

## CMT Course List

### CMT 110/L. Construction Drawing and Lab (1/1)

**Prerequisite:** COMP 100. This course is designed to provide students with the foundational knowledge and enough practice at reading blueprints. Both residential and commercial construction drawings will be covered in this course. The set of plans such as the foundation plan, floor plan, elevations, sections, and details that must be assembled into an organized set of drawings to show as much about a project as can be placed on paper in one or two dimensional views are analyzed and studied.

### CMT 208/L. Construction Site Surveying and Lab (2/1)

**Prerequisite:** MATH 104. **Corequisite:** CMT 208/L. Fundamentals of surveying as applied to construction layout. Use of level and transit for location and control of structures, vertical and horizontal control. Introduction to AutoCad as a means of presenting survey information with usage of Autodesk Survey and Autodesk Map. Lab measurements of land surface area, differential and profile leveling, construction layout and plotting profiles using tape, leveling and transit measurements. Two hours lecture; three hours lab per week.

### CMT 210/L. Construction Contract Documents and Lab (2/1)

**Corequisite:** CMT 210/L. Recommended Corequisite: BLAW 280. Basic skills and techniques required to produce construction documents conforming to current building codes and standards, including working drawing, specifications, bid documents, addenda and change orders. Two hours lecture per week; three hours technical activity-lab per week.

### CMT 240/L Building Construction (2/1)

**Corequisite:** CMT 210. Introduction to planning, design, and construction of structures, including cost estimating and project scheduling. Computer applications. Two (2) hours of lecture per week.

### CMT 309. Computer Applications in Construction Management (2)

**Prerequisite:** COMP 100 and instructor consent. Application of computer systems to control operations in the building industry. Introduction to commercially available software for planning, scheduling, and estimating that is generally used in the construction industry. Two three-hour technical activity-labs per week.

### CMT 310/L. Construction Estimating and Lab (2/1)

**Prerequisite:** ACCT 220, MATH 255, CMT 240/L and **Corequisites** CMT 312/L and CMT 310/L. Procedures for analyzing materials and methods involved in reliable estimates of the cost of a construction task or project, including: direct, indirect, and contingency costs and profits. Two hours lecture; three hours technical activity-lab per week.

### CMT 312/L. Project Cost Control, Planning and Scheduling and Lab (2/1)

**Prerequisites:** ACCT 220, MATH 255A, CMT 240/L, instructor consent, and corequisite CMT 312L. Basic application of construction cost control systems including critical path method techniques, planning, logic, scheduling and updating, and use of computer for scheduling. Use of cost information and associated reports for the planning

and scheduling of construction projects. Two hours lecture-discussion; three hours technical activity-lab per week.

CMT 321. Introduction to Mechanical and Electrical Installation (2)

**Prerequisite: PHYS 100B/L.** Basic understanding of the electrical and mechanical systems, design, and construction procedures used flexibly in each system, space requirements, and at what point in the job the work on a particular system is done.

CMT 326/L. Soil Mechanics for Technology and Lab (2/1)

**Prerequisite: MSE 220/L. Corequisite: CMT 326/L.** Not available for credit towards an engineering degree. Soil Composition, description, and physical properties of soils; earthmoving estimating, soil explorations, ground water effects, plate tectonics, and introduction to seismic effects on soils. Lab: investigations and experiments in soil mechanics including field requirements for foundations and other earthwork structures. Two hours lecture-discussion; three hours technical activity-lab per week.

CMT 334/L. Construction Equipment and Methods (2/1)

**Prerequisites: ACCT 220 and CMT 326/L.** Construction procedures, job planning layout and scheduling, selection and application of construction equipment to building and heavy construction projects. One hour lecture, three hours problem-solving.

CMT 340. Statics and Strength of Materials (3)

**Prerequisites: CMT 240/L and MATH 255B.** The analysis of the distribution of forces on and within bodies in static equilibrium. Free body diagrams, equilibrium equations and the method of sections. The analysis of stresses and deflections in members and simple structural systems. Axial, torsional, bending and shear stresses and deflections and column stability. Design of building structural members. Emphasis is given to the application to building structures. Not available for credit towards an engineering degree.

