



GENERAL INFORMATION

EvCC offers a number of pathways toward technical careers. This curriculum guide focuses on the **Engineering Transfer Associate of Science** Degree, which is designed to prepare students for transfer to a four-year program. The first- and second-year engineering, math and science courses that form this degree serve as preparation for a variety of engineering majors, including aeronautical, biological, civil, chemical, electrical, mechanical and materials science.

In separate curriculum guides we describe the **Engineering Technology** Degree, designed for those intent upon transfer into an Engineering Technology Program at Central Washington University, Eastern Washington University, or Western Washington University. All curriculum guides for EvCC may be found around campus, on the Web at everettcc.edu, or you may call 425-388-9219 to request specific copies.

Our Engineering faculty have established strong relationships with local universities to assure that our courses are transferable and prepare students for their major. In addition, our faculty can advise students about meeting the criteria for admission to selective engineering programs at the universities. Our engineering students have transferred to the UW, WSU, Seattle University, Cornell, Stanford, and CSU-Long Beach, to name a few.

Beginning Fall 2012, Washington State University offers the Bachelor of Science in Mechanical Engineering on the EvCC campus. Contact your advisor for transfer planning or call 425-259-8902.

SUGGESTED PREPARATION

It is helpful to have the following traits: intellectual curiosity, technical aptitude, a solid mathematical and scientific foundation, interest in solving problems, perseverance, the ability to work accurately and systematically and a basic understanding of the economics and environmental context in which engineering is practiced. The ability to work in unusual locations, and the ability to work under pressure to meet deadlines or to solve problems can be valuable. Students should develop effective communication and interpersonal skills; cultivate opportunities to participate as a team member on job projects; and master relevant computer programs.

Although there are no specific admission requirements to begin your pre-engineering studies at EvCC, preparatory courses in chemistry, mathematics and physics are prerequisites for many of the required engineering courses. Students who have not completed these courses during their high school program should complete the equivalent college courses as soon as possible. See the quarterly class schedule and consult with an engineering advisor to determine specific requirements. Students wishing to transfer to the University of Washington or certain other four-year schools must also meet foreign language requirements.

Engineering is fascinating!

It 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. Engineering students have their pick of many fields. From electrical to civil to aeronautical to biomedical, every discipline within engineering will lead to an exciting and rewarding career.

http://www.engineeringk12.org/students/What_Is_Engineering/default.php

CAREER OPTIONS

Engineering is a very broad field, embracing many aspects of everyday life, ranging from agriculture, aerospace and medicine to electrical, mechanical, structural and even chemical and bioengineering. People employed in this field are typically involved in design and implementation of systems, structures and devices to streamline production, make operations more uniform and to address certain technical and mechanical challenges. Most engineers specialize in a certain area within the broader field. Typically, at least a Bachelor's Degree is required for work in this profession. A good description of the Engineering field is available on the web site of American Society for Engineering Education:

www.asee.org/precollege

PROGRAM ADVISORS

Frequent contact with an advisor is highly recommended. Students should also consult closely with department advisors at the university to which they wish to transfer, to keep abreast of possible changes. (The area code for the phone numbers below is 425)

Engineering and Engineering Technology:

Eric Davishahl, WHI 312, 388-9246, edavishahl@everettcc.edu
Xiaopeng Bi, WHI 313, 388-9140, xbi@everettcc.edu
Kristine Washburn, WHI 216, 388-9431, kwashburn@everettcc.edu
Steven Powell, WHI 306, 388-9084, spowell@everettcc.edu
Sumita Singh (Bio and Chem), WHI 307, 388-9373, ssingh@everettcc.edu

Engineering Technology and Drafting:

Robert Osnes, MON 205, 388-9383, rosnes@everettcc.edu

UNIVERSITY OPTIONS

Further information about Engineering majors, and transfer requirements can be found at these websites: [February 2010]

- Washington State University: www.cea.wsu.edu/
- University of Washington: www.engr.washington.edu/
- Seattle University: www.seattleu.edu/scieng/
- Eastern Washington University: www.ewu.edu/CSHE/Programs/Engineering.xml

EVCC'S ENGINEERING CLUB WANTS YOU!

