

Course SLOs aligned with Program SLOs

San Mateo CCCD

CAN Institutional SLOs

Select, evaluate, and use information to investigate a point of view, support a conclusion, or engage in problem solving.

CAN Dept - Engineering

CAN ENGR 100 - Introduction to Engineering

Course Outcomes:

- * Calculations - Formulate and perform elementary engineering calculations to aid the selection of the best design for a simple device. (Created By CAN Dept - Engineering)
- * Data - Perform experiments analyze and interpret data, and prepare a report summarizing the results of the experiments. (Created By CAN Dept - Engineering)
- * Disciplines - Recommend the types of projects and responsibilities that are the most appropriate for various engineering disciplines. (Created By CAN Dept - Engineering)
- * Drawings - Read and write elementary engineering drawings, instructions, and reports. (Created By CAN Dept - Engineering)
- * Ethics - Explain and analyze ethical issues in engineering (Created By CAN Dept - Engineering)
- * License - Illustrate the processes required to become an engineer and maintain a license. (Created By CAN Dept - Engineering)
- * Role - Evaluate the role of engineers in various societies around the world and throughout history. (Created By CAN Dept - Engineering)

CAN ENGR 210 - Engineering Graphics

Course Outcomes:

- * CAD - Demonstrate the use of CAD programs, including solid modeling (Created By CAN Dept - Engineering)
- * Design - Apply the engineering design process to develop original solutions to engineering problems. (Created By CAN Dept - Engineering)
- * Drawings - Read engineering drawings. (Created By CAN Dept - Engineering)
- * Freehand - Make freehand drawings, and demonstrate the use of drawing instruments. (Created By CAN Dept - Engineering)
- * ProjectionTypes - Distinguish between various types of projections used in engineering drawings. (Created By CAN Dept - Engineering)
- * Symbols - Adhere to the standard conventions for terminology, symbols, and styles used in engineering graphics. (Created By CAN Dept - Engineering)

CAN ENGR 230 - Engineering Statics

Course Outcomes:

- * centroids - Calculate centroids and moments of inertia for composite bodies. (Created By CAN Dept - Engineering)
- * Friction - Solve problems that include friction. (Created By CAN Dept - Engineering)
- * Internal - Solve for internal forces in members and construct shear and bending moment diagrams for beams. (Created By CAN Dept - Engineering)
- * Reduce force - Reduce systems of forces to one force or one force and one couple. (Created By CAN Dept - Engineering)
- * Rigid - Solve for unknown forces for rigid bodies in two-dimensional and three-dimensional equilibrium. (Created By CAN Dept - Engineering)
- * stability - Analyze the stability of rigid bodies in equilibrium. (Created By CAN Dept - Engineering)
- * trusses - Analyze trusses, frames, and machines for external reaction forces and forces between the members. (Created By CAN Dept - Engineering)

CAN ENGR 240 - Engineering Dynamics

Course Outcomes:

- * Analysis - Select the method of analysis that is best suited for the solution of a given problem. (Newton's Law, Work and Energy, Impulse and Momentum, or a combination of these methods.) (Created By CAN Dept - Engineering)
- * Coriolis - Describe and analyze the plane motion of a particle relative to a rotating frame. Determine the Coriolis acceleration in plane motion. (Created By CAN Dept - Engineering)
- * Impact - Apply the principle of impulse and momentum to problems of direct and oblique central impact, as well as eccentric impact. (Created By CAN Dept - Engineering)
- * Newton - Correctly apply Newton's second law to analyze the motion of a particle in rectilinear or curvilinear translation acted upon by forces, or a rigid body in plane motion acted upon by forces and moments. (Created By CAN Dept - Engineering)
- * particle kinematics - Derive and apply the relationships between position, velocity, and acceleration of a particle in rectilinear and curvilinear motion. (Created By CAN Dept - Engineering)
- * plane motion - Derive relations defining the velocity and acceleration of any particle on a rigid body for translation, rotation and general plane motion. (Created By CAN Dept - Engineering)
- * work-energy - Apply the method of work and energy to problems involving a single particle, a system of particles, or a rigid body in plane motion. (Created By CAN Dept - Engineering)

CAN ENGR 260 - Circuits And Devices

Course Outcomes:

- * op amp - Apply a simple model for transistor and operational amplifiers to design and analyze simple circuits. (Created By CAN Dept - Engineering)
- * responses - Analyze electric circuits for DC, transient, and AC voltage and current responses. (Created By CAN Dept - Engineering)
- * simulation - Use a circuit simulation program (MultiSIM, PSPICE) to analyze circuit behavior. (Created By CAN Dept - Engineering)
- * Solution - Synthesize a method of solution to determine current or voltage in any circuit using a combination of Kirchhoff's Laws, loop and node analysis, the solution of differential equations, generalized impedance and admittance techniques, and phasor methods. (Created By CAN Dept - Engineering)
- * Steady state - Solve steady state AC circuit and network problems involving power transfer and resonance. (Created By CAN Dept - Engineering)
- * techniques - Evaluate different circuit analysis techniques and choose an appropriate technique for a particular circuit. (Created By CAN Dept - Engineering)

CAN ENGR 261 - Circuits & Devices Lab.