CMT 401/L. Construction Contract Administration and Lab (2/1)

**Prerequisite: BLAW 280, CMT 210/L and Corequisite CMT 401/L.** Administration of contract documents including invitation to bid, addenda, proposals, change orders, subcontracts, liens, claims, waivers, arbitration, general and supplemental conditions, and CSI specifications. Two hours lecture-discussion; three hours technical activity-lab per week.

CMT 415/L. Fundamentals of Construction Management and Lab (2/1)

**Prerequisite: CMT 310/L, CMT 312/L, instructor consent and Corequisite CMT 415/L.** Introduction to the basic concepts of construction management. Areas of focus to include quantity analysis, productivity, work activity sequencing, network scheduling, and computer applications specific to construction management. The construction manager's relation to internal organization, owner, architect, engineer, public, press, legal aid, unions, trades, equipment, utilities, insurance, finances, and governmental agencies. Two hours lecture-discussion; three hours technical activity-lab per week.

CMT 434/L. Site Planning and Logistics, and Lab (2/1)

**Prerequisites: CMT 208/L and CMT 326/L and Corequisite CMT 434/L.** Investigation, market research, finance, cost estimating, and land use with respect to development process. Including an analysis of land development; site investigation; grading; street piping systems and water supply systems including allowable pressure in

pipes, head loss calculations, minimum allowable slopes for sewage disposal; and landscaping. Two hours lecture; three hours technical activity-lab per week.

CMT 440/L. Structural Design (2/1)

**Prerequisite: CMT 340.** A practice oriented treatment of the procedures for structural concrete, steel, and timber design. Design of columns, beams, slabs, and walls. Lateral load resisting systems. Introduction to computer aided analysis and design. Emphasis is given to the application of building structures. Not available for credit towards an engineering degree. Two (2) hours of lecture per week and three (3) hours of technical activity-laboratory per week.

CMT 441/L. Highway Design (2/1)

**Prerequisite: CMT 326/L & MSE 220.** The course covers basic highway design and traffic circulation principles. Study of design elements of alignment, profile, cross-section, and controlled-access highways. Investigation of functional highway classification, Traffic volume, signs and measurements, intelligent transportation systems, Caltrans standard drawings and specifications. Two hours of lecture per week and three hours of technical activity-laboratory per week.

CMT 449. Dispute Prevention (1)

**Prerequisite: CMT 210/L.** In this seminar, students will explore dispute prevention, by emphasizing on partnering and team building, realistic risk allocation, competing engineering & documentation, constructability analysis, dispute resolution clauses. Through readings, discussions, guest speakers, independent research, writing, and oral presentations, students will develop a clearer understanding of the dispute prevention.

CMT 480. Construction Law (3)

**Prerequisite: BLAW 280 and CMT 210/L.** Orientation to the rules and regulations governing construction industry practices and activities including contractor's license law, state lien laws, health and safety regulations, personnel relations and supervision, workers compensation, employment insurance, and taxes. Three hours lecture-discussion per week.

CMT 488A, B. Construction Senior Design I, II (2,2)

**Prerequisite: CMT 310/L, CMT 312/L,** and senior standing in Construction Management. (CMT 488A and CMT 488B must be completed within the same academic year.) Selection and completion of a project under faculty and/or industry supervision. Projects typical of problems that a graduate of the Construction Management Program must solve in their field of employment. Requires both written formal report and oral presentation of project. (A, B Offered Fall, spring semesters, respectively.) six hours technical activity-lab per week.

CMT 494. Cooperative Educational Experience (2)

**Prerequisite: CMT 310/L and CMT 312/L.** Supervised off-campus professional experience in construction management technology for students with junior or senior standing in the major. Positions are paid and usually run for a full year with summer work available. Course may be repeated for up to six semester units of credit with a maximum of two semester units counting towards the major degree requirements.