

# Civil, Environmental and Construction Engineering Program Requirements

Revised Jan. 1, 2019

Course #	Description	TCC	UW		WSU		WSU-TriCities	Seattle U	St. Martins	Gonzaga U
		AS-MRP	Seattle		Pullman		Richland	Seattle	Lacey	Spokane
			CivE	EnvE	CivE	ConE	CivE	CivE	CivE	CivE
Math& 151, 152, 153	Calculus 1, 2, 3	R	√-app	√-app	√	√	√	G	G	G
Math& 254	Calculus 4	S	√-app	√-app	G		G	G		G
Math 238	Differential Equations	R	G	√-enr	G		G	G	G	G
Math 220	Linear Algebra	R	√-enr	G	G		G	G		P
Phys& 221	Calc Based Physics 1	R	√-app	√-app	√	√	√	G	G	G
Phys& 222	Calc Based Physics 2	R	√-app	√-app	√	√	√	G	G	G
Phys& 223	Calc Based Physics 3	R	G	√ -enr	A		A- see back	G	G	G
Biol& 100 or 260					G	G	G - see back			
Biol& 221	Intro to Evol, Ecol & Biodiv			√-enr						
Chem& 161	General Chem 1	R	√-app	√-app	G	G	G	G	G	G
Chem& 162	General Chem 2	R	G	√-app	G	G	G		G	
Chem& 163	General Chem 3			√-enr	Env-Rec		A- see back			
Geology					Struc/Infras-Rec		A- see back		A	
Engr& 104	Intro to Design	S or Soc <sup>1</sup>	A	A	G		G		G	
Engr& 114	SolidWorks/Graphics	S or Hum <sup>1</sup>			G-see back	G-see back		G	G (GE103)	G
Engr& 204	Electric Circuits	S	A				A	P		P
Engr& 214	Statics	R	√-app	√-app	√	√	√	G	G	G
Engr& 215	Dynamics	R	√ -enr	P	G	G	G	G	G	G
Engr& 224	Thermodynamics	S	A	√-enr	A		A	P		P
Engr& 225	Mech of Materials	R	√-enr	√-enr	G	G	√-enr	G	G	G
Engr 240	Applied Numerical Methods	S	√-enr	√-enr	G		G? -see back			
CS 142	Java 1	S	Engr 240 Pref							
Engl& 101	English Comp 1	R	√-app	√-app	G		G	G	G	G
Engl& 235	Technical Writing	S	G	G	G				G 102 <sup>2</sup>	G 103 <sup>3</sup>
BUS& 201	Business Law					G				
ACCNT 210 and 220	Financial Accounting					G				
Hum and Soc Sci <sup>1</sup>		R	A - see back	A - see back	A - see back	A-see back	A- see back	A - see back	A - see back	A - see back

**TCC Key:** There are two relevant Associate's degrees. The AS-Mechanical/Civil/Aero/Ind/MSE - MRP degree and the AS-T2. More info on back.

**R** = Required for the Associate of Science degree. The AS-T2 also requires completion of a minimum of 32 additional advisor-approved college level credits.

**S** = Specialization Course - Minimum of 4 courses for AS-MRP.

**University Key:** √ = Required for admission or certification to the department. For UW, √-app class must be completed by April 5. √-enr by Fall start at UW

**G** = Graduation requirement for the Bachelor of Science at the university. These are freshman/sophomore level courses so take now, if possible.

**A** = Meets an additional requirement. The university requires the selection of additional classes from specific lists for the BS.

**P** = Provides preparation for junior level university coursework and/or for the FE/EIT exam - the first step to being licensed.

**Additional notes** <sup>1</sup> Engr 104 is a Social Science. Engr 114 may count as either Specialization course or as a Humanities, but not both. The AS degree requires 15 credits of Humanities and Social Science. At least 5 credits must be a Humanities and 5 credits must be a Social Science. One class must meet the multicultural requirement. See approved lists. Universities may have specific course Humanities/Social Science course requirements.

<sup>2</sup> SMU requires English 102 instead of English 235. English 102 may be substituted for 235 in the AS degree.

<sup>3</sup> GU requires English 103 instead of English 235. English 103 may be substituted for 235 in the AS degree.

<sup>4</sup> Engr 104 will be waived by WSU if student transfers with 60+ credits. WSU Bremerton and Everett students must take all √ classes, Engr 204 and either Engr 240 or CS 142 (240 preferred) before transfer, or it will significantly delay graduation.

# Civil, Environmental and Construction Engineering Advising

## Tacoma Community College

Students should generally be working toward one of three associate's degrees: 1) the Associate of Science - Major Related Program for Mechanical/Civil (AS-MRP), 2) the Associate of Science- Track 2 (AS-T2), and/or 3) the Associate of Arts DTA (AA-DTA). It is important to understand the distinctions. The AS-MRP was developed on the state level to most closely mirror the coursework that a student would be taking at a university engineering program. It requires 108 credits, rather than 90, which can be helpful with financial aid. In general, most Civil and Environmental students should be working toward the AS-MRP. The AS-T2 was also developed on the state level for a broader group of science/engineering fields. Students can make more self-advising errors using this model and should not use this as a degree goal; however, if ready to transfer and are a few classes short of the AS-MRP degree, might still be eligible for the AS-T2 (speak with an engineering advisor). The AA-DTA degree is intended for students to complete their general education requirements and is usually a poor fit for engineering students since it does not allow them to take all of the required prerequisites. Some universities give specific benefits for one or more of these degrees. Although we advise transferring without a degree in some instances, transferring courses back to complete the degree is requested. TCC funding is tied to associate's degree completion, so you help future students by finishing your degree. You may earn more than one degree from TCC, but must have an additional 30 credits for each degree. TCC strongly encourages economics courses for engineering students.

