

# SURVEYING (SURV)

---

## **SURV 1A Surveying**

**3 Units** (Degree Applicable, CSU, UC, C-ID #: ENGR 180)

Lecture: 36 Lab: 54

**Prerequisite:** *MATH 150 or MATH 160 or MATH 180*

Surveying and use and care of surveying instruments such as steel tape, engineer's level, theodolite, and total station. Includes horizontal and vertical measurements, layout, traverse, area computations, analysis and adjustments of systematic and random errors, stadia surveying, and mapping.

## **SURV 1B Surveying**

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 36 Lab: 54

**Prerequisite:** *SURV 1A*

Land surveying including coordinate geometry, missing data, construction surveying, volumes, property surveying, control surveying, California Coordinate System, and horizontal and vertical curves. Introduces photogrammetric methods, 3-D laser scanning, Global Positioning System (GPS), Geographic Information System (GIS), mapping project, method of least squares, and land survey descriptions. Field trips are required.

## **SURV 1C Computer-Aided Drafting for Surveyors and Civil Engineers**

**3 Units** (Degree Applicable, CSU, UC)

Lecture: 36 Lab: 54

**Prerequisite:** *SURV 1A*

Computer-aided mapping, topographic and boundary maps, symbols; cross-section, profile, and route details; digital terrain model; area and volume computations from computer-generated maps. Surface modeling.