Join the fun and gain practical engineering design experience by participating in the Engineering Club. The club focuses its efforts on sending student teams to regional, national, and international design competitions.

In previous years EvCC's teams have brought home the honors by placing 10th in an international competition with a human-powered submarine, 4th in international competition with their Frisbee Launcher, and 1st in Washington with their project presentation in the Human Powered Paper Vehicle. Design project experience looks great when you are applying to internships and university engineering programs. We hope you take advantage of the opportunity and put yourself and EvCC on the map.

EVENING COURSES

In addition to day classes, the following courses are usually offered evenings during the quarters indicated:

ENGR& 114 (W); ENGL& 230 (F)

MATH& 141 (F,W,Sp,Su); 142; 144 (Sp); 151 (W); 152 (Sp)

GETTING STARTED AT EVCC

Our Enrollment Services Office provides information about application, advising, orientation and registration for new and continuing students. New students are welcome to contact the Educational Planning Center to speak one-on-one with an Educational Planner about getting started. Contact:

- Enrollment Services, Jackson Center,
425-388-9219, admissions@everettcc.edu
- Educational Planning Center, Third Floor, Parks,
425-388-9339

This curriculum guide contains checklists for three different degree paths:

- **Mechanical, Civil, Aeronautical, Industrial, Materials Science**
- **Computer and Electrical Engineering**
- **General Engineering**

If you are missing a checklist, please go to:

www.everettcc.edu/cguides and click on "Engineering Transfer"



Engineering alums Euneka Robinson-McCutchen, Quang Nguyen, and Leif Johansen met in Engineering class at EvCC, and have been friends ever since. Each graduated from a 4-year college after leaving EvCC; Euneka is finishing her masters in Civil Engineering at University of Washington; Quang graduated from University of Washington and now works as a civil engineer at the Washington State Dept. of Transportation; Leif graduated from Western Washington University and now works for Reid Middleton in Snohomish. Says Quang, "I thought I was going to be an electrical engineer. But after taking Civil Engineering from Eric Davishahl-that was more interesting-we got to solve engineering problems hands-on." Says Leif, "I took classes that interested me, and EvCC is a great place to explore. Eventually I figured out what interested me was engineering."

**Engineering at EvCC:
Creating a better world through
engineering.**

**Small classes
Personal attention
Hands-on
Teamwork
Career guidance**



COURSE NUMBERING SYSTEM - Effective Summer, 2008:

- Courses listed with an ampersand in the course number (e.g. ENGL&101) reflect the Common Course Numbering System.
- For more information, go to www.everettcc.edu/ccn

Associate of Science – Pre-Engineering

Mechanical, Civil, Aeronautical, Industrial, Materials Science

This checklist is targeted at transfer students with an interest in one of the above engineering majors at the University of Washington or Washington State University. Students should meet with an advisor and maintain this checklist while at Everett Community College. The quarter before expected completion, this checklist should be submitted with a diploma application to the Enrollment Services Office. Note: Though courses in a foreign language are not required in the Associate of Science degree, some universities may require two or three quarters of foreign language for admission or for graduation.

Note: Prior to starting some or all of the following courses, students should:

- | | |
|---|---|
| <input type="checkbox"/> Complete ENGL 098 or earn a placement score into ENGL& 101
<input type="checkbox"/> Complete MATH& 144 or MATH&142 or place into MATH& 151
<input type="checkbox"/> Complete PHYS& 121 or a rigorous high school physics class | <input type="checkbox"/> Complete PHYS 130 before PHYS& 233
<input type="checkbox"/> Complete CHEM& 140 or place into CHEM& 161
<input type="checkbox"/> Complete ENGR 120 and PHYS& 221/231 before ENGR& 214 |
|---|---|

