Construction Science and Management (CSM)

Construction Science and Management (CSM) Courses

CSM 2113. Construction Materials and Methods. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as an Architecture, Interior Design, or Construction Science and Management major or permission of instructor. Introduction to materials, methods, equipment and sequences of the construction process including structural elements, components, and assemblies.

CSM 2143. Construction Materials and Testing. (3-0) 3 Credit Hours.
Prerequisites: CSM 2113, PHY 1603, and enrollment as a Construction Science and Management major or permission of instructor. Analysis of materials and methods used in the design and construction process with a particular emphasis on quality control, quality assurance, and testing including soils, concrete, steel, masonry, and wood.

CSM 2323. Construction Documents. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Introduction to construction documents and applicable software for use in communicating building design intentions to field personnel, including an understanding of how to interpret, explain, quantify and use construction documents to bid, construct and manage construction projects.

CSM 2333. Construction Culture and History. (3-0) 3 Credit Hours.
History of construction and building technologies in Western and non-Western cultures. Emphasis on work traditions, graphical illustrations, social and political concerns.

CSM 3011. Construction Industry Contemporary Issues. (1-0) 1 Credit Hour.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Exploration of various professional options and specialties across the construction industry, professional ethics and introduction to professional societies. Must be taken on a credit/no-credit basis.

CSM 3113. Construction Surveying. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Practical applications of surveying, including distance, grade and angular measurements, surveying equipment and its application to construction layout and control, surveying documentation and field work. (Formerly CSM 3111. Credit Cannot be earned for both CSM 3113 and CSM 3111).

CSM 3123. Technical Communication. (3-0) 3 Credit Hours.
Prerequisites: MAT 1033 or MAT 1073 and enrollment as a Construction Science and Management major or permission of instructor. Visualization, interpretation and communication of graphical geometry in construction design and engineering; graphical analysis of problems; plan reading; computer aided design, and fundamentals of information modeling software; introduction to common quantitative tools in construction.

CSM 3143. Structures I. (3-0) 3 Credit Hours.
Prerequisites: PHY 1603 and enrollment as a Construction Science and Management major or permission of instructor. Introduction to the physical principles that govern classical statics and strengths of materials through the design of concrete, timber, and steel components of structures.

CSM 3621. Construction Safety I. (1-0) 1 Credit Hour.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Introduction to safety and safety programs, workers’ compensation, OSHA organization and structure, safety policies, standards, and record keeping. Emphasis on communication and job-site safety ethics and management. Generally offered: Summer.

CSM 4013. Construction Estimating I. (3-0) 3 Credit Hours.
Prerequisites: CSM 2113 and CSM 3123. Introduction to estimating procedures for buildings related to quantity surveying, cost of materials and labor, life-cycle costs, and applicable software. (Formerly ARC 4013. Credit cannot be earned for both CSM 4013 and ARC 4013.) Generally offered: Spring.

CSM 4023. Construction Estimating II. (3-0) 3 Credit Hours.
Prerequisites: CSM 2143 and CSM 4013. Continuation of CSM 4013 with emphasis on pricing work, subcontracting, and bidding strategies utilizing applicable software. (Formerly ARC 4023. Credit cannot be earned for both CSM 4023 and ARC 4023.) Generally offered: Fall, Spring.

CSM 4143. Structures II. (3-0) 3 Credit Hours.
Prerequisite: CSM 3143. Analysis and design of structural members in steel, reinforced concrete, reinforced masonry and their relationship to design and construction.

CSM 4513. Project Management. (3-0) 3 Credit Hours.
Prerequisite: CSM 3123. Introduction to project management of the construction process and integration with allied professions. Introduction to applicable software. (Formerly ARC 4613. Credit cannot be earned for both CSM 4513 and ARC 4613.) Generally offered: Fall, Spring.

CSM 4523. Project Planning and Scheduling. (3-0) 3 Credit Hours.
Prerequisite: CSM 4513. Continuation of CSM 4513 with emphasis on scheduling and project delivery methods utilizing applicable software. (Formerly ARC 4623. Credit cannot be earned for both CSM 4523 and ARC 4623.) (Formerly titled “Construction Management II.”) Generally offered: Fall, Spring.

CSM 4533. Building Information Modeling for Construction Management. (3-0) 3 Credit Hours.
Prerequisite: CSM 3123. Introduction to techniques used in development and management of Building Information Models. Emphasis on constructability and management. Generally offered: Spring.

CSM 4613. Sustainable Building Practice. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Ethics and application of environmental sustainability practice in building construction. Introduction to U.S. Green Building Council LEED program standards, methods, and procedures as applied to construction documents interpretation and construction. Generally offered: Fall, Spring.

