planning Guide Effective September 2003 for

ENGINEERING PRE-MAJOR

Length of Program: 90 credits

Goal: Associate of Science (AS) Degree

South Seattle Community College
6000 16th Ave SW
Seattle, Washington 98106-1499
<http://www.southseattle.edu/>
Academic Offices (206) 768-6600

Quarterly Costs – check current schedule:
<http://www.southseattle.edu/services/tuition.htm>

Class schedule and District catalog:
<http://www.southseattle.edu/programs/classCat/>

General Academic Advising:
(206)-764-5387
advisorsouth@sccd.ctc.edu

Engineering Faculty Contact:
Mike Steffancin (206)-768-6486
msteffancin@sccd.ctc.edu
RSB 189

PROGRAM DESCRIPTION

Engineering is the science and art of applying scientific and mathematical principles, experience, judgment, and common sense to design things that benefit society. Engineers are fascinated by questions of how and why things work. They use their training in mathematics, physics, and chemistry to understand the physical world and develop creative solutions to society's complex needs. The Engineering Pre-Major Associate of Science (AS) degree program prepares students for transfer to Engineering programs at four-year colleges and universities and will give students basic skills needed by all engineers. Students study basic mathematical and scientific principles with an emphasis on problem solving and critical thinking. Additionally, the program provides students experience with computer programming, commonly used engineering software like Pspice and Matlab, and with extensive laboratory work. The curriculum includes a design component consistent with the Accreditation Board for Engineering and Technology (ABET) accreditation standards. The curriculum also develops other job related skills such as communications, human relations and technical report writing. Credits earned with the AS degree at South Seattle Community College can be applied toward the first two years of a four-year bachelor's degree in engineering.

PROGRAM OUTCOMES

Students who successfully complete this program will show:

- An ability to apply knowledge of mathematics and scientific principles to engineering problems.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to think critically in evaluating information, solving problems and making decisions.
- An ability to function on diverse, multi-disciplinary teams.
- An ability to access and evaluate information from a variety of sources including the Internet.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively with written, oral, and visual means.
- The broad education necessary to understand the impact of engineering solutions in a global and societal context.
- A recognition of the need for and an ability to engage in life-long learning.
- An ability to use modern engineering techniques, skills, and technology including computing and programming tools necessary for engineering practice.

CAREER OPPORTUNITIES

The employment outlook for Engineers is very good. Graduates can be employed in private industry as well as various governmental departments, consulting services, and technical sales. Nationwide, the average starting salary for graduates with a Bachelor's degree in Engineering in 2008 varies from \$50,940 to \$63,616 depending on the field studied. Source: National Association of Colleges and Employers.

Associate of Science Engineering Pre-Major

CURRICULUM

90 credits are required for the AS degree. All classes are 5 credits unless otherwise listed.

BASIC REQUIREMENTS (20 credits):

- ENG 101 – Composition
- MAT 124* – Calculus I
- MAT 125* – Calculus II
- MAT 126 – Calculus III

DISTRIBUTION REQUIREMENTS (15 credits):

Visual, Literary and Performing Arts (5 - 10 credits)

- Language and Speech
- Literature/History of Ideas
- Music, Art and Drama

Individuals, Cultures and Societies (5 - 10 credits)

- Individuals and Societies
- United States Culture
- Global Studies

MAJOR AREA OF STUDY (36 credits):

- CHEM& 161[†] (6 credits)
- PHYS& 221, 222, & 223
- CSC 142[‡] or ENGR 142[‡]
- ENGR 110 (1 cr), 116 (4 cr)
- Choose any one: ENGR& 204, 214, 215, 224, or 225, 271

ELECTIVES (19 credits):

Courses may not be used to satisfy other requirements. **Selection should be made based on advisor recommendation, given the branch of engineering that the student plans to pursue.**

- Recommended: ENGR& 204, 214, 215, 224, 225, 230, 271, MATH 220, 224, 238

Other science classes offered:

- BIOL& 211, 212, 213
- CHEM& 162 (6 cr), 163 (6 cr), 241 (4 cr), 251 (3 cr)
- CSC 110, 143
- ENGR 111 (4 cr), 112 (4 cr), 142, 170 (4 cr), 171 (1 cr), 298
- MATH 109, 298 (2 credit maximum given for MATH 298)

Footnotes:

[†]CHEM 139 is a prerequisite for CHEM& 161

[‡]CSC 110 is a prerequisite for CSC/ENGR 142

SAMPLE COURSE PLAN

By starting in the Fall and taking a full-time load, students may complete the curriculum in six quarters. Many students find they have to attend summer school to graduate on time. Certain higher-level classes are only offered once a year, **so be sure to consult with advisors here at SSCC and at the 4-year institution you will attend to plan your schedule.**

FRESHMAN YEAR:

First quarter

- MATH& 151 Calculus I
- ENGL& 101 Composition
- ENGR 116 Engineering Design and Creativity
- ENGR 110 Engineering Orientation

Second quarter

- MATH& 152 Calculus II
- Distribution Requirement (5 credits)
- CHEM&161 Chemistry I

Third quarter

- CSC 110 Introduction to Programming
- MATH& 153 Calculus III
- PHYS& 221 Engineering Physics I

SOPHOMORE YEAR:

First quarter

- MATH 238 Differential Equations
- PHYS& 222 Engineering Physics II
- CSC 142 Computer Programming for Engineers

Second quarter

- ENGR 214 Engineering Statics
- PHYS& 223 Engineering Physics III
- ENGR 220 Linear Algebra

Third quarter

- ENGR& 230 Technical Writing
- Distribution Requirement (5 cr)
- Distribution Requirement (5 cr)
- ENGR& 225 Strength of Materials



ASSOCIATE OF SCIENCE DEGREE IN ENGINEERING

Note: Students must have a minimum 2.0 GPA for graduation and must take a minimum of 30 credits at SCCC. Final quarter must be at SCCC.

Name	SID#				
No course fulfills more than one requirement	Course Credit	Credit Earned	Grade	College	Quarter
Basic Requirements: 20 credits					
ENGL& 101	5				
MATH& 124	5				
MATH& 125	5				
MATH& 126	5				
Areas of Knowledge Distribution Requirements: 15 credits					
Visual, Literary, and Performing Arts (Humanities and Arts): 5 – 10 credits					
Individuals, Cultures, and Society (Social Sciences): 5 – 10 credits					
Major Area of Study: 36 credits					
CHEM& 161	6				
PHYS& 221	5				
PHYS& 222	5				
PHYS& 223	5				
CSC 142 or ENGR 142	5				
ENGR 110	1				
ENGR 116	4				
Choose any one: ENGR& 204, 214, 215, 224, 225, 271	5				
Electives: 19 credits					
Courses may not be used to satisfy other requirements. Selection should be made based on advisor recommendation, given the four-year institution that the student plans to attend.					

Total Credits Required: 90 Evaluator _____ Date _____