

## **EDUC 201 (C-ID EDUC 200)**

### **Introduction to Elementary Classroom Teaching**

Formerly: Introduction to Education

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Recommended Preparation: Completion with a grade of "C" or better or a Passing grade in: EDUC 105; before field experience*

begins, verification of the state-mandated Tdap vaccination, MMR immunization, and negative TB test may be required.

Introduces students to the concepts and issues related to teaching diverse learners in today's contemporary schools, kindergarten through grade 12 (K-12). Topics include teaching as a profession and career, historical and philosophical foundations of the American education system, contemporary educational issues, California's content standards and frameworks, and teacher performance standards. In addition to class time, the course requires a minimum of 45 hours of structured fieldwork in public school elementary classrooms that represent California's diverse student population, and includes cooperation with at least one approved certificated classroom teacher.

*Transfers to: CSU/UC*

## **EDUC 203**

### **Introduction to Children with Disabilities or Delays**

Formerly: Introduction to Children with Special Needs

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

Introduces the variations in development of children and adolescents with disabilities or delay. Includes an overview of historical and societal influences, laws relating to individuals with disabilities or delays, and the assessment and referral process.

Emphasizes the importance of working in partnership with families and specialists to support children's development. (same as CDEV 205)

*Transfers to: CSU*

## **EDUC 204**

### **Proficiency in Educational Technologies for Teachers**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

Students will develop personal proficiency in educational technologies to facilitate the teaching process. Students will also apply digital literacy skills through the use of presentation, spreadsheet, word processing and publication software, interactive online tools, internet search and retrieval, information literacy, electronic communication and collaboration, and awareness of legal and ethical issues in the digital world.

*Transfers to: CSU*

## **EDUC 210**

### **The Teaching Experience: Secondary Education**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

Introduction to the history, philosophy, and sociology of secondary education. This course will cover the California Teaching Performance Expectation and Assessment, needs of special populations, English learners, struggling readers, content standards, and major curriculum reform documents. Students participate in 45 hours of structured observation in a local secondary classroom.

*Transfers to: CSU/UC*

## **EMERGENCY MEDICAL TECHNICIAN (EMT)**

### **EMT 104**

#### **Emergency Medical Technician**

Unit(s): 10.0 Class Hours: 162.0 Lecture, 54.0 Lab total.

*Corequisite: Concurrent enrollment in: EMT 105*

*Prerequisite: Current American Heart Association "BLS Provider" CPR Certification*

Basic course for Emergency Medical Technician (EMT) certification. Satisfies training requirements for National/State/County Emergency Medical Services (EMS) Authorities. Prepares students to take the National Registry Certifying Examination for State Certification. Additionally, trains students in the Orange County Emergency Medical Services (OCEMS) optional scope of practice. Course provides depth and breadth of foundational knowledge from the US Department of Transportation's National Scope of Practice Model and the National EMS Education Standards derived for entry-level EMT.

*Transfers to: CSU*

### **EMT 105**

#### **Clinical EMT Skills Laboratory**

Unit(s): 1.0 Class Hours: 54.0 Lab total.

*Prerequisite: Current American Heart Association "BLS Provider" CPR Certification*

*Corequisite: Concurrent enrollment in: EMT 104*

Clinical, field experience, and supervised use of skills lab through supplemental learning to assist the student in development of clinical competency and mastery of psychomotor skills as addressed in course EMT 104. Hours verified by instructor. (Pass/No Pass Only)

*Transfers to: CSU*

### **EMT 111**

#### **Recertification for EMT**

Unit(s): 2.0 Class Hours: 36.0 Lecture total.

*Prerequisite: Valid EMT certificate or equivalent within past two years and a valid CPR card: American Heart Association "BLS Provider"*

Update emergency medical techniques, equipment, and EMSA policies. Meets state requirements for EMT recertification.

*Transfers to: CSU*

### **EMT 198-00**

#### **Topics**

Unit(s): 0.50-3.0 Class Hours: 9.0-54.0 Lecture total.

Courses in a variety of contemporary topics will be offered to meet the interests and needs of students in the Emergency Medical Technician area. Individual descriptions will be provided for each course developed.

*Transfers to: CSU*

## **ENGINEERING (ENGR)**

### **ENGR 012**

#### **Civil/Architectural Blueprint Reading**

Unit(s): 2.0 Class Hours: 36.0 Lecture total.

