Skills-to-Course Matrix

Engineering and Design

Mountainside High School Portland Community College Sep-19

CCTC* Code Number

EN01 EN02

EN04

EN05

EN06

EN07

EN09

EN10

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 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.

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ou want to use another set of industry validated standards.		€,	· · · · · · · · · · · · · · · · · · ·	· ·			₹º		€,	€		, ,
	A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902
	21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206
Cluster Knowledge and Skills (CTE standards)	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
e Number KS Statement	N	Υ	Υ	Υ	N	N	N	N	N	N	N	N
Use effective communication skills with a variety of audiences.	Х	Х	Х	X			Х	Х	Х	Х	Х	X
Exhibit integrity and professionalism in engineering cluster occupations.	Х	X	X	X	Х	X	Х	Х	X	X	X	Х
Use technology such as computers and design software to solve engineering												
problems.	X	Х	X	X	X	X	X	X	X	Х	X	X
Understand and use applied mathematics and science for engineering cluster												
careers.	X	X	X	X					X	Х	X	Х
Develop and implement a career plan within the engineering cluster occupations.									x	X	Х	Х
Use teamwork, critical thinking and problem solving skills to address complex												
problems in engineering.	X	Х	X	X			X	X	X	Х	Х	X
Understand the role of engineering in society throughout history and how it is affected by economics, regulations, politics, and corporate culture.			.,									
			X	X					X	X	X	X
Apply design principles and life-cycle methodology to create products, systems, and processes using appropriate technology.	х	x	х	х					х	x	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	X	X					Х	X	Х	X
Understand and adhere to safety, health, and environmental standards and												
regulations.	X	X	X	X	X	X	X	X	X	Х	X	X

Skills-to-Course Matrix

[CTE Program of Study Name]

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

Code Number

ENCS01

ENCS02

ENCS03

CCTC*

Chemical 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 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)

analysis of chemical engineering problems.

Understanding of chemical engineering processes.

engineering problems.

KS Statement

Understand the laws of thermodynamics and their application in the

Understand and apply knowledge of chemistry in the solving of chemical

e that <u>nt</u> ow	Introduction to Engine	ering and Design	or Engineering and Desic	gn 2 Engineering and Desir	cath ¹	CAD2	Robotics	Robotics 2	Engineering and Design	n3 Engineering and Desi		In Tech	, Tech
	A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902	
	21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206	
	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
	N	Υ	Υ	Υ	N	N	N	N	N	N	N	N	
		Х	X	Х					Х	Х	Х	Х	
al			Х	х									

Skills-to-Course Matrix

[CTE Program of Study Name]

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

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 postsecondary. 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 very specific industry fociusare using those skill sets for multiple options in a Progam of Study or 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.

its st o ciu	awarded. 9) Identify those courses that trigger the TSA for this POS. and are <u>taught with intent and purpose</u> , and are <u>assessed</u> in ptional Focus Area tabs below are included for those POSs that have a scare using those skill sets for multiple options in a Progam of Study or if et of industry validated standards.	Introduction to Engin	Engineering and Deest	Engineering and Dest	Engineering and Desti	ca ^O	CAD ²	Robotics	Robotics 2	Engineering and Deer	Engineering and Des	ig Desir	an Tech
		A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902
		21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206
us	Area Knowledge and Skills (CTE standards)	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
er	KS Statement	N	Y	Y	Υ	N	N	N	N	N	N	N	N
	Understand and use material science to solve problems appropriate to civil engineering.		х	х	х								
	Demonstrate knowledge of fluid dynamics.			Х	Х								
	Demonstrate knowledge of structural dynamics.		X	X	X					X	X	Х	X
	Understand and apply basic principles of environment quality.			X	X					X	X	Х	X
	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

