

**NORCO COLLEGE  
SLO to PLO MATRIX**

**PLOs**

PLO 1: ability to apply and integrate computer technology in the design process, exhibiting skills necessary for entry-level employment, as a designer in the drafting industry.

PLO 2: Knowledge of engineering drawing skills and practice in the solution of industry related design projects.

<b>CERTIFICATE/PROGRAM:</b> Drafting Technology							
<b>COURSE:</b> ENE-21							
SLO 1	Apply the basic principles of mechanical drawing to the solution of various drawing problems.		X				
SLO 2	Set up drawing parameters appropriate to various design problems.						
SLO 3	Perform necessary geometric constructions to solve the shape description of typical drawing problems.		X				
SLO 4	Represent three-dimensional drawing problems through two-dimensional graphic communication.		X				
SLO 5	Analyze and solve design problems using the principles of orthographic projection.		X				
SLO 6	Visualize three-dimensional drawing problems and various types of two-dimensional cross-sections.		X				
SLO 7	Demonstrate the technique of part dimensioning (shape description).		X				
SLO 8	Two-dimensionally represent three-dimensional industrial parts in isometric pictorials.		X				
SLO 9	Analyze industrial part drawings to determine if auxiliary views are necessary for graphic communication.		X				
SLO 10	Prepare complete industrial part drawings required for the manufacturing process.		X				
SLO 11	Recognize the symbols of Geometric Dimensioning and Tolerancing.		X				
<b>COURSE:</b> ENE-22							
SLO 1	Demonstrate the technique of machine drawing as it serves the process of communication between the designer and manufacturer.		X				
SLO 2	Apply principles of mechanical drawing to the solution of various drawing problems.		X				
SLO 3	Demonstrate the sufficient skills necessary in making working drawings to enable him/her to begin a career in drafting.						

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SLO 4	Analyze and <b>correct</b> drawing problems based upon the synthesis of information presented in lecture, from their reading, and from technical reference material.			X				
<b>COURSE: ENE-28</b>								
SLO 1	Graphically demonstrate an understanding of the concepts of mechanical design.			X				
SLO 2	Develop specifications and documentation necessary to present finalized product presentations for a portfolio.			X				
SLO 3	Demonstrate the mechanical design skills necessary to enter the job market as a junior or senior drafter.							
SLO 4	Describe the concepts of the mechanical design process and identify how those concepts relate to the various stages of manufacturing.							
SLO 5	Produce prototypes using a prototyping machine to check engineering design							
SLO 6	Determine what production method will used.							
SLO 7	Determine methods of assembly.			X				
SLO 8	Use gears, cams, belts, chains and shafts to transmit power.			X				
SLO 9	Calculate position tolerance using Geometric Dimension and tolerance.			X				
<b>COURSE: ENE-30</b>								
SLO 1	Demonstrate the technique of mechanical and architectural drawing using computer assistance.			X				
SLO 2	Set up drawing parameters in order to create, store and retrieve drawings.			X				
SLO 3	Synthesize information and apply critical thinking skills to solve instructional problems typical of industry.				X			
SLO 4	Apply the principles of two-dimensional CAD in the solution of various design problems.				X			
SLO 5	Demonstrate CAD skills and work habits that will lead to transfer and future							

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	employment.						
<b>COURSE:</b>	<b>ENE-31</b>						
SLO 1	Use all menus and options of the CAD system needed to complete architectural and mechanical drawings that are typically found in industry.	X					
SLO 2	Create flexible and comprehensive templates that are used in industry specific disciplines.	X					
SLO 3	Analyze, draw, and plot CAD drawing to an indicated scale using paper space on different sheet sizes.	X					
SLO 4	Create, store, and retrieve library symbols that contain special attributes for use in multiple drawings.	X					
SLO 5	Use the CAD system's vector based graphics to solve complex design problems most commonly found in industry.		X				
<b>COURSE:</b>	<b>ENE-51</b>						
SLO 1	Develop basic blueprint reading ability along with a better understanding of prints, specifications, etc., used to in the general field of all industry.		X				
SLO 2	Establish a systematic approach to recognizing the essential information given on a blueprint.		X				
SLO 3	Create in the individual a confidence in the ability to approach and analyze even a complex print.		X				
<b>COURSE:</b>	<b>ENE-52</b>						
SLO 1	Read and interpret the ANSI Y14.5M standard for Geometric Dimensioning and Tolerancing (GDT)		X				
SLO 2	Read blueprints using GDT standards		X				

