# Cuyamaca MSE PLOs

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| SLO (MSE - ES&HE) - Exercise Science (ES) | Exercise Science-1 | List and define the five basic components of physical fitness. | Active |
| | Exercise Science-10 | List and describe opportunities for employment in the field. | Active |
| | Exercise Science-11 | Describe their field of interest and a course of instruction that will meet their professional needs. | Active |
| | Exercise Science-2 | Describe the concepts of frequency, intensity and time, and how they relate to personal fitness goals. | Active |
| | Exercise Science-3 | Outline a basic strategy for achieving fitness through the lifespan. | Active |
| | Exercise Science-4 | List options within the community for continued lifelong physical activity. | Active |
| | Exercise Science-5 | List benefits of daily physical activity. | Active |
| | Exercise Science-6 | Demonstrate competence in acquiring sound nutritional information. | Active |
| | Exercise Science-7 | Demonstrate improvement in sport skills. | Active |
| | Exercise Science-8 | Outline appropriate goals and activities for increasing the fitness of children. | Active |
| | Exercise Science-9 | Describe appropriate preventive measures as well as treatments for various sports injuries. | Active |
| | Kinesiology For Transfer (AS-T)-1 | List and define the five basic components of physical fitness. | Active |
| | Kinesiology For Transfer (AS-T)-10 | List and describe opportunities for employment in the field. | Active |
| | Kinesiology For Transfer (AS-T)-11 | Describe their field of interest and a course of instruction that will meet their professional needs. | Active |
| | Kinesiology For Transfer (AS-T)-2 | Describe the concepts of frequency, intensity and time, and how they relate to personal fitness goals. | Active |
| | Kinesiology For Transfer (AS-T)-3 | Outline a basic strategy for achieving fitness through the lifespan. | Active |
| | Kinesiology For Transfer (AS-T)-4 | List options within the community for continued lifelong physical activity. | Active |
| | Kinesiology For Transfer (AS-T)-5 | List benefits of daily physical activity. | Active |
| | Kinesiology For Transfer (AS-T)-6 | Demonstrate competence in acquiring sound nutritional information. | Active |
| | Kinesiology For Transfer (AS-T)-7 | Demonstrate improvement in sport skills. | Active |
| | Kinesiology For Transfer (AS-T)-8 | Outline appropriate goals and activities for increasing the fitness of children. | Active |
| | Kinesiology For Transfer (AS-T)-9 | Describe appropriate preventive measures as well as treatments for various sport injuries. | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-1 | Describe and/or demonstrate an hour of cooperative activity for children. | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| | Recreational Leadership for School Age Children (Certificate of Specialization)-2 | Describe how principles learned in class may be applied to improve cardiovascular endurance, muscle strength, muscle endurance, and flexibility and body composition, (the five basic components of fitness) in children using walking as a primary conditioning activity | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-3 | Investigate and list causes and risk factor associated with childhood obesity. | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-4 | Describe and prepare appropriate snacks for children. | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-5 | Demonstrate appropriate classroom organizational and management techniques. | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-6 | Demonstrate the ability to plan school-based recreational programs which deliberately intend to advance, stimulate or otherwise enhance children's physical, emotional and social development in ways which are appropriate to their developmental level. | Active |
| | Recreational Leadership for School Age Children (Certificate of Specialization)-7 | Describe tested and proven teaching approaches to analyze and enhance movement competencies. | Active |
| SLO (MSE - ES&HE) - Health Education (HED) | 1-Public Health Science AS-T | Outline strategies for prevention, detection and control of infectious and chronic disease. | Active |
| | 2-Public Health Science AS-T | Describe the organization, financing and delivery of various medical and population-based services in the United States health care system. | Active |
| | 3-Public Health Science AS-T | Explain the role of Public Health in addressing the following issues: disparities among different populations, aging, injuries, obesity, control of emerging diseases and epidemics, and emergency preparedness. | Active |
| | 4-Public Health Science AS-T | Analyze reliable public data sources to find statistical and epidemiologic data on incidence, prevalence, and trends in drug, tobacco and alcohol use. | Active |
| | 5-Public Health Science AS-T | Review recent public health literature detailing ways that race, socioeconomic status and gender become embodied in disparate health outcomes. | Active |
| | 6-Public Health Science AS-T | Analyze the contribution of environmental conditions to disparate health outcomes, using case studies. | Active |
| SLO (MSE - Math) - Mathematics (MATH) | 1-Math; AS-T & Certificate | Apply mathematical reasoning and problem solving strategies to analyze, interpret, and model applications in STEM or business programs | Active |
| | 2-Math; AS-T & Certificate | Select and apply appropriate definitions, postulates, and theorems to prove mathematical statements. | Active |
