Skills-to-Course Matrix

Mechatronics

CCTC* Code Number EN01

EN02

EN03

EN04

EN05

EN06

EN07

EN08

EN09

EN10

regulations.

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-se NCES code for the course (secon Identify those courses that trigger to standards that are taught with interest Note: The optional Focus Area tab specific industry fociusare using the or if you want to use another set or

me, Course 2 Name, etc., and replace with your POS course names nd first year of post-secondary. 6) Enter school course numbers. 7) Enter for the course (secondary only). 8) Enter number of credits awarded. 9) the courses that trigger the TSA for this POS. 10) Finally, check those that are taught with intent and purpose, and are assessed in each course. Itional Focus Area tabs below are included for those POSs that have a very stry fociusare using those skill sets for multiple options in a Progam of Study to use another set of industry validated standards.	Mechatronics 1	Mechatronics 2	Mechatronics 3	Mechatronics A	Mechatronic Design	Adv. Mechatronic Desi	di Mechatronic Processes	Adv Mechatronic Proce	,550 ⁵	
	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						
Number KS Statement	N	N	N	N	N	N	N	TSAY		
Use effective communication skills with a variety of audiences.	х	х	Х	Х	Х	Х	х	х		
Exhibit integrity and professionalism in engineering cluster occupations.	x	x	x	x	x	x	x	x		
Use technology such as computers and design software to solve engineering										
problems.	х	Х		Х	Х	Х	х	х		
Understand and use applied mathematics and science for engineering cluster										
careers.	Х	Х	Х	Х	Х	Х	Х	Х		
Develop and implement a career plan within the engineering cluster occupations.			х	х		х	х	x		
Use teamwork, critical thinking and problem solving skills to address complex problems in engineering.	×	x	x	×	x	×	x	×		
Understand the role of engineering in society throughout history and how it is										
affected by economics, regulations, politics, and corporate culture.				x						
Apply design principles and life-cycle methodology to create products, systems,										
and processes using appropriate technology.	х	х	х	х	х	х	х	х		
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.	Х	Х	Х	Х	Х	Х	Х	Х		
Understand and adhere to safety, health, and environmental standards and										

Skills-to-Course Matrix

Mechatronics

CCTC*

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

Chemical Engineering Systems Focus Area

<u>Instructions</u>: 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 of secondary and first year of post-secondary. 6) Enter school course replace in the secondary and first year of post-secondary. NCES code for the course (secondary only). 8) Enter number of credentify those courses that trigger the TSA for this POS. 10) Finally, that are taught with intent and purpose, and are assessed in each c optional Focus Area tabs below are included for those POSs that ha industry fociusare using those skill sets for multiple options in a Pro want to use another set of industry validated standards.

and first year or e for the course se courses that ight with intent ocus Area tabs l ciusare using th	Name, etc., and replace with your POS course names f post-secondary. 6) Enter school course numbers. 7) Enter (secondary only). 8) Enter number of credits awarded. 9) t trigger the TSA for this POS. 10) Finally, check those standards and purpose, and are assessed in each course. Note: The below are included for those POSs that have a very specific nose skill sets for multiple options in a Progam of Study or if you industry validated standards.	tronics 1	Mechatronics 2	Mechatronics 3	Mechatronics A	Mechatronic Design	Adv. Mechatronic Desir	Mechatronic Processe	Adv Mecharonic Proces	358 ⁵⁵	
		21003	21009	21008	21007	21106	21107	21052	21010		
	,	21003	21009	21008	21007	21106	21107	21052	21010		
Focus Are	ea 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		
Code Number	KS Statement	N	N	N	N	N	N	N	TSAY		
	Understand the laws of thermodynamics and their application in the analysis of chemical engineering problems.										
	Understand and apply knowledge of chemistry in the solving of chemical engineering problems.							x	х		
ENCS03	Understanding of chemical engineering processes.										

Skills-to-Course Matrix

Mechatronics

Forest Grove High School Portland Community College 26-Apr

Code Number

ENCV01

ENCV02 ENCV03

ENCV04

ENCV05

ENCV06

ENCV07

CCTC*

Civil &Infrastrucure Engineering Systems Focus Area

<u>Instructions</u>: 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 fociusare using those skill sets for multiple options in a Progam of Study or if you want to use another set of industry validated standards.

Focus Area Knowledge and Skills (CTE standards)

Understand and apply the principles of surveying in civil engineering.

ur ed na s <i>H</i> th	ith your POS course namessecondary and first year of post-secondary. mbers. 7) Enter NCES code for the course (secondary only). 8) Enter d. 9) Identify those courses that trigger the TSA for this POS. 10) Finally, at are taught with intent and purpose, and are assessed in each course. Area tabs below are included for those POSs that have a very specific lose skill sets for multiple options in a Progam of Study or if you want to y validated standards.	Mechatronics 1	Mechatronics 2	Mechatronics 3	Mechatronics A	Mechatronic Design	Adv. Mechatronic Desir	yr Mechatronic Processe	Adv Mechatronic Proces	35 ⁸		
	,	21003	21009	21008	21007	21106	21107	21052	21010			
	Ţ	21003	21009	21008	21007	21106	21107	21052	21010			
us	s Area Knowledge and Skills (CTE standards)	0.5 Credits	0.5 Credits	0.5 Credits	0.5 Credits							
er	KS Statement	N	N	N	N	N	N	N	TSAY			
	Understand and use material science to solve problems appropriate to civil engineering.											
	Demonstrate knowledge of fluid dynamics.											
	Demonstrate knowledge of structural dynamics.											
	Understand and apply basic principles of environment quality.											
	Understand and apply knowledge of soil structure and mechanics to solve problems in											
	civil engineering. Understand and use local, regional, national and global spatial data infrastructures.											
			+						+	 	+	

Skills-to-Course Matrix

Mechatronics

CCTC*

Forest Grove High School Portland Community College 26-Apr

Code Number

ENES01

ENES02

ENES03

ENES04

ENES05

ENES06

ENES07

ENES08

ENES09

graphic images.