Reading and interpreting blueprints for civil engineering, architecture, and construction fields. No prior blueprint reading experience is needed. Course provides preparation for more advanced civil and architectural drafting coursework.

**ENGR 051****Introduction to Drafting and CAD**

Unit(s): 0.50 Class Hours: 9.0 Lecture total.

Introductory course on civil, mechanical, and electrical drafting. Topics include: drafting careers, reading and creating basic engineering drawings (modeling, dimensioning, annotations) using industry-standard CAD software (such as AutoCAD and Solidworks). Course is an appropriate starting course for students with no drafting or CAD experience and are interested in the fields. Course provides direction for continuing drafting coursework.

**ENGR 060****Robotics Survey**

Unit(s): 0.50 Class Hours: 9.0 Lecture total.

This course introduces students to basic robotics. Students will program a robot to receive sensor input, control motors, and produce behaviors. Course provides student exposure to robotics, which now plays a major role in modern manufacturing and industrial automation.

**ENGR 100A (C-ID ENGR 110)****Introduction to Engineering**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

The course explores the branches of engineering, the functions of an engineer, and the industries in which engineers work. Explains the engineering education pathways and explores effective strategies for students to reach their full academic potential.

Presents an introduction to the methods and tools of engineering problem solving and design including the interface of the engineer with society and engineering ethics. Develops communication skills pertinent to the engineering profession.

*Transfers to: CSU/UC*

**ENGR 100B****Introduction to Civil Engineering**

Unit(s): 2.0 Class Hours: 36.0 Lecture total.

Introduction to the Civil Engineering and the related fields of architecture and construction. Includes an overview of academic programs, career information and preparation requirements, possible field trips and guest speakers.

*Transfers to: CSU*

**ENGR 103****Solidworks Beginning Solid Modeling**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

Introductory course in parametric solid modeling using Solidworks, an industry standard engineering design software (CAD). This course will include a solid modeling overview, solid model construction techniques (extrude, revolve, fillet, chamfer, etc.), including the preparation of individual solid components and basic solid model assemblies (Same as Manufacturing Technology 103).

*Transfers to: CSU*

**ENGR 104****Solidworks Intermediate Solid Modeling**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 103 or MNFG 103*

Intermediate course for solid modeling using Solidworks, an industry standard engineering design software (CAD). Includes a review of the introductory class and changes to the Solidworks interface. Instruction in the use of intermediate Solidworks part modeling skills such as assembly modeling and sub-assemblies is included (Same as Manufacturing Technology 104).

*Transfers to: CSU*

**ENGR 105****Solidworks Advanced Solid Modeling**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 104 or MNFG 104*

Advanced course for solid modeling includes a review of the intermediate class and changes to the Solidworks interface. Instruction in the use of Solidworks part modeling, assembly modeling, sub-assemblies, advanced photoworks and advanced animator emphasized (Same as Manufacturing Technology 105).

*Transfers to: CSU*

**ENGR 111****Basic Mechanical Blueprint Reading**

Unit(s): 2.0 Class Hours: 36.0 Lecture total.

Reading and interpreting blueprints for manufacturing technologies (Same as Manufacturing Technology 111.)

*Transfers to: CSU*

**ENGR 114****Geometric Dimensioning and Tolerancing**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

Drawing interpretation utilizing geometric dimensioning and tolerancing per ASME Y14.5M (formerly ANSI Y14.5M) as applied in engineering, manufacturing, and inspection. Suggested preparation: prior course or experience in drafting with conventional dimensioning and tolerancing. (Same as Manufacturing Technology 114)

*Transfers to: CSU*

**ENGR 118 (C-ID ENGR 180)****Surveying**

Unit(s): 3.0 Class Hours: 36.0 Lecture, 54.0 Lab total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: MATH 162 or MATH 170 or transcribed high school trigonometry or pre-calculus*

The course applies theory and principles of plane surveying: office computations and design; operation of surveying field equipment; and production of engineering plans/maps. Topics include distances, angles, and directions; differential leveling; traversing; property/boundary surveys; topographic surveys/mapping; volume/earthwork; horizontal and vertical curves; land description techniques; and GPS. Field work using tapes, levels, transits, theodolites, total stations, and GPS.

