

## Career Planning Guide Effective September 2003 for

### AEROSPACE ENGINEERING

**Length of Program:** 90 credits

**Goal:** Associate of Science (AS) Degree

**South Seattle Community College**

6000 16<sup>th</sup> 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](mailto:advisorsouth@sccd.ctc.edu)

**Aerospace Engineering Faculty Contact:**

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Robert Smith Building (RSB) 188

#### PROGRAM DESCRIPTION

Aerospace engineers are involved in the design, test, development, and manufacture of commercial and military aircraft, spacecraft, missiles, and rockets. Aerospace engineers often specialize in aerodynamics, propulsion, structures, thermodynamics, orbital mechanics, acoustics, and guidance and control systems. The Aerospace Engineering Associate of Science (AS) degree program prepares students for transfer to Aerospace 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 and commonly used engineering software like Matlab. 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 aerospace engineering.

#### PROGRAM OUTCOMES

Students who successfully complete this program will show:

- An ability to apply knowledge of mathematics and science 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

Graduates can be employed in private industry as well as various governmental departments, consulting services, and technical sales. Nationwide, the average starting salary for UW graduates with a Bachelor's degree in Aerospace Engineering in 2008 was \$57,999. Source: National Association of Colleges and Employers.

# Associate of Science Aerospace Engineering Pre-Major

## CURRICULUM

The A.S. degree requires 90 credits total, not including prerequisites. Courses are 5 credits unless otherwise listed.

### BASIC REQUIREMENTS (20 credits):

- ENGL& 101 – Composition
- MATH& 151 – Calculus I
- MATH& 152 – Calculus II
- MATH& 153 – 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<sup>†</sup> (6 credits)
- PHYS& 221, 222, & 223
- CSC 110 or 142<sup>‡</sup> or ENGR 142<sup>‡</sup>
- ENGR 110 (1 cr), 116 (4 cr), 214

### 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.**

Recommended: ENGR& 215, 225, 224, 230, 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, 142, 143
- ENGR 111 (4 cr), 112 (4 cr), 142, 170 (4 cr), 171 (1 cr), 204, 298, 299
- MATH 109, 215 (2 cr), 216 (2 cr), 298 (2 credit maximum given for MAT 298)

### **Footnotes:**

<sup>‡</sup> CSC 110 is a prerequisite for CSC/ENGR 142

<sup>†</sup>CHEM& 139 is a prerequisite for CHEM& 161

*Italicized* electives are required for graduation in the UW ME program.

## SAMPLE COURSE PLAN

Note that several required classes have prerequisites that are not shown in the sample course plan below. This could require students to attend summer quarter to pick up those prerequisites. Because of this, an aerospace engineering Bachelor's degree often takes many students as much as five years to complete. **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
- CHEM& 161 Chemistry I
- Distribution Requirement (5 credits)

#### **Third quarter**

- MATH& 153 – Calculus III
- PHYS& 221 Engineering Physics I
- Distribution Requirement (5 cr)

### SOPHOMORE YEAR:

#### **First quarter**

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

#### **Second quarter**

- ENGR& 214 Engineering Statics
- PHYS& 223 Engineering Physics III
- MATH 220 Linear Algebra
- Distribution Requirement (5 cr)

#### **Third quarter**

- ENGR 230 Technical Writing
- ENGR 225 Engineering Strength of Materials
- ENGR 215 Engineering Dynamics
- MATH 224 Advanced Calculus



## ASSOCIATE OF SCIENCE DEGREE IN AEROSPACE ENGINEERING

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

Name	SID#				
No course fulfills more than one requirement	Course Credit	Credit Earned	Grade	College	Quarter
<b>Basic Requirements: 20 credits</b>					
ENGL& 101	5				
MATH& 151	5				
MATH& 152	5				
MATH& 153	5				
<b>Areas of Knowledge Distribution Requirements: 15 credits</b>					
<b>Visual, Literary, and Performing Arts (Humanities and Arts): 5 – 10 credits</b>					
<b>Individuals, Cultures, and Society (Social Sciences): 5 – 10 credits</b>					
<b>Major Area of Study: 36 credits</b>					
CHEM& 161	6				
PHYS& 221	5				
PHYS& 223	5				
PHYS& 223	5				
CSC 142 or ENGR 142	5				
ENGR 110	1				
ENGR 116	4				
ENGR& 214	5				
<b>Electives: 19 credits</b>					
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 \_\_\_\_\_