Student: _____

COMPLETION of Diversity Course

	(Where Completed/Course Title)		(Year Completed)	(Grade)
Course Number	Course Title	Credits	Quarter Completed	Grade
COMMUNICATIONS SKILLS (5 credits) ¹				
ENGL& 101	English Composition I	5	_____	_____
MATHEMATICS (Pre-requisite Math courses may also be required.)				
MATH& 151	Calculus I	5	_____	_____
MATH& 152	Calculus II	5	_____	_____
MATH& 153	Calculus III	5	_____	_____
MATH 260	Linear Algebra	5	_____	_____
MATH 261	Differential Equations	5	_____	_____

HUMANITIES AND SOCIAL SCIENCE (15 credits, in three different disciplines. One course must be selected from Humanities, and another from Social Sciences. The third course may be from Humanities or Social Sciences. For acceptable courses, see course list for the Associate of Science – see separate guide. We recommend economics, history, psychology, sociology and communication studies as good choices. See Notes 1 and 2.)

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

SCIENCE AND ENGINEERING

CHEM& 161	General Chemistry I	5.5	_____	_____
CHEM& 162	General Chemistry II	5.5	_____	_____
PHYS& 221/231	Engineering Physics I	5.5	_____	_____
PHYS& 222/232	Engineering Physics II	5.5	_____	_____
PHYS& 223/233	Engineering Physics III	5.5	_____	_____
ENGR 109	Engineering Orientation	2	_____	_____
ENGR 120	Intro to Technical Computing	2	_____	_____
ENGR& 214	Statics	5	_____	_____
ENGR& 225	Mechanics of Materials	5	_____	_____
ENGR& 215	Dynamics	5	_____	_____

ADDITIONAL ENGINEERING ELECTIVES (minimum 16 credits; select **four courses as appropriate for intended major and transfer institution. Please see the last page of this guide for course recommendations by intended transfer institution.)**

ENGR& 104 (Note 2)	Introduction to Design	5	_____	_____
ENGR& 114	Engineering Graphics	4	_____	_____
ENGR 142	Comp. Programming for Engineers	5	_____	_____
ENGR& 204	Electrical Circuits	5	_____	_____
ENGL& 230	Technical Writing	3	_____	_____
ENGR 240	Applied Numerical Methods	4	_____	_____
ENGR& 224	Thermodynamics	5	_____	_____
MATH& 254	Calculus IV	5	_____	_____

Total: minimum 107.5 credits required, minimum 2.0 GPA. See Note 2.

Note 1: Use one of these courses to satisfy the diversity requirement.

Note 2: ENGR& 104 may be used as a Social Science course for students transferring to the UW only; otherwise it counts only as an engineering elective. It may be counted only once.

Associate of Science – Pre-Engineering

Computer and Electrical Engineering

This checklist is targeted at transfer students with an interest in one of the above engineering majors at the University of Washington or Washington State University. Students should meet with an advisor and maintain this checklist while at Everett Community College. The quarter before expected completion, this checklist should be submitted with a diploma application to the Enrollment Services Office. Note: Though courses in a foreign language are not required in the Associate of Science degree, some universities may require two or three quarters of foreign language for admission or for graduation.

Note: Prior to starting some or all of the following courses, students should:

- | | |
|--|---|
| <input type="checkbox"/> Complete ENGL 098 or earn a placement score into ENGL& 101
<input type="checkbox"/> Complete MATH& 144 or MATH& 142 or place into MATH& 151
<input type="checkbox"/> Complete PHYS& 121 or a rigorous high school physics class | <input type="checkbox"/> Complete PHYS 130 before PHYS& 233
<input type="checkbox"/> Complete CHEM& 140 or place into CHEM& 161
<input type="checkbox"/> Complete ENGR 120 and PHYS& 221/231 before ENGR& 214 |
|--|---|

