

## Computer Aided Drafting Certificate

Program Student Learning Outcomes		Analyze problems, isolate and describe the important components of a problem: what is given (design specifications, performance requirements and testing standards). Identify variables- known and unknown.	Represent problems in a visual form, such as a schematic, flow chart, diagram, data table, or model.	Validate strong fundamentals in the aptitude to formulate and solve problems by applying principles of mathematics, science and technology.	Prove the capacity to conduct an experiment, use laboratory materials, properly and safely, note observations accurately, precisely and describe procedures.	Effectively use software simulation and information acquisition tools to collect, analyze and interpret data. Develop proficiency in the use and application of new tools and methods from the field of math, science and technology.	Demonstrate the ability to be an independent and equal contributor on a team-based project. Be able to articulate the overall team project goals and roles of the members.
Course Abbreviation	Course Level Learning Competencies 						
<b>EST104</b>	Use MATLAB to program solutions to technical problems and projects.	I	I	I	I	I	
	Use EXCEL spreadsheets to analyze and present data.		I	I	I	I/R	
	Work cooperatively in teams.				I	I	I
	Design solutions to technical problems.	I		I/R			
	Communicate effectively in oral, written, and multimedia formats.		I				I
	Demonstrate a basic knowledge of major concepts related to science and technology, including current theories, historical and data trends, and empirical findings.	I	I	I			
	Demonstrate an ability to critically read, evaluate and interpret research findings and/or theories and draw reasonable conclusions. This may include supporting or rejecting a hypothesis or theory, analyzing case studies, and/or providing alternative explanations.	I		I			
	Demonstrate an ability to transfer, adapt, and apply prior knowledge to science and technology related issues and develop new understandings.			I			
Demonstrate an ability to identify reliable sources of information from a variety of resources, including libraries, websites, journals, magazines, newspapers, etc.		I					
<b>EST110</b>	Utilize sketching as a design tool	I	I	I	I		I
	Demonstrate an understanding of layout concepts for 2-d plans	I	I	I	I		I
	Implement proper drafting techniques to create orthographic projections	I	I	I			I
	Discuss the uses of AutoCAD in the field of Design, Manufacturing, and Engineering	I	I	I	I	I	I
	Create simple 2-d AutoCAD drawings that reflect a real world applications	I	I	I	I	I	I
<b>EST111</b>	Utilize commands and formats for using SolidWorks as a design tool.	I	I	I		I	I
	Create 3 dimensional part models, assemblies and drawings.	R	R	R		R	
	Discuss the uses of SolidWorks in the fields of design, manufacturing and engineering.	R	R	R			
	Complete a project which reflects a real-world application.	R	R	R		R	
	Successfully work within teams to create drawings.	R	R	R		R	R
<b>EST112</b>	Demonstrate an understanding for 3D solid modeling	M	M	M			
	Demonstrate an understanding of layout concepts for 3D plans	M	M	M			
	Discuss the uses of SolidWorks in the field of Design, Manufacturing, and Engineering	M	M	M			
	Create complex 3D Solidworks designs and drawings that reflect a real world applications	M	M	M			
	Complete a project which reflects a real-world application.	M	M	M			
	Successfully work within teams to create drawings.	M	M	M		M	M

	Create basic designs and 3D printed prototypes given specifications and potential customer wants and needs.	M	M	M	M	M	M
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