*Transfers to: CSU/UC*

**ENGR 119****Advanced Plane Surveying**

Unit(s): 3.0 Class Hours: 36.0 Lecture, 54.0 Lab total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 118 or Instructor may waive if student can show proof of industry experience in surveying equal to or greater than ENGR 118.*

A second course in surveying with emphasis on coordinate geometry calculations. Topics include: route surveying with horizontal and vertical curves, topographic surveying and mapping, construction surveying, introduction to geospatial technologies, boundary surveying and surveys of public lands. Field surveying projects. Completion of Engr 118 and 119 assists in passing the land-surveyor-in-training (LSIT) exam.

*Transfers to: CSU/UC*

**ENGR 122****Engineering Drawing**

Unit(s): 3.0 Class Hours: 45.0 Lecture, 27.0 Lab total.

Principles of engineering drawing: projections, views, sections, dimensions, tolerancing, assemblies, manufacturing processes, engineering drafting practices. Utilizing 2D CAD and 3D solid modeling CAD software. Suggested preparation: prior course or experience in drafting and CAD.

*Transfers to: CSU/UC*

**ENGR 125 (C-ID ENGR 150)****Engineering Graphics**

Unit(s): 3.0 Class Hours: 45.0 Lecture, 27.0 Lab total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: MATH 162*

This course covers the principles of engineering drawings in visually communicating engineering designs and an introduction to computer-aided design (CAD). Topics include: the development of visualization skills; orthographic projections; mechanical dimensioning and tolerancing practices; the engineering design process. Assignments develop sketching skills for 2-D and 3-D CAD. The use of CAD software is an integral part of the course.

Suggested preparation: prior course or experience with drafting and CAD.

*Transfers to: CSU/UC*

**ENGR 131****Introduction to Mechatronics**

Unit(s): 0.50 Class Hours: 9.0 Lecture total.

Course provides exposure to micro-controllers and rapid- prototyping technologies used in mechatronics and engineering. Course provides a good introduction to the Engineering Mechatronics program.

*Transfers to: CSU*

**ENGR 132****Introduction to Robotics**

Unit(s): 2.0 Class Hours: 36.0 Lecture total.

Introductory course in robotics. Topics include: basic design, sensors, actuators, circuits, programming, micro-controllers, and a hands-on robot construction project.

*Transfers to: CSU*

**ENGR 133****Mechatronics I**

Unit(s): 3.0 Class Hours: 45.0 Lecture, 27.0 Lab total.

A first course in mechatronics. Topics emphasize hands-on work and include: solid modeling design, micro-controllers and programming, rapid prototype fabrication, testing, measurement, actuators, sensors, and basic electronics. Prior experience with Solidworks, Arduino, and basic algebra is suggested but not required.

*Transfers to: CSU*

**ENGR 134****Mechatronics II**

Unit(s): 3.0 Class Hours: 45.0 Lecture, 27.0 Lab total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 133*

A second course in mechatronics. Topics emphasize hands-on work and include: solid-modeling design, rapid prototype fabrication, testing, measurement, micro-controllers, programming, industrial robotics, and PLC control. Prior experience or coursework in Solidworks, Arduino, and basic algebra is strongly suggested.

*Transfers to: CSU*

**ENGR 154****Revit and Civil Drafting**

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

Course introduces Autodesk Revit, a 3D parametric CAD software that is an industry standard for architectural/civil design. Topics include 3D modeling, design, drawing creation, and BIM (building information modeling) concepts. Course also teaches creation of industry-standard drawings in civil engineering, architecture, and construction using industry-standard CAD software (AutoCAD, Civil 3D, and Revit). Topics include - views, line types, projection, annotations, and callouts. Prior course or experience with AutoCAD (e.g., Engr 183) and drafting is strongly suggested.

*Transfers to: CSU*

**ENGR 158****Basic Machining Concepts and Operations**

Unit(s): 3.0 Class Hours: 18.0 Lecture, 126.0 Lab total.

Fundamental operations on lathes, milling machines, grinders, and drill presses, including precision measurements and layout. Equips students with skills and theory necessary to enter or upgrade within the machinist trade. (Same as Manufacturing Technology 158).

*Transfers to: CSU*

**ENGR 183****AutoCAD I**

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

A first course in AutoCAD by Autodesk, an industry standard engineering CAD software, especially in the civil and architectural fields. Topics include display and file management, units, entities, object selection, advanced editing, layers, dimensions, text, and graphic exchange.