| SLO (MSE - S&E) - Biology (BIO) | Biology & Biology AS-T-1 | Explain the basic structures and fundamental processes of life at the | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| SLO (MSE - S&E) - Biology (BIO) | Biology & Biology AS-T-1 | molecular, cellular, and organismal levels. | Active |
| | Biology & Biology AS-T-2 | Identify the evolutionary processes that lead to adaptation and biological diversity. | Active |
| | Biology & Biology AS-T-3 | Describe the relationship between life forms and their environment and ecosystems. | Active |
| | Biology & Biology AS-T-4 | Collect, organize, analyze, interpret and present quantitative and qualitative data and incorporate them into the broader context of biological knowledge. | Active |
| | Biology & Biology AS-T-5 | Effectively apply current technology and scientific methodologies for problem solving. | Active |
| | Biology & Biology AS-T-6 | Find, select and evaluate various types of scientific information including primary research articles, mass media sources and World Wide Web information. | Active |
| | Biology & Biology AS-T-7 | Communicate effectively in written and oral formats. | Active |
| | PRE-Allied Health Transfer Track-1 | Explain the principles and laws of living systems with particular reference to human disease and human performance, including the role of scientific inquiry in life/medical science, cell theory, the hierarchy of structure and function in living organisms and principles of heredity; | Active |
| | PRE-Allied Health Transfer Track-2 | Describe the normal relationships between structure and function relationships of humans, alterations in normal structure/function that characterize disease; the structure, function, classification and epidemiology of pathogenic microorganisms; and normal cellular and nutritional biochemistry; | Active |
| | PRE-Allied Health Transfer Track-3 | Exhibit competency in the methods used to study living systems, with a focus on human biology including applying principles and procedures of research and experimental design; gathering, organizing interpreting, evaluating and communicating data; | Active |
| | PRE-Allied Health Transfer Track-4 | Exhibit confidence and ability to function as a health care professional including the ability to conduct independent and collaborative investigation skills, the ability to communicate scientific information effectively in oral and written form; the ability to utilize technology effectively and appropriately; | Active |
| | PRE-Allied Health Transfer Track-5 | Exhibit the ability to integrate the content, skills and abilities gained in courses and to practice independent, self-directed learning. | Active |
| SLO (MSE - S&E) - Chemistry | 1 - Chemistry | Comprehend and describe the nature of matter, including its | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| (CHEM) | 1 - Chemistry | classification, composition and structure. | Active |
| | 2 - Chemistry | Demonstrate an understanding of the transformations of matter, both physical and chemical. | Active |
| | 3 - Chemistry | Develop critical thinking skills by predicting interactions between different types of matter, both physical and chemical; analyzing matter in the laboratory both qualitatively and quantitatively; performing mathematical calculations related to the transformation and analysis of matter; and solving qualitative and quantitative problems in connection with the transformation and analysis of matter. | Active |
| SLO (MSE - S&E) - Engineering (ENGR) | Civil Engineering-1 | Visualize 3D objects and draw them in 2D, both by sketching and through the use of computer-aided drafting software; produce a complete set of drawings sufficient to manufacture a part, including dimensions and tolerances. | Active |
| | Civil Engineering-2 | Solve engineering problems through computer modeling, employing an engineering computer language such as Matlab. | Active |
| | Civil Engineering-3 | Design a rigid structure such as a bridge, determining forces in each part of the structure. Determine the weight and location of the center of gravity of the structure. | Active |
| | Civil Engineering-4 | Design a dynamic system such as a piston or linkage, and compute forces, accelerations, and speeds of all components of the system. | Active |
| | Civil Engineering-5 | Apply the tools of surveying, including total station instruments, to analyze the topography of land, construction staking, and setting property boundaries. | Active |
| | Civil Engineering-6 | Model vibrating systems using systems of 2nd order differential equations. | Active |
| | Civil Engineering-7 | Analyze experimental data to determine summary statistics (e.g., mean, variance), apply appropriate statistical tests to data sets, and design statistical experiments. | Active |
| | Electrical And Computer Engineering-1 | Visualize 3D objects and sketch them accurately in 2D. | Active |
| | Electrical And Computer Engineering-2 | Solve engineering problems through computer modeling, employing a computer language such as C or Java. | Active |
| | Electrical And Computer Engineering-3 | Design and write computer programs that employ linked list memory management, stacks, tree data structures, and searching and sorting algorithms. | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| | Electrical And Computer Engineering-3 | | Active |
| | Electrical And Computer Engineering-4 | Determine the DC and steady-state AC voltages and currents everywhere in an electric circuit composed of passive components. | Active |
| | Electrical And Computer Engineering-5 | Model linear systems of arbitrary size and complexity using linear algebra. | Active |
| | Electrical And Computer Engineering-6 | Model transient and steady-state electrical systems using systems of 2nd order differential equations. | Active |