Student: _____

COMPLETION of Diversity Course

	(Where Completed/Course Title)		(Year Completed)	(Grade)
Course Number	Course Title	Credits	Quarter Completed	Grade
COMMUNICATIONS SKILLS (5 credits) ¹				
ENGL& 101	English Composition I	5	_____	_____
MATHEMATICS (Pre-requisite Math courses may also be required.)				
MATH& 151	Calculus I	5	_____	_____
MATH& 152	Calculus II	5	_____	_____
MATH& 153	Calculus III	5	_____	_____
MATH 260	Linear Algebra	5	_____	_____
MATH 261	Differential Equations	5	_____	_____
HUMANITIES AND SOCIAL SCIENCE (15 credits, in three different disciplines. One course must be selected from Humanities, and the other from Social Sciences. The third course may be from Humanities or Social Sciences. For acceptable courses, see course list for the Associate of Science – see separate guide. We recommend economics, history, psychology, sociology, speech (CMST) as good choices. See Notes 1 and 2.)				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
SCIENCE AND ENGINEERING (** Choose Engineering 142 and 143 for UW and Seattle U. Choose CP 130 and 131 for WSU.)				
CHEM& 161	General Chemistry I	5.5	_____	_____
PHYS& 221/231	Engineering Physics I	5.5	_____	_____
PHYS& 222/232	Engineering Physics II	5.5	_____	_____
PHYS& 223/233	Engineering Physics III	5.5	_____	_____
ENGR 109	Engineering Orientation	2	_____	_____
ENGR 142 or CS& 131 **	Computer Programming I	5	_____	_____
ENGR& 204	Electrical Circuits	5	_____	_____
ADDITIONAL ENGINEERING ELECTIVES (minimum 22 credits; select five as appropriate for intended major and transfer institution. Please see the last page of this guide for course recommendations by intended transfer institution.)				
ENGR& 104 (See Note 2)	Introduction to Design	5	_____	_____
ENGR 143	Computer Programming II	5	_____	_____
ENGR& 214	Statics	5	_____	_____
ENGR& 215	Dynamics	5	_____	_____
ENGL& 230	Technical Writing	3	_____	_____
ENGR 240	Applied Numerical Methods	4	_____	_____
ENGR& 224	Thermodynamics	5	_____	_____
BIOL& 222	Majors Cell/Molecular	5	_____	_____
CHEM& 162	General Chemistry II	5.5	_____	_____
MATH& 254	Calculus IV	5	_____	_____

Total: minimum 101 credits required, minimum 2.0 GPA. See Note 2.

Note 1: Use one of these courses to satisfy the diversity requirement.

Note 2: ENGR& 104 may be used as a Social Science course for students transferring to the UW only; otherwise it counts only as an engineering elective. It may be counted only once.

Associate of Science – Pre-Engineering

General Engineering Transfer

This checklist is targeted at transfer students with an interest in an **engineering** major at a university other than University of Washington or Washington State University or in majors not included on the previous checklists. Students should work with an advisor to develop a customized plan specific to their intended major and transfer destination and should maintain this checklist while at Everett Community College. The quarter before expected completion, this checklist should be submitted with a diploma application to the Enrollment Services Office. Note: Though courses in a foreign language are not required in the Associate of Science degree, some universities may require two or three quarters of foreign language for admission or for graduation.

Note: Prior to starting some or all of the following courses, students should:

- | | |
|--|---|
| <input type="checkbox"/> Complete ENGL 098 or earn a placement score into ENGL& 101
<input type="checkbox"/> Complete MATH& 144 or MATH& 142 or place into MATH& 151
<input type="checkbox"/> Complete PHYS& 121 or a rigorous high school physics class | <input type="checkbox"/> Complete PHYS 130 before PHYS& 233
<input type="checkbox"/> Complete CHEM& 140 or place into CHEM& 161
<input type="checkbox"/> Complete ENGR 120 and MATH 260 prior to ENGR 240 |
|--|---|

Student: _____

COMPLETION of Diversity Course

	(Where Completed/Course Title)		(Year Completed)	(Grade)
<u>Course Number</u>	<u>Course Title</u>	<u>Credits</u>	<u>Quarter Completed</u>	<u>Grade</u>
COMMUNICATIONS SKILLS (5 credits) ¹				
ENGL& 101	English Composition I	5		
MATHEMATICS (Pre-requisite Math courses may also be required.)				
MATH& 151	Calculus I	5		
MATH& 152	Calculus II	5		
MATH& 153	Calculus III	5		

HUMANITIES AND SOCIAL SCIENCE (15 credits, in three different disciplines. One course must be selected from Humanities, and the other from Social Sciences. The third course may be from Humanities or Social Sciences. For acceptable courses, see course list for the Associate of Science – see separate guide. We recommend economics, history, psychology, sociology, speech (CMST) as good choices, as well as ENGR 104 for UW transfer. See Notes 1 and 2.)