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SLO 3	Locate, identify and correct errors in GDT on standard blueprints		X				
<b>COURSE:</b>	<b>ENE-60</b>						
SLO 1	Solve arithmetic problems dealing with addition, subtraction, multiplication and division that are typical to the industrial setting.		X				
SLO 2	Solve formulas by using unknowns and apply this knowledge to solve problems encountered in technological areas and various fields of engineering.		X				
SLO 3	Solve problems by use of a scientific calculator.		X				
<b>COURSE:</b>	<b>ARE-24</b>						
SLO 1	Execute and complete a set of residential working drawings.		X				
SLO 2	Read a set of residential architectural plans.		X				
SLO 3	Identify all commonly used symbols on architectural plans.		X				
SLO 4	Analyze various design considerations when developing a planning checklist.		X				
<b>COURSE:</b>	<b>ENE-23</b>						
SLO 1	The student will be able to properly relate and analyze points, lines and planes as they interpret three dimensional problems orthographically (two-dimensionally).		X				
SLO 2	The student will develop the ability to graphically describe constituent surface boundary lines and surface planes.		X				
SLO 3	The student will be able to graphically describe, analyze and design three-dimensional problems using spatial visualization.		X				
<b>COURSE:</b>	<b>ENE-26</b>						

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SLO 1	Students will demonstrate the techniques of topographic and contour drafting as it serves the process of communication between the civil engineer and earthwork and roadway contractors.		X				
SLO 2	Set up drawing parameters appropriate to various design problems.						
SLO 3	Demonstrate/apply the principles and technique of civil engineering drawing in the solution of various design problems typical of industry.		X				
SLO 4	Demonstrate civil drafting skills and work habits that will lead to transfer and future employment.						
<b>COURSE: ELE/ENE-27</b>							
SLO 1	Define technical communications						
SLO 2	Recognize and identify characteristics of technical communications						
SLO 3	Identify the needs of a given audience						
SLO 4	Collect and organize information						
SLO 5	Create technical documents in accordance with conventional formats						
SLO 6	Write descriptive and operational instructions for nontechnical users of technical information						
SLO 7	Write descriptive and operational instructions for nontechnical users of technical information						
SLO 8	Properly integrate graphs, tables, and references into technical reports						
SLO 9	Conduct an informational interview						
SLO 10	Assemble a personal data book; and						
SLO 11	Compose a personal resume with cover letter						
<b>COURSE: ENE-42</b>							
SLO 1	Use all menus and options of the CAD system needed to build basic and	X					

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	advanced solid models.						
SLO 2	Apply materials such as metals and plastics to solid models then load each model and analyze the resulting deformations and stresses.	X					
SLO 3	Build solid model assemblies and animate all moving parts with special attention to collision detection.	X					
SLO 4	Analyze and solve three-dimensional parametric solid modeling problems typically found in most solid models.	X					
<b>COURSE:</b>	<b>WEL-34</b>						
SLO 1	Identify selected welding and manufacturing processes which routinely interface with robotics and automated systems.						
SLO 2	Demonstrate proficiency in operational set-ups and procedures of selected welding and joining power supplies.						
SLO 3	Identify from sample coupons, various metals and composite materials commonly used in high-tech joining processes.						
SLO 4	Recognize defects and discontinuities on weldments, using non-destructive inspection processes.						