

**NORCO COLLEGE  
SLO to PLO MATRIX**

**CIVIL ENGINEERING TECHNICIAN**

State Approved Degree Program 27 Units

This program generally prepares individuals to apply basic engineering principles and technical skills in support of engineers engaged in a wide variety of projects. This includes instruction in various engineering support functions for research, production, and operation, and application to specific engineering specialties. This discipline focuses on Engineering Technology, Mechanical Engineering and Civil Engineering (Engineering Technicians).

**PLOs**

<b>PLO 1:</b> An ability to apply and integrate computer technology, such as Computer-Aided Drafting (CAD) and total station, in the field of civil engineering to qualify for entry-level position as a land surveyor and/or CAD technician.						
<b>PLO 2:</b> An ability to apply the problem solving process to create and present design solutions.						
<b>PLO 3:</b>						
<b>PLO 4:</b>						
<b>PLO 5:</b>						
<b>PLO 6:</b>						
<b>PLO 7:</b>						

<b>CERTIFICATE/PROGRAM:</b> CIVIL ENGINEERING TECHNICIAN	
<b>COURSE:</b> Engineering 1A	
SLO 1	Demonstrate the proper care and adjustment of surveying equipment instruments.
SLO 2	Analyze and solve surveying problems from field notes.
SLO 3	Effectively execute various types of field surveys using instruments such as measuring tapes, automatic levels, theodolites, and electronic distance measurement equipment.
SLO 4	Apply fundamental concepts to adjust data and develop a preliminary route plan.
SLO 5	Identify sources of error and use appropriate methods to control error.
SLO 6	
<b>COURSE:</b> Engineering 1B	
SLO 1	Proper care, field set-up, and adjustment of surveying instruments such as measuring tapes, automatic levels, theodolites, and electronic distance measurement equipment.
SLO 2	Analyze, interpret, and solve surveying problems from field notes.
SLO 3	Traverse the various types of field surveys using the proper instruments, interpret the data, and make accurate field notes.
SLO 4	Communicate with a licensed surveyor in a professional manner.
SLO 5	
SLO 6	

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<b>COURSE:</b> Engineering 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.	X					
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).						
SLO 8	Two-dimensionally represent three-dimensional industrial parts in isometric pictorials.						
SLO 9	Analyze industrial part drawings to determine if auxiliary views are necessary for graphic communication.						
SLO 10	Prepare complete industrial part drawings required for the manufacturing process.	X					
SLO 11	Recognize the symbols of Geometric Dimensioning and Tolerancing.						



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**PLOs**

**COURSE:** Mathematics 35

SLO 1	Apply the basic operations of algebra on the set of real and complex numbers, polynomials, rational and radical expressions at an intermediate algebra level.
SLO 2	Solve linear, rational, quadratic, exponential, radical, logarithmic, absolute value equations, and systems of equations.
SLO 3	Solve inequalities in one or two variables.
SLO 4	Graph equations of lines and linear inequalities; graph basic functions; identify conic sections.
SLO 5	Recognize and determine the distinctions between functions and relations; apply basic operations on functions and find inverse functions.
SLO 6	Calculate terms of sequences. Calculate sums of series.

**COURSE:** Mathematics 36

SLO 1	Identify special triangles and their related angle and side measures.
SLO 2	Evaluate the trigonometric function of an angle in degree and radian measure.
SLO 3	Manipulate and simplify a trigonometric expression.
SLO 4	Solve trigonometric equations, triangles, and applications.
SLO 5	Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs.
SLO 6	Prove trigonometric identities.
SLO 7	Identify special triangles and their related angle and side measures.
SLO 8	Evaluate the trigonometric function of an angle in degree and radian measure.
SLO 9	Manipulate and simplify a trigonometric expression.
SLO 10	Solve trigonometric equations, triangles, and applications.
SLO 11	Graph the basic trigonometric functions and apply changes in period, phase and amplitude to generate new graphs.
SLO 12	Prove trigonometric identities.

**PLO 1:**

**PLO 2:**

**PLO 3:**

**PLO 4:**

**PLO 5:**

**PLO 6:**

**PLO 7:**

	X					
	X					
	X					
	X					
	X					