Skills-to-Course Matrix												
[CTE Program of Study Name] [High School Name]												
[Community College Name]												
[Date]												
Electrical 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 Course 1 Name, Course 2 Name, etc., and replace with your POS course namessecondary 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		eering and Desi	jon and Desi	igh ²	ign ²				and Desi	John 3 and Dee	idi ₃	e e e
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.	Introduction	Endineering	Endineering	Endineering	CAD"	CAO2	Robotics	Robotics 2	Endineering	Endineering	(B Desi	igh Te Design T
	A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902
	21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206
Focus Area Knowledge and Skills (CTE standards)	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
CCTC* Code Number KS Statement	N	Y	Y	Υ	N	N	N	N	N	N	N	N
ENESO1 Understand and apply electrical theory and laws.		X	X	X					X	X	Х	X
ENES02 Demonstrate knowledge and application of transistors.			X	X								
ENESO3 Understand and apply circuit concepts and analysis techniques.		X	X	X					X	X	Х	Х
ENES04 Demonstrate knowledge of circuit design and fabrication.		X	X	Х					X	X	Х	Х
ENES05 Understand and apply digital concepts and circuitry.		X	X	Х					X	X	X	X
ENES06 Demonstrate knowledge of power sources and power supplies.					X	X						
ENES07 Demonstrate knowledge of communication systems.												
ENES08 Understand and perform skills for system integration and amplification.												
ENES09 Communicate using symbols, measurements, conventions, icons, and graphic												

Skills-to-Course Matrix

[CTE Program of Study Name]

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

Code Number

ENMN01

ENMN02

ENMN03

ENMN04

ENMN05

ENMN06

CCTC*

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 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)

Demonstrate basic knowledge of packaging within manufacturing.

rse 2 Near of pourse (so that triging the	antity college name. 4) Enter the date. 5) Click on the cell for ame, etc., and replace with your POS course names-cost-secondary. 6) Enter school course numbers. 7) Enter secondary only). 8) Enter number of credits awarded. 9) agger the TSA for this POS. 10) Finally, check those in intent and purpose, and are assessed in each course. The each sea tabs below are included for those POSs that have a very ing those skill sets for multiple options in a Progam of Study	roduction to Engir	heering and Designating and Designation	an dineering and Desir	Jn ²	jon ²	.o²	odic ^s	potics 2	dineeting and Desi	gn ³	Joe ^{si}	yn Tech Design	Tech
nother	set of industry validated standards.	Inti	Ens	Ens	Eus,	Chr	Chr	₹0.	₹0,	Ens	Ens	₩.	₩.	
		A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902	
		21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206	
<u>Area</u> l	Knowledge and Skills (CTE standards)	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
er	KS Statement	N	Υ	Υ	Υ	N	N	N	N	N	N	N	N	
	knowledge of material science to solve problems appropriate to ufacturing engineering.									Х	х	Х	х	
	onstrate knowledge of planning and logistics requirement in manufacturing neering.			Х	х					х	х	х	x	
	onstrate an understanding of quality control.			Х	Х	Х	Х	Х	X	Х	Х	Х	Χ	
Unde	erstand and apply basics of supply chain management.													
Unde	erstand and apply knowledge of manufacturing processes and practices.													
Dem	onstrate basic knowledge of packaging within manufacturing.													

Skills-to-Course Matrix

[CTE Program of Study Name]

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

Code Number

ENMS01 ENMS02

ENMS03

ENMS04

ENMS05

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 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 standard 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 use principles of machine theory.

Demonstrate knowledge of thermal dynamics.

Demonstrate knowledge of fluid dynamics.

manufacturing engineering.

KS Statement

Demonstrate knowledge of statics and dynamics in mechanical systems.

Use knowledge of material science to solve problems appropriate to

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you	Introduction to Engine	ering and Designation and Designation of the Engineering and Designation of the Engine	Engineering and	gn'i Engineering and Desi	CAD'	CAD2	Robotics	Robotics 2	Engineering and Desi	Engineering and	IB Desi	n Tech
	A554Q	A560X	A5611	A5612	A521X	A522X	A562X	A563X	A5671	A5672	C8901	C8902
	21006	21006	21006	21006	21107	21107	21009	21009	21006	21006	3206	3206
	0.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	N	Υ	Y	Y	N	N	N	N	N	N	N	N
		Х	Х	Х					Х	Х	Х	Х
S.		Х	Х	х					Х	х	Х	Х
			T x	X								