



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.

The General Engineering Associate of Science checklist is also appropriate preparation for transfer to an **Engineering Technology** Bachelor of Science program at Central Washington University or Eastern 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.

Washington State University offers programs on the Everett Community College campus leading to a Bachelor of Science degree in either Mechanical or Electrical Engineering. 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.

APPROVED AT 4/24/2014 INSTRUCTIONAL COUNCIL

Engineering is fascinating!

Whether it's living buildings, solar energy, 3D printers, biomedical implants, or the next big video game, engineers are behind the life changing technologies you hear about every day. 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 can take you from the depths of the ocean to the far reaches of outer space, and from within the microscopic structures of the human cell to the top of the tallest skyscrapers. Students have their pick of many disciplines including electrical, computer, civil, mechanical, industrial, material science, aeronautical, and biomedical. With more career options and higher starting salaries than nearly any other discipline, Engineering is a practical choice that can lead to an exciting and rewarding career.

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.

Engineering and Engineering Technology Transfer:

To set up an appointment with an advisor, please go to https://evcc_engineering.youcanbook.me

You may also email engineering@everettcc.edu or call 425-405-0055 for more information.

Engineering Technology and Drafting:

Contact 425-388-9570 or email mfg@everettcc.edu

Distinguish yourself by choosing to participate in the **EvCC Honors Program** and gain an edge in transferring to competitive engineering departments at Washington's universities. Plan early to complete the honors program requirements in the context of your Associate of Science in Pre-Engineering coursework. See the honors program section on the college website for more details: <http://www.everettcc.edu/honors>

UNIVERSITY OPTIONS

Further information about Engineering majors, and transfer requirements can be found at these websites: [November 2019]

- Washington State University: <http://vcea.wsu.edu>
- University of Washington: www.engr.washington.edu/
- Seattle University: www.seattleu.edu/scieng/
- Eastern Washington University: <https://www.ewu.edu/cstem/engineering/>
- Western Washington University: www.wvu.edu/engd/

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. Recent efforts have been focused on an electric race car for the Electrathon America racing series. The club competed successfully in five races since spring 2012 and continues to design and implement improvements to the car for future races.

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.

GETTING STARTED AT EVCC

Our Enrollment Services Office provides information about application, advising, orientation and registration for new and continuing students. New students are required to complete entry advising prior to registering for first quarter classes. Contact:

- Enrollment Services, Parks Student Union, Room 201, 425-388-9219, admissions@everettcc.edu
- Advising Center, Rainier 104, 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 (customizable plan for other transfer goals)

If you are missing a checklist, please go to: www.everettcc.edu/cguides and click on "Engineering Transfer"

Engineering at EvCC:
Creating a better world through
engineering.

Small classes
Personal attention
Hands-on
Teamwork
Career guidance

Outstanding Alumni

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 Washington State 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."



"My overall experience as an engineering student at Everett Community College was excellent. The quality of education offered at EvCC prepares students to excel at any university; students are well prepared to handle the work load and have the technical background necessary to be competitive at the university level. I can not thank the engineering and mathematics departments enough for how well they have prepared me. I am grateful to have had the opportunity to learn from the professors at EvCC while earning my associates degree."

HeatherAnn Baxter
Graduated with High Honors
Associate of Science - Civil Engineering
Associate of Arts & Sciences - DTA

Everett Community College does not discriminate based on, but not limited to, race, color, national origin, citizenship, ethnicity, language, culture, age, sex, gender identity or expression, sexual orientation, pregnancy or parental status, marital status, actual or perceived disability, use of service animal, economic status, military or veteran status, spirituality or religion, or genetic information in its programs, activities, or employment. The Title IX Coordinator has been designated to handle inquiries regarding nondiscrimination policies and can be reached at 2000 Tower Street, Everett, WA 98201, TitleIXCoordinator@everettcc.edu, or 425-388-9271. This publication is effective **MARCH 2015**. 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

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 ENGR 101 (formerly 109) recommended for all students considering an engineering major
<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& 114 or physics placement test | <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 121 and PHYS& 241/231 before ENGR& 214
<input type="checkbox"/> Complete ENGR 111 and MATH& 142 before ENGR 121 |
|--|---|

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& 163	Calculus 3	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. See Notes 1 and 2.)

