

Industrial & Systems, Manufacturing, Material Science and General Engineering Program Requirements

Revised Jan. 1, 2019

Course #	Description	TCC	UW		WSU	WWU	SPU
		AS-MRP	Seattle		Pullman	Bellingham	Seattle
			ISE	MSE	MSE	MFGE	General
Math& 151, 152, 153	Calculus 1, 2, 3	R	√-app	√-app	√	√	G
Math& 254	Calculus 4	S	√-app	√-app	G	G	G
Math 238	Differential Equations	R	G - see back	√-enr	G	G	G
Math 220	Linear Algebra	R	G - see back	G	A	G	G
Phys& 221	Calc Based Physics 1	R	√-app	√-app	√	√	G
Phys& 222	Calc Based Physics 2	R	√-app	√-app	√	G	G
Phys& 223	Calc Based Physics 3	R	√-enr	G	√	G	G
Chem& 161	General Chem 1	R	√-app	√-app	√	√	G
Chem& 162	General Chem 2	R	√-enr	√-app	√		
Engr& 104	Intro to Design	S or Soc ¹	A	A	G	√	
Engr& 114	SolidWorks/Graphics	S or Hum ¹		A			G
Engr 170	Intro to Material Sci	NA	G	√-enr	G	√	
Engr& 204	Electric Circuits	S	G - see back	A	G		G
Engr& 214	Statics	R	√-app	G	√	√	G
Engr& 215	Dynamics	R	√-enr	A	G		G
Engr& 224	Thermodynamics	S	A	A	G		
Engr& 225	Mech of Materials	R	√-enr	G	G	G	G
Engr 240	Applied Numerical Methods	S		√-enr (or 142)	G (or 142)		G (or 142)
CS 142	Java I	S	G - see back	Engr 240 Pref	Engr 240 Pref	G	G (or 240)
Engl& 101	English Comp 1	R	√-app	√-app	√	G	A
Engl& 235	Technical Writing	S	G	G	G		
Hum and Soc Sci ¹		R	A - see back	A - see back	A - see back	A	A

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. Minimum of 32 college level credits for AS-T2

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:

¹ 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.

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

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

⁴ 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.

Industrial, Systems, Manufacturing and Material Science and General Engineering Program Requirements

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. The Industrial & Systems Engineering and Material Science & Engineering departments only admit students in fall quarter. The transfer student application deadline for the University of Washington (fall quarter start) is February 15. (There may be other deadlines for international students.) The application deadline for the department is April 5. Some classes must be completed before you apply (V-app). Some courses must be completed before you start in the fall (V-enr). Competitive applications for ISE will have completed at least half of the (G-see back) classes. 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. 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 gives advantages to completing the AS-MRP degree. 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: HIST& 128 (World Civ 3) and ECON& 202 (Macro). Chem& 161 and 162 will satisfy the chemistry requirement for MSE only if the full year engineering physics sequence is completed at the community college. WSU requires a writing portfolio. Save samples of graded written work from TCC. Download forms from the WSU website, and ask your instructor 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.

Western Washington University

WWU's Manufacturing Engineering Technology (MET) program has been replaced by a Manufacturing Engineering (MFGE) program. Apply for admission to the program for spring of sophomore year (primary admission) or fall of junior year (secondary admission). Transfer earlier if you cannot complete Engr 170 before transfer. This program does not require Math 153, but that class is required at TCC for all 200 level math classes. The AS-T2 is the most appropriate associate's degree option.

Seattle Pacific University

SPU is a private Christian university. Students may do a BS in General Engineering with no concentration, or chose to earn a BS in General Engineering with a concentration in either: 1) Appropriate and Sustainable Engineering, or 2) Mechanical Engineering. If you have earned, prior to matriculation at SPU, an AS-T2, you will be required to take only two of the three required University Foundations courses, UFDN 3001 Christian Scriptures and UFDN 3100 Christian Theology. At least 15 credits of your transfer coursework in humanities and social sciences will be used to fulfill SPU's humanities and social science requirements, whether or not the courses match SPU requirements on a course by course basis. There are then two years of coursework at SPU. You will be required to complete any remaining general education requirements, demonstrate proficiency in a foreign language, and complete the cultural understanding and engagement requirement prior to graduation.

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