

2019

Skills-to-Course Matrix

Mechatronics

Forest Grove High School
Portland Community College
26-Apr

Engineering Technology Cluster

Instructions: 1) Enter the Program of Study name above. 2) Enter your high school name. 3) Enter the community college name. 4) Enter the date. 5) Click on the cell for Course 1 Name, Course 2 Name, etc., and replace with your POS course names--secondary and first year of post-secondary. 6) Enter school course numbers. 7) Enter NCES code for the course (secondary only). 8) Enter number of credits awarded. 9) Identify those courses that trigger the TSA for this POS. 10) Finally, check those standards that are taught with intent and purpose, and are assessed in each course.
Note: The optional Focus Area tabs below are included for those POSs that have a very specific industry focusare using those skill sets for multiple options in a Progam of Study or if you want to use another set of industry validated standards.

			Mechatronics 1	Mechatronics 2	Mechatronics 3	Mechatronics 4	Mechatronic Design	Adv. Mechatronic Design	Mechatronic Processes	Adv Mechatronic Processes		
			21003	21009	21008	21007	21106	21107	21052	21010		
			21003	21009	21008	21007	21106	21107	21052	21010		
Cluster Knowledge and Skills (CTE standards)			0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits		
CCTC*	Code Number	KS Statement	N	N	N	N	N	N	N	TSA--Y		
	EN01	Use effective communication skills with a variety of audiences.	x	x	x	x	x	x	x	x		
	EN02	Exhibit integrity and professionalism in engineering cluster occupations.	x	x	x	x	x	x	x	x		
	EN03	Use technology such as computers and design software to solve engineering problems.	x	x		x	x	x	x	x		
	EN04	Understand and use applied mathematics and science for engineering cluster careers.	x	x	x	x	x	x	x	x		
	EN05	Develop and implement a career plan within the engineering cluster occupations.			x	x		x	x	x		
	EN06	Use teamwork, critical thinking and problem solving skills to address complex problems in engineering.	x	x	x	x	x	x	x	x		
	EN07	Understand the role of engineering in society throughout history and how it is affected by economics, regulations, politics, and corporate culture.				x						
	EN08	Apply design principles and life-cycle methodology to create products, systems, and processes using appropriate technology.	x	x	x	x	x	x	x	x		
	EN09	Understand the impact personal characteristics, such as creativity, resourcefulness, the ability to visualize and the ability to think abstractly have on engineers and their ability to design.	x	x	x	x	x	x	x	x		
	EN10	Understand and adhere to safety, health, and environmental standards and regulations.	x	x	x	x			x	x		

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Portland Community College

26-Apr

Chemical Engineering Systems Focus Area

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[illegible]

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**Forest Grove High School
Portland Community College
26-Apr**

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[illegible]

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Skills-to-Course Matrix

Mechatronics

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Portland Community College
26-Apr

Electrical Engineering Systems Focus Area

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CCTC*	Code Number	KS Statement	N	N	N	N	N	N	N	TSA--Y		
	ENES01	Understand and apply electrical theory and laws.	x	x	x							
	ENES02	Demonstrate knowledge and application of transistors.		x	x							
	ENES03	Understand and apply circuit concepts and analysis techniques.	x	x	x							
	ENES04	Demonstrate knowledge of circuit design and fabrication.	x	x	x	x						
	ENES05	Understand and apply digital concepts and circuitry.	x	x	x							
	ENES06	Demonstrate knowledge of power sources and power supplies.			x	x						
	ENES07	Demonstrate knowledge of communication systems.	x	x								
	ENES08	Understand and perform skills for system integration and amplification.										
	ENES09	Communicate using symbols, measurements, conventions, icons, and graphic images.	x	x	x	x						

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[CTE Program of Study Name]

[High School Name]

[Community College Name]

[Date]

Manufacturing Engineering Systems Focus Area

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CCTC*	Code Number	KS Statement	N	N	N	N	N	N	N	TSA--Y		
	ENMN01	Use knowledge of material science to solve problems appropriate to manufacturing engineering.				x			x	x		
	ENMN02	Demonstrate knowledge of planning and logistics requirement in manufacturing engineering.							x	x		
	ENMN03	Demonstrate an understanding of quality control.				x			x	x		
	ENMN04	Understand and apply basics of supply chain management.							x	x		
	ENMN05	Understand and apply knowledge of manufacturing processes and practices.				x			x	x		
	ENMN06	Demonstrate basic knowledge of packaging within manufacturing.							x	x		

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4/26/2019

Mechanical Engineering Systems Focus Area

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CCTC*	Code Number	KS Statement	N	N	N	N	N	N	N	TSA--Y		
	ENMS01	Understand and use principles of machine theory.	x	x		x			x	x		
	ENMS02	Demonstrate knowledge of fluid dynamics.										
	ENMS03	Demonstrate knowledge of statics and dynamics in mechanical systems.										
			x	x		x			x	x		
	ENMS04	Use knowledge of material science to solve problems appropriate to manufacturing engineering.				x			x	x		
	ENMS05	Demonstrate knowledge of thermal dynamics.				x			x	x		