CSM 4623. Construction Safety. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Development and management of safety programs, worker’s compensation, OSHA compliance, safety policies, standards, and record keeping.
CSM 4633. Construction Law. (3-0) 3 Credit Hours.
Prerequisite: Enrollment as a Construction Science and Management major or permission of instructor. Legal and ethical aspects of construction contracts, bonds, insurance, and bidding. Owner, architect, contractor, and subcontractor relationships. Generally offered: Fall, Spring.

CSM 4643. Mechanical, Electrical and Plumbing Systems. (3-0) 3 Credit Hours.
Prerequisite: CSM 4533 or permission of instructor. Building systems with an emphasis on design, installation and control of heating, ventilation and cooling, plumbing and drainage, electrical, fire and lightning protection systems. Generally offered: Fall, Spring, Summer.

CSM 4713. Construction Capstone. (3-0) 3 Credit Hours.
Prerequisites: CSM 4023, CSM 4523, CSM 4633, and CSM 4643. Senior capstone project emphasizing integration of the design and construction processes. Project delivery systems, project development, estimating, scheduling and project controls of various types of construction projects. Generally offered: Fall, Spring.

CSM 4911. Independent Study. (0-0) 1 Credit Hour.
Prerequisites: Permission in writing (form available) of the instructor, the student’s advisor, the Department Chair, and the Dean of the College in which the course is offered. Scholarly research under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours of independent study, regardless of discipline, may apply to a bachelor’s degree. Generally offered: Fall.

CSM 4913. Independent Study. (0-0) 3 Credit Hours.
Prerequisites: Permission in writing (form available) of the instructor, the student’s advisor, the Department Chair, and the Dean of the College in which the course is offered. Scholarly research under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours of independent study, regardless of discipline, may apply to a bachelor’s degree.

CSM 4916. Independent Study. (0-0) 6 Credit Hours.
Prerequisites: Permission in writing (form available) of the instructor, the student’s advisor, the Department Chair, and the Dean of the College in which the course is offered. Scholarly research under the direction of a faculty member. May be repeated for credit, but not more than 6 semester credit hours of independent study, regardless of discipline, may apply to a bachelor’s degree.

CSM 4931. Summer Internship. (0-0) 1 Credit Hour.
Prerequisites: CSM 2323, CSM 3011, and CSM 3621. This is a full-time, on-site, construction work experience. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Must be repeated for credit and taken in consecutive five-week summer sessions. Generally offered: Summer.

CSM 4932. Internship. (0-0) 2 Credit Hours.
Prerequisites: CSM 2323, CSM 3011, and CSM 3621. This is a part-time, on-site, construction work experience. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required. Generally offered: Fall, Spring.

CSM 4933. Summer Internship. (0-0) 3 Credit Hours.
Prerequisite: CSM 4623. This is a full-time, on-site, construction work experience during summer semester. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required.

CSM 4943. Internship I. (0-0) 3 Credit Hours.
Prerequisite: CSM 4623. This is a part-time, on-site, construction work experience during fall or spring semesters. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required.

CSM 4946. Internship II. (0-0) 6 Credit Hours.
Prerequisite: CSM 4623. This is a full-time, on-site, construction work experience during fall or spring semesters. Supervision by qualified construction manager and intern mentor to prepare the intern for building construction management functions. Instructor prior approval of details for individual work experience required.

CSM 4951. Special Studies in Construction Science and Management. (1-0) 1 Credit Hour.
Prerequisite: Consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Studies may be repeated for credit when the topics vary, but not more than 3 hours for CSM 4951, 6 hours for CSM 4953, or 12 hours for CSM 4956, regardless of discipline, will apply to a bachelor’s degree.

CSM 4953. Special Studies in Construction Science and Management. (0-6) 3 Credit Hours.
Prerequisite: Consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Studies may be repeated for credit when the topics vary, but not more than 3 hours for CSM 4951, 6 hours for CSM 4953, or 12 hours for CSM 4956, regardless of discipline, will apply to a bachelor’s degree.

CSM 4956. Special Studies in Construction Science and Management. (0-12) 6 Credit Hours.
Prerequisite: Consent of instructor. An organized course offering the opportunity for specialized study not normally or not often available as part of the regular course offerings. Special Studies may be repeated for credit when the topics vary, but not more than 3 hours for CSM 4951, 6 hours for CSM 4953, or 12 hours for CSM 4956, regardless of discipline, will apply to a bachelor’s degree.