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

SCIENCE AND ENGINEERING

CHEM& 161	General Chemistry I	5.5	_____	_____
CHEM& 162	General Chemistry II	5.5	_____	_____
ENGR 111 (see Note 3)	Intro to Engineering 1	5	_____	_____
ENGR& 214	Statics	5	_____	_____
ENGR& 215	Dynamics	5	_____	_____
ENGR& 225	Mechanics of Materials	5	_____	_____
PHYS& 241/231	Engineering Physics I	5.5	_____	_____
PHYS& 242/232	Engineering Physics II	5.5	_____	_____
PHYS& 243/233	Engineering Physics III	5.5	_____	_____

SPECIALIZATION COURSES (minimum 16 credits; select minimum **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.)**

CS& 131	Computer Science 1	5	_____	_____
ENGR& 114	Engineering Graphics	4	_____	_____
ENGR 121	Intro to Engineering 2: Design	5	_____	_____
ENGR 201	Fundamentals of Materials Science	5	_____	_____
ENGR& 204	Electrical Circuits	5	_____	_____
ENGR 216	Integrated Computer Aided Design	4	_____	_____
ENGR 220	Breaking Lab	2	_____	_____
ENGR& 224	Thermodynamics	5	_____	_____
ENGL& 230	Technical Writing	3	_____	_____
ENGR 240	Applied Numerical Methods	5	_____	_____
MATH& 264	Calculus 4	4	_____	_____

Total: minimum 108.5 credits required, minimum 2.0 GPA. See Note 2.

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

Note 2: Students transferring to WSU should take ECON& 202 AND either HIST 103D, HIST 170D ANTH 116D, ANTH&206D or HUM 110D.

Note 3: ENGR 111 may be waived, at the Engineering faculty's discretion, for students transferring to EvCC with advanced standing in engineering.

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 ENGR 101 (formerly 109) recommended for all students considering an engineering major | <input type="checkbox"/> Complete PHYS 130 before PHYS& 233 |
| <input type="checkbox"/> Complete ENGL 098 or earn a placement score into ENGL& 101 | <input type="checkbox"/> Complete CHEM& 140 or place into CHEM& 161 |
| <input type="checkbox"/> Complete MATH& 144 or MATH&142 or place into MATH& 151 | <input type="checkbox"/> Complete ENGR 121 and PHYS& 241/231 before ENGR& 214 |
| <input type="checkbox"/> Complete PHYS& 114 or physics placement test | <input type="checkbox"/> Complete ENGR 111 and MATH& 142 before ENGR 121 |

Student: _____

COMPLETION of Diversity Course

_____ (Where Completed/Course Title) _____ (Year Completed) _____ (Grade)

Course Number	Course Title	Credits	Quarter Completed	Grade
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COMMUNICATIONS SKILLS (5 credits) ¹

ENGL& 101	English Composition I	5	_____	_____
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MATHEMATICS (Pre-requisite Math courses may also be required.)

MATH& 151	Calculus I	5	_____	_____
MATH& 152	Calculus II	5	_____	_____
MATH& 163	Calculus 3	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. See Notes 1 and 2.)

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

SCIENCE AND ENGINEERING (37 credits. **CS& 141 is an acceptable substitute for CS& 131 for this degree)

CHEM& 161	General Chemistry I	5.5	_____	_____
CS& 131**	Computer Science	5	_____	_____
ENGR 111 (see Note 3)	Intro to Engineering 1	5	_____	_____
ENGR& 204	Electrical Circuits	5	_____	_____
PHYS& 241/231	Engineering Physics I	5.5	_____	_____
PHYS& 242/232	Engineering Physics II	5.5	_____	_____
PHYS& 243/233	Engineering Physics III	5.5	_____	_____

SPECIALIZATION COURSES (minimum 22 credits; select minimum **five** as appropriate for intended major and transfer institution. Please see the last page of this guide for course recommendations by intended transfer institution.)