SCIENCE AND ENGINEERING

CHEM& 161	General Chemistry with Lab I	5.5		
PHYS& 221/231	Engineering Physics I with Lab	5.5		
PHYS& 222/232	Engineering Physics II with Lab	5.5		
PHYS& 223/233	Engineering Physics II with Lab	5.5		
ENGR 109	Engineering Orientation	2		

ADDITIONAL SCIENCE, MATH AND ENGINEERING ELECTIVES (minimum 31 credits; select as appropriate for intended major and transfer institution)

Total: minimum 90 credits required, minimum 2.0 GPA. See Note 2.

Note 1: Use one of these courses to satisfy the diversity requirement.

Note 2: ENGR& 104 may be used as a Social Science course for students transferring to the UW only; otherwise it counts only as an engineering elective. It may be counted only once.

Associate of Science in Pre-Engineering
Elective Recommendations for EvCC Engineering Students

Major	University of Washington	Washington State University
Mechanical	ENGR& 104* ENGR& 114 MATH& 254 ENGL& 230 ENGR 240	ENGR& 114 ENGR& 104* ENGR 240 ENGL& 230
Civil & Environmental	ENGR& 104* MATH& 254 ENGL& 230 ENGR 240 Choose 1 more	ENGR& 104* MATH& 254 ENGR 240 ENGR& 204 or 224
Aeronautics & Astronautics	ENGR& 104* MATH& 254 ENGR& 224 ENGL& 230 ENGR 240	N/A
Industrial Engineering	ENGR& 104* ENGL& 230 ENGR& 204 MATH& 254 ENGR 142	N/A
Materials Science	ENGR& 104* MATH& 254 ENGL& 230 ENGR 240 ENGR& 204 or 224	MATH& 254 ENGR& 224 ENGR& 204 ENGR 240
Electrical	ENGR& 104* MATH& 254 ENGR& 214 ENGR 143 ENGL& 230 Choose 1 more	ENGR& 104* MATH& 254 ENGR & 214 ENGR 240 ENGL& 230
Computer	ENGR& 104* MATH& 254 ENGL& 230 ENGR 143 Choose 2 more	MATH& 254 ENGL& 230 CS& 131 Choose 2 more

*ENGR& 104 satisfies a social science requirement at the University of Washington and can be used to satisfy this requirement on the AS Degree if you intend to transfer to the UW. It is recommended as a social science elective for all engineering majors who intend to transfer to UW.

*Everett Community College does not discriminate on the basis of race, religion, creed, color, national origin, age, sex, sexual orientation, marital status, the presence of any physical, sensory or mental disability, genetic information or status as a disabled or Vietnam era veteran in its program and activities, or employment. The Vice President of Instruction and Student Services has been designated to handle inquiries regarding student-related non-discrimination policies and can be reached at 2000 Tower Street, Everett, WA 98201, or by phone at (425)388-9216. The Vice President of Administrative Services/Human Resources has been designated to handle employment-related inquiries regarding the non-discrimination policies and can be reached at 2000 Tower Street, Everett, WA 98201, or by phone at (425)388-9232. This publication is effective **OCTOBER 2011**. The College reserves the right to change courses, programs, degrees and requirements. It is the student's responsibility to be aware of correct information by routinely checking with Enrollment Services and/or the advisors listed in this publication. Requirements applicable to all certificates and degrees are published in the College Catalog. Nothing contained herein shall be construed to create any offer to contract or any contractual rights. For more information, call 425-388-9219, Everett Community College, 2000 Tower Street, Everett, WA 98201, www.everettcc.edu*