| | Electrical And Computer Engineering-7 | Apply Green's theorem, Stokes' theorem, and Maxwell's equations to solve simple problems in electrostatics and electromagnetism. | Active |
| | Electrical And Computer Engineering-8 | Analyze and design combinational and sequential digital logic systems of arbitrary complexity, including (for example) Moore and Mealy sequential machines. | Active |
| | Mechanical And Aerospace Engineering-1 | Visualize 3D objects and draw them in 2D, both by sketching and through the use of computer-aided drafting software; produce a complete set of drawings sufficient to manufacture a part, including dimensions and tolerances. | Active |
| | Mechanical And Aerospace Engineering-2 | Solve engineering problems through computer modeling, employing an engineering computer language such as Matlab. | Active |
| | Mechanical And Aerospace Engineering-3 | Design a rigid structure such as a bridge, determining forces in each part of the structure. Determine the weight and location of the structure's center of gravity. | Active |
| | Mechanical And Aerospace Engineering-4 | Design a dynamic system such as a piston or linkage and compute forces, accelerations, and speeds of all components of the system. | Active |
| | Mechanical And Aerospace Engineering-5 | Select an appropriate material for manufacturing a part or product and determine the appropriate material processing techniques to produce the part. Justify the choice of material on the basis of macroscopic mechanical properties as well as microstructure. | Active |
| | Mechanical And Aerospace Engineering-6 | Determine the DC and steady-state AC voltages and currents everywhere in an electric circuit composed of passive components. | Active |
| | Mechanical And Aerospace Engineering-7 | Model vibrating systems using systems of 2nd order differential equations. | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| | Mechatronics (Certificate of Specialization)-1 | Write computer programs in high-level languages such as C or Basic and, when appropriate, in assembly language to control the operation of a microcontroller. In particular, students will be able to apply the following microcontroller capabilities: memory-mapped I/O (input/output), analog-to-digital (A/D) conversion, and volatile and non-volatile memory. | Active |
| | Mechatronics (Certificate of Specialization)-2 | Design automatic devices and control systems which can respond to inputs from sensors with appropriate outputs in the form of motion, light, and sound. | Active |
| | Mechatronics (Certificate of Specialization)-3 | Control servo, DC, AC, and stepper motors. | Active |
| | Mechatronics (Certificate of Specialization)-4 | Design an autonomous robot that can survive in an uncertain environment by building up complex behaviors from a combination of simple and robust responses to stimuli. | Active |
| SLO (MSE - S&E) - Physical Science (PSC) | 1-Physical Science | Analyze how astronomers obtain information about stars, what information can be obtained and how the information is used. | Active |
| | 10-Physical Science | Use Maxwell's Equations to solve problems in electricity and magnetism. | Active |
| | 11-Physical Science | Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics. CAREER OPPORTUNITIES | Active |
| | 2-Physical Science | Predict periodic trends in ionization energy, atomic size, electron affinity and acid-base properties. | Active |
| | 3-Physical Science | Calculate changes in enthalpy, entropy, and free energy for chemical reactions, phase changes, solution processes, and elementary molecular processes using tables of thermodynamic data. | Active |
| | 4-Physical Science | Write systematic names for carbon based compounds. | Active |
| | 5-Physical Science | Working knowledge of the Theory of Plate Tectonics as it relates to sea floor spreading, subduction, continental drift and the evolution of ocean basins, continents and mountains. | Active |
| | 6-Physical Science | Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions. | Active |
| | 7-Physical Science | Evaluate integrals using appropriate techniques (such as: by parts, trig | Active |

| Unit Name | PLO Name | PLO | PLO Status |
|---|---|---|---|
| | 7-Physical Science | substitution, etc.) | Active |
| | 8-Physical Science | Apply Green's, Stokes' and Gauss' Theorems. | Active |
| | 9-Physical Science | Use conservation of energy and conservation of momentum concepts. | Active |
| SLO (MSE - S&E) - Physics (PHYC) | Physics AST-1 | Evaluate derivatives of algebraic, trigonometric, logarithmic and exponential functions. | Active |
| | Physics AST-2 | Evaluate integrals using appropriate techniques (such as: by parts, trig substitution, etc.) | Active |
| | Physics AST-3 | Apply Green's, Stokes' and Gauss' Theorems. | Active |
| | Physics AST-4 | Use conservation of energy and conservation of momentum concepts. | Active |
| | Physics AST-5 | Use Maxwell's Equations to solve problems in electricity and magnetism. | Active |
| | Physics AST-6 | Use the basic concepts of modern physics: special relativity, photon behavior, matter waves, the uncertainty principle, quantum mechanics in one and three dimensions, statistical physics and nuclear physics. | Active |
| | Physics-1 | Predict periodic trends in ionization energy, atomic size, electron affinity and acid-base properties. | Active |
| | Physics-2 | Calculate changes in enthalpy, entropy, and free energy for chemical reactions, phase changes, solution processes, and elementary molecular processes using tables of thermodynamic data. | Active |
| | Physics-3 | Write systematic names for carbon based compounds. | Active |