BIOL& 222	Majors Cell/Molecular	5	_____	_____
CHEM& 162	General Chemistry II	5.5	_____	_____
CS 143 or 132	Computer Science II	5	_____	_____
CS 233	Advanced Data Structures	5	_____	_____
ENGR 121	Intro to Engineering 2: Design	5	_____	_____
ENGR 202	Logic Circuits	6	_____	_____
ENGR 205	Electric Circuits Lab	1.5	_____	_____
ENGR& 214	Statics	5	_____	_____
ENGR& 215	Dynamics	5	_____	_____
ENGR& 224	Thermodynamics	5	_____	_____
ENGL& 230	Technical Writing	3	_____	_____
ENGR 240	Applied Numerical Methods	5	_____	_____
MATH& 264	Calculus 4	4	_____	_____

Total: minimum 104 credits required, minimum 2.0 GPA. See Note 2.

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

Note 2: Students transferring to WSU should take ECON& 201 or 202 AND either HIST 103D, HIST 170D ANTH 116D, ANTH&206D or HUM 110D.

Note 3: ENGR 111 may be waived, at the Engineering faculty's discretion, for students transferring to EvCC with advanced standing in engineering.

Associate of Science – Pre-Engineering

General Engineering Transfer

This checklist is targeted at transfer students with an interest in an **engineering** or **engineering technology** 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 ENGR 101 (formerly 109) recommended for all students considering an engineering major
<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& 114 or physics placement test | <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 121 and PHYS& 241/231 before ENGR& 214
<input type="checkbox"/> Complete ENGR 111 and MATH& 142 before ENGR 121 |
|--|---|

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& 163	Calculus 3	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. See Notes 1 and 2.)

SCIENCE AND ENGINEERING

CHEM& 161	General Chemistry with Lab I	5.5	_____	_____
ENGR 111 (see Note 3)	Intro to Engineering I	5	_____	_____
PHYS& 241/231	Engineering Physics I with Lab	5.5	_____	_____
PHYS& 242/232	Engineering Physics II with Lab	5.5	_____	_____
PHYS& 243/233	Engineering Physics II with Lab	5.5	_____	_____

SPECIALIZATION COURSES (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: Students transferring to WSU should take ECON& 201 or 202 AND either HIST 103D, HIST 170D ANTH 116D, ANTH&206D or HUM 110D.
Note 3: ENGR 111 may be waived, at the Engineering faculty’s discretion, for students transferring to EvCC with advanced standing in engineering.

Associate of Science in Pre-Engineering
Specialization Courses for EvCC Engineering Students

Major	University of Washington	Washington State University
Mechanical	ENGL& 230 ENGR& 114 ENGR 121 ENGR 240 MATH& 264 ENGR 201* ENGR& 204*	ENGL& 230 ENGR& 114 ENGR 121 ENGR 240 MATH& 264 ENGR 201* ENGR& 204* ENGR 216* ENGR 220* ENGR& 224*
Civil & Environmental	ENGL& 230 ENGR &114, 201, &204 or &224 ENGR 121 ENGR 240	ENGR 121 ENGR &204 or &224 ENGR 220 ENGR 240 MATH& 264 ENGL& 230
Aeronautics & Astronautics	ENGL& 230 ENGR 121 ENGR& 224 ENGR 240 MATH& 264	N/A
Industrial	CS& 131 ENGL& 230 ENGR 121 ENGR& 204 MATH& 264	N/A
Materials Science	ENGL& 230 ENGR 121 ENGR 201 ENGR 240 MATH& 264	ENGR 121 ENGR 201 ENGR 220 ENGR 240 MATH& 264 ENGL& 230
Electrical	CS 143 ENGL& 230 ENGR 121 MATH& 264 Choose <u>2</u> from: CHEM& 162 ENGR 202 ENGR& 214 ENGR& 215 ENGR& 224 ENGR 240	CS 132 ENGL& 230 ENGR 121 ENGR 205 MATH& 264 ENGR 202* Choose <u>2</u> from: ENGR& 214 ENGR& 215 ENGR& 224 ENGR 240
Computer	CS 143 ENGL& 230 ENGR 121 ENGR 202 Choose 1 more	CS 132 ENGL& 230 ENGR 121 ENGR 202 MATH& 264 CS 233*

* Course required for BS degree, but typically taken in junior year and not required to transfer with junior standing. Completion at EvCC recommended if there is space in your schedule for improved junior year preparation.