## University of Washington - Seattle

You must apply to both the university and the major separately. The Civil and Environmental Engineering department only admits students in fall quarter. The transfer student application deadline for the University of Washington (fall quarter start) is February 15. The application deadline for the department is April 5. Some classes must be completed before applying (V-app) and some must be completed before starting in the fall (V-enr). Students in the Civil Engineering program may substitute CS 142 for Engr 240, but Engr 240 is preferred. Environmental engineering students must take Engr 240. UW's BSCE and BSEnV both require economics. For BSCE, this can be met by either ECON& 201 (Micro) or ECON& 202 (Macro). For BSEnV, this can be met by ECON& 201 (Micro). University of Washington requires core requirements from high school. This applies even if high school was years ago! High school is considered to start in 9th grade and the core requirements are 4 years of English, 3 years of math, 3 years of social science, 2 years of foreign language, 2 years of lab science, and 0.5 years of art. If you did not complete these in high school, the requirements can be met through TCC courses. In general, 1 year of high school class = 5 credits of college work. See the University of Washington website for more details.

## Washington State University - Pullman

WSU's BSCE program provides several tracks to allow specialization: Environmental, Infrastructure, Structural, and Water Resource. Students planning to specialize in environmental engineering are encouraged to take BIOL&100 and to complete the full year of general chemistry (CHEM& 161/162/163). Students planning to specialize in structural, geotechnical or infrastructure engineering are encouraged to take a geology course. WSU also has a Construction Engineering program; this is a new program for which we will seek ABET accreditation as soon as we have our first graduate from the program (anticipated in 2020). This program requires several construction management courses that are not available at community colleges. Both the BSCE and BSConE require a construction graphics course utilizing AutoCAD and Civil 3D. Any CAD course can be substituted for this requirement with the caveat that students are responsible for learning AutoCAD and Civil 3D as needed for other classes. WSU gives advantages to completing an Associate's degree. The AS-MRP is generally the best fit for CivE, while the AS-T track 2 is the generally the best fit for ConE (though it requires completion of Phys& 223). Individual departments have specific requirements, so while a social science may transfer, if you don't choose carefully, you may also have to take another class to meet the requirement. Choose the following courses for WSU's BSCE or BSConE: HIST& 128 (World Civ 3) and either ECON& 201 (Micro) or ECON& 202 (Macro). WSU requires a writing portfolio so save three samples of graded written work from TCC. Download forms from the WSU website and ask your instructors to sign them. Do it as you are taking classes rather than having to go back and ask instructors to evaluate your work again. WSU is on the semester system rather than the quarter system. They require application to the university followed by certification into the program. See university website for important deadlines.

## Washington State University - TriCities

WSU-TriCities is separately ABET accredited. Choose the following courses: HIST& 128 (World Civ 3), CMST& 220, and either ECON& 201 (Micro) or ECON& 202 (Macro). Although TCC's ENGR 240 (Applied Numerical Methods) transfers to other WSU campuses as EE 221, this articulation is still in progress with WSU-TriCities. Talk to a WSU advisor. Take at least one of the following: PHYS& 223, CHEM& 162 or Geology. Biology is required for Civil Engineering. Bio& 100 at TCC is an equivalent class to Biology 102 at WSU, but others may be acceptable. Talk to a WSU advisor.

## Seattle University

Seattle University is a private Catholic (Jesuit) university. Transfer student priority application deadline is March 1 for Fall Quarter and scholarships are available. Students can begin their studies at Seattle U also in winter and spring quarters. Obtaining an AS-T2 degree is beneficial since it may reduce the number of CORE courses required for graduation to as few as 3. At least one course each in humanities, social science, and doing art (or creative writing) is highly recommended to maximize the benefit.

## Saint Martin's University

SMU is a private Catholic (Benedictine) university. SMU recommends completion of the AA-DTA while simultaneously working on the AS-MRP or AS-T2 so that General Education requirements are met as well as department requirements. You may apply courses to both degrees, but will have to take 30 additional credits to complete both. Take ENGL& 102 instead of ENGL& 235. You may substitute 102 for 235 in the AS degree. Many classes require minimum of C for transfer.

## Gonzaga University

Gonzaga is a private Catholic (Jesuit) university. Take ENGL 103; PHIL& 101, 106, 215 or elective; CMST& 101 & MATH 210 while at TCC. One Java (CS 142) class is accepted.

**It is the student's responsibility to check university websites and meet with university advisors to ensure the accuracy of advising information.**