Electrical Engineering Systems Focus Area

<u>Instructions</u>: 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 star 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 specif industry fociusare using those skill sets for multiple options in a Progam of Study or want to use another set of industry validated standards.

Focus Area Knowledge and Skills (CTE standards)

nat trigger the TSA for this POS. 10) Finally, check those standards of and purpose, and are assessed in each course. Note: The s below are included for those POSs that have a very specific those skill sets for multiple options in a Progam of Study or if you of industry validated standards.	Mechatronics	Mechatronics 2	Mechatonics	Mechatronics A	Mechatronic Design	Adv. Mechatronic De	Mechatronic Process	Adv Mechatronic Pre	
	21003	21009	21008	21007	21106	21107	21052	21010	
	21003	21009	21008	21007	21106	21107	21052	21010	
rea 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	
er KS Statement	N	N	N	N	N	N	N	TSAY	
Understand and apply electrical theory and laws.	х	х	х						
Demonstrate knowledge and application of transistors.		х	х						
Understand and apply circuit concepts and analysis techniques.	х	х	х						
Demonstrate knowledge of circuit design and fabrication.	х	х	х	х					
Understand and apply digital concepts and circuitry.	х	х	х						
Demonstrate knowledge of power sources and power supplies.			х	х					
Demonstrate knowledge of communication systems.	х	х							
Understand and perform skills for system integration and amplification.									
Communicate using symbols, measurements, conventions, icons, and									

Skills-to-Course Matrix

[CTE Program of Study Name]

[High School Name] [Community College Name] [Date]

CCTC* Code Number

ENMN02

ENMN03

ENMN05

ENMN06

Manufacturing Engineering Systems Focus Area

<u>Instructions</u>: 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 number NCES code for the course (secondary only). 8) Enter number of credits a Identify those courses that trigger the TSA for this POS. 10) Finally, check standards that are taught with intent and purpose, and are assessed in e Note: The optional Focus Area tabs below are included for those POSs specific industry fociusare using those skill sets for multiple options in a or if you want to use another set of industry validated standards.

Demonstrate basic knowledge of packaging within manufacturing.

and first year e for the courses the courses the that are taugh optional Focus	of post-secondary. 6) Enter school course numbers. 7) Enter se (secondary only). 8) Enter number of credits awarded. 9) at trigger the TSA for this POS. 10) Finally, check those twith intent and purpose, and are assessed in each course. Area tabs below are included for those POSs that have a very re using those skill sets for multiple options in a Progam of Study other set of industry validated standards.	Mechanonics 1	Mechatronics 2	Mechanonics 3	Mechatronics A	Mechatronic Design	Adv. Mechatronic Design	Mechatronic Processes	Adv Mechatronic Proces	₉ 8 ⁵	
		21003	21009	21008	21007	21106	21107	21052	21010		
		21003	21009	21008	21007	21106	21107	21052	21010		
Focus A	ea 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		
Code Number	KS Statement	N	N	N	N	N	N	N	TSAY		
	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		
	Demonstrate an understanding of quality control.				х			х	Х		
ENMN04	Understand and apply basics of supply chain management.							х	Х		
ENMN05	Understand and apply knowledge of manufacturing processes and practices.				x			x	x		

Skills-to-Course Matrix

Mechatronics

Forest Grove High School Portland Community College 4/26/2019

Mechanical Engineering Systems Focus Area

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 Cours NCES Identif standa specif or if ye

condary CES coo entify the indards te: The ecific in	Name, Course and first year de for the cours ose courses th that are taugh optional Focus dustry fociusal	e 2 Name, etc., and replace with your POS course names of post-secondary. 6) Enter school course numbers. 7) Enter se (secondary only). 8) Enter number of credits awarded. 9) nat trigger the TSA for this POS. 10) Finally, check those nt with intent and purpose, and are assessed in each course. s Area tabs below are included for those POSs that have a very re using those skill sets for multiple options in a Progam of Study other set of industry validated standards.	Mechatronics 1	Mechatronics 2	Mechatronics 3	Mechatronics	Mechatronic Design	Adv. Mechatronic Desi	gh Mechatronic Processe	Adv Mechatronic Proc	,558 ⁵	
			21003	21009	21008	21007	21106	21107	21052	21010		
			21003	21009	21008	21007	21106	21107	21052	21010		
	Focus Ar	rea 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		7
ССТС*	Code Number	KS Statement	N	N	N	N	N	N	N	TSAY		7
	ENMS01	Understand and use principles of machine theory.	х	х		х			х	х		
	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.				х			х	x		
	ENMS05	Demonstrate knowledge of thermal dynamics.				x			x	х		_]