*Transfers to: CSU/UC*

**ENGR 184****AutoCAD II**

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

A second course in Autodesk AutoCAD, an industry standard engineering CAD software, especially in the civil and architectural fields. Topics include: advanced dimensioning, viewports, hatches, blocks, plotting, attributes, inquiry, intermediate apps, working drawings, introduction to 3D CAD. Suggested preparation: prior course or experience with AutoCAD.

*Transfers to: CSU*

**ENGR 185****Civil 3D**

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

Course teaches Autodesk Civil 3D – an industry standard CAD software for civil engineers. Topics include advanced modeling, model merging, project management, parcels, surveys, surfaces, alignments, profiles, 3D rendering, and presentation. Prior coursework or experience with AutoCAD is strongly suggested.

**ENGR 235 (C-ID ENGR 130)****Statics**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: PHYS 217 and MATH 185*

A first course in engineering mechanics: properties of forces, moments, couples and resultants; two- and three-dimensional force systems acting on engineering structures in equilibrium; analysis of trusses, and beams; distributed forces, shear and bending moment diagrams, center of gravity, centroids, friction, and area and mass moments of inertia. Utilizes SI metrics.

*Transfers to: CSU/UC*

**ENGR 240 (C-ID ENGR 230)****Dynamics**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 235*

Fundamentals of kinematics and kinetics of particles and rigid bodies. Topics include kinematics of particle motion; Newton's second law, work-energy and momentum methods; kinematics of planar motions of rigid bodies; work-energy and momentum principles for rigid body motion; introduction to mechanical vibrations.

*Transfers to: CSU/UC*

**ENGR 250****Electric Circuits**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Corequisite: Completion with a grade of "C" or better or a Passing grade or Concurrent enrollment in: MATH 280 and PHYS 227*

*Corequisite: Concurrent enrollment in: (both may be taken previously or concurrently)*

An introduction to the analysis of electrical circuits. Use of analytical techniques based on the application of circuit laws and network theorems. Analysis of DC and AC circuits containing resistors, capacitors, inductors, dependent sources, operational amplifiers, and/or switches. Natural and forced responses of first and second order RLC circuits; the use of phasors; AC power calculations; power transfer; and energy concepts.

*Transfers to: CSU/UC*

**ENGR 250L****Electric Circuits Laboratory**

Unit(s): 1.0 Class Hours: 54.0 Lab total.

*Corequisite: Concurrent enrollment in: ENGR 250*

An introduction to the construction and measurement of electrical circuits. Basic use of electrical test and measurement instruments including multimeters, oscilloscopes, power supplies, and function generators. Interpretation of measured data under DC, transient, and sinusoidal steady-state (AC) conditions.

*Transfers to: CSU/UC*

**ENGR 280 (C-ID ENGR 240)****Strength of Materials**

Unit(s): 3.0 Class Hours: 54.0 Lecture total.

*Prerequisite: Completion with a grade of "C" or better or a Passing grade in: ENGR 235*

This course is a study of stresses, strains and deformations associated with axial, torsional and flexural loading of bars, shafts and beams, as well as pressure loading of thin-walled pressure vessels. The course also covers stress and strain transformation, Mohr's Circle, ductile and brittle failure theories, and the buckling of columns. Statically indeterminate systems are also studied.

*Transfers to: CSU/UC*

**ENGLISH (ENGL)****ENGL C1000 (C-ID ENGL 100)****Academic Reading and Writing**

Formerly: ENGL 101 - Freshman Composition.

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

Placement as determined by college's multiple measures assessment process.

In this course, students receive instruction in academic reading and writing, including writing processes, effective use of language, analytical thinking, and the foundations of academic research.

*Transfers to: CSU/UC*

**ENGL C1000H (C-ID ENGL 100)****Academic Reading and Writing - Honors**

Formerly: ENGL 101H - Honors Freshman Composition.

Unit(s): 4.0 Class Hours: 72.0 Lecture total.

Placement as determined by the college's multiple measures assessment process.

In this course, students receive instruction in academic reading and writing, including writing processes, effective use of language, analytical thinking, and the foundations of academic research. This is an honors course.

*Transfers to: CSU/UC*