Course Outcomes:

- * Build - Build, from schematic diagrams, circuits using resistive, capacitive and inductive elements as well as switches, potentiometers, transistors, operational amplifiers, lamps, decade boxes and power supplies (Created By CAN Dept - Engineering)
- * Calculate - Calculate dc and ac voltage, current, and power, and experimentally verify the results for a variety of electrical circuits (Created By CAN Dept - Engineering)
- * Design - Design and construct circuits to experimentally verify circuit theorems including Ohm's Law, Kirchhoff Rules, superposition, Thevenin, and Norton theorems. (Created By CAN Dept - Engineering)
- * Operate - Operate, safely and properly, multimeters, power supplies, signal generators and oscilloscopes. (Created By CAN Dept - Engineering)
- * Reports - Write lab reports that evaluate, analyze and summarize results and measurements of circuit behavior, including a discussion of any discrepancies between theoretical and measured results. (Created By CAN Dept - Engineering)
- * Simulation - Use a circuit simulation program (PSPICE, MultiSIM) and other computer applications (MATLAB, MS Excel) to predict circuit behavior. (Created By CAN Dept - Engineering)
- * Verify - Experimentally verify the transient behavior of first- and second-order RLC circuits. (Created By CAN Dept - Engineering)

CAN ENGR 270 - Materials Science

Course Outcomes:

- * crystals - Identify the crystalline structure of models, and explain how the structure's characteristics affect a material's properties. (Created By CAN Dept - Engineering)
- * Imperfections - Distinguish between the types of imperfections that can occur in crystalline structures and compare their effects on a material's properties. (Created By CAN Dept - Engineering)
- * mechanical properties - Perform tension, compression, and hardness tests, and interpret the results. (Created By CAN Dept - Engineering)
- * polymers - Relate typical properties of polymers and ceramics to their structures. (Created By CAN Dept - Engineering)
- * s-s diffusion - Calculate rates of steady-state diffusion. (Created By CAN Dept - Engineering)
- * semi-conductors - Describe the mechanisms for electrical conduction in semiconductors. (Created By CAN Dept - Engineering)
- * strengthening mechanisms - Describe different strengthening mechanisms and thermal processing, and compare their effects. (Created By CAN Dept - Engineering)

CAN ENGR 410 - Computer-Aided Graphics

Course Outcomes:

- * AutoCad - Demonstrate the use of AutoCAD to create engineering drawings. (Created By CAN Dept - Engineering)
- * Draw - Make freehand drawings (Created By CAN Dept - Engineering)
- * Instruments - Demonstrate the use of drawing instruments. (Created By CAN Dept - Engineering)
- * Projections - Distinguish between various types of projections used in engineering drawings. (Created By CAN Dept - Engineering)
- * Read - Read engineering drawings (Created By CAN Dept - Engineering)

CAN ENGR 413 - Designing with CAD

Course Outcomes:

- * AutoCad - Demonstrate the use of AutoCAD and SolidWorks to create solid models. Distinguish between various types of projections used in engineering drawings. (Created By CAN Dept - Engineering)
- * Design - Apply the engineering design process to develop original solutions to engineering problems. (Created By CAN Dept - Engineering)
- * Drawings - Prepare complete sets of working drawings and assemblies. (Created By CAN Dept - Engineering)
- * Geometry - Apply descriptive geometry principles to solve engineering problems involving points, lines, surfaces and volumes. (Created By CAN Dept - Engineering)
- * Tolerances - Specify dimensions and tolerances in engineering graphics, including Geometric Dimensions and Tolerances. (Created By CAN Dept - Engineering)

CAN ENGR 695 - Independent Study

Course Outcomes:

- * Engineering Application - Apply engineering knowledge and skills, and use engineering tools to perform an independent research project on a selected engineering topic. (Created By CAN Dept - Engineering)
- * Literature search - Perform a literature search needed to support an independent study of an engineering topic. (Created By CAN Dept - Engineering)
- * Oral Presentation - Prepare and deliver an oral presentation of the results of the independent study. (Created By CAN Dept - Engineering)
- * Proposal - Write a proposal to perform an independent study of an engineering topic or problem. (Created By CAN Dept - Engineering)
- * Propose Solution - Formulate, refine, analyze and propose a solution to an engineering problem. (Created By CAN Dept - Engineering)
- * Written Report - Write a report that evaluates, analyzes and summarizes the results of the independent study following generally accepted guidelines in technical reports. (Created By CAN Dept - Engineering)

Produce, combine, or synthesize ideas in creative ways within or across disciplines.

No Course Outcomes related to this ISLO.

Use language to effectively convey an idea or a set of facts, including the accurate use of source material and evidence according to institutional and discipline standards.

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CAN ENGR 100 - Introduction to Engineering

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- * Role - Evaluate the role of engineers in various societies around the world and throughout history. (Created By CAN Dept - Engineering)

CAN ENGR 210 - Engineering Graphics

Course Outcomes:

- * Design - Apply the engineering design process to develop original solutions to engineering problems. (Created By CAN Dept - Engineering)
- * Drawings - Read engineering drawings. (Created By CAN Dept - Engineering)

Understand and interpret various points of view that emerge from a diverse world of peoples and cultures.

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CAN ENGR 210 - Engineering Graphics

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Represent complex data in various mathematical forms (e.g., equations, graphs, diagrams, tables, and words) and analyze these data to draw appropriate conclusions.

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