

CONSTRUCTION MANAGEMENT (CM)

CM-111 Construction Graphics - (3 Credits)

Construction Graphics is designed to provide the student with the necessary skills to communicate graphically with other professionals associated with the field of construction, including architects, engineers, interior designers, project managers, and building officials. The student will develop the basic vocabulary and skills needed to participate in the field of construction management.

CM-131 Construction: Wood & Masonry - (3 Credits)

An introduction to construction methods and materials: wood frame, plank and beam, and plywood skins; mill and other fireproof and non-fireproof wall bearing masonry construction; interior materials and finishes; and environmental factors affecting selection and application of various materials.

CM-132 Construction: Concrete & Steel - (3 Credits)

Topics covered include steel and concrete structures, heavy foundations, structural systems, components, and typical details; a general study of construction materials and methods; and a review of the construction process.

CM-140 Safety management - (3 Credits)

An advanced, comprehensive approach to Construction Safety Management. The course will deal with Federal, State and Local laws and requirements involving worker, public and client safety practices. Topics will also include developing and implementing a Site Safety Plan, Pre-Task Planning, and Site Worker Orientations. An OSHA 30 hour training course will also be included as part of the curriculum

CM-152 History of Construction Technology - (3 Credits)

CM 152 History of Construction Technology 3 credits The course traces the history of construction technologies through architecture from prehistory to the present day. There is an emphasis on the role of technology in shaping architecture as well as an examination of the cultural social forces that underlie the built environment. The course will relate history to the development of various building technologies and how these technologies influenced design.

CM-191 Professional Bid Proposal Simulation - (1 Credit)

The goal of this course is to provide the Construction Management student with hands-on experience in a simulated bid proposal situation. The students will need to collaborate to develop a professional proposal binder including a company description, resumes, relevant experience, cost estimate, schedule, logistics plan, safety plan, Quality Assurance and Quality Control (QA/QC) process, Equal Opportunity Employment (EOE) policy, union/non-union labor issues, contract, sustainable initiatives (USGBC LEED), BIM strategy, and value engineering recommendations. In addition the students will need to develop Requests for Information (RFIs), and respond to Addenda, and simulated sub-contractor telephone negotiations. The students will need to assess each other's strengths and assign traditional Construction Manager roles: project executive, project manager, superintendent, cost estimator, scheduler, and safety officer. Time management and public presentation skills are essential.

CM-201 Introduction to Construction Management - (3 Credits)

The contemporary construction team - the interrelationship of the owner, construction manager, architect, engineer, contractor, subcontractor and supplier - is studied. Roles, functions and responsibilities of each as applicable to private, corporate, institutional and governmental construction, including some contract documents and forms which may be used in the various relationships, are reviewed.

CM-231 Structural Design Methods I - (3 Credits)

First term covers structural theory, including an introduction to mechanics, shears, moments, and deflections. Emphasis in the second term covers the design of wood and steel systems and concrete and reinforced concrete design, including beams, columns, slabs, and foundation supports. The course objective is to provide a basic understanding of the various structural principles in building design.

CM-232 Structural Design Methods II - (3 Credits)

First term covers structural theory, including an introduction to mechanics, shears, moments, and deflections. Emphasis in the second term covers the design of wood and steel systems and concrete and reinforced concrete design, including beams, columns, slabs, and foundation supports. The course objective is to provide a basic understanding of the various structural principles in building design.

CM-233 Mechanical and Electrical Equipment I - (3 Credits)

Students examine mechanical and electrical equipment installation in modern building construction and operation: water supply, plumbing, sewage disposal, heat losses, heating systems, ventilation, air conditioning, refrigeration, elevators, escalators, illumination, and electrical systems. CM-273 covers small building equipment. CM-274 covers equipment for medium and large buildings.

CM-234 Mechanical & Electrical Equipment II - (3 Credits)

Students examine mechanical and electrical equipment installation in modern building construction and operation: water supply, plumbing, sewage disposal, heat losses, heating systems, ventilation, air conditioning, refrigeration, fire protection, elevators, escalators, illumination, and electrical systems. CM-233 covers small and medium building equipment. CM-234 covers equipment for medium and large buildings.

CM-242 Construction Surveying - (3 Credits)

The Constructor must have an understanding of the relationship of the site and topography to the act of building, and be capable of applying surveying standards on a construction project. The Construction Surveying course introduces the construction management student to plane and geodetic surveying; and the principles of horizontal and vertical measurement using a transit, level and rod, and steel tape; in addition Total Station instruments will be observed on a construction site. Students will also examine the physical character of soil constituents, natural soil deposits, soil index properties, soil classification, stress analysis and engineering properties, interpretation of soils reports, embankment construction and control, dewatering, excavations and excavation supports, foundation construction, and construction access and haul roads.

CM-291 Professional Bid Proposal Simulation - (1 Credit)

The goal of this course is to provide the Construction Management student with hands-on experience in a simulated bid proposal situation. The students will need to collaborate to develop a professional proposal binder including a company description, resumes, relevant experience, cost estimate, schedule, logistics plan, safety plan, Quality Assurance and Quality Control (QA/QC) process, Equal Opportunity Employment (EOE) policy, union/non-union labor issues, contract, sustainable initiatives (USGBC LEED), BIM strategy, and value engineering recommendations. In addition the students will need to develop Requests for Information (RFIs), and respond to Addenda, and simulated sub-contractor telephone negotiations. The students will need to assess each other's strengths and assign traditional Construction Manager roles: project executive, project manager, superintendent, cost estimator, scheduler, and safety officer. Time management and public presentation skills are essential.

CM-321 Project Controls I - (3 Credits)

CM-321 Project Controls I Starting with the development of measured program or project objectives, this course, delivered over the Fall and Spring Semesters consecutively provides the complete step process and project tested examples and templates of how to establish and maintain an effective cost and schedule management system from project inception through to completion to ensure that project requirements are addressed. The Fall semester will focus on Pre-Project and Pre-Construction project controls, up to the point of issuing bids for construction work.

CM-322 Project Controls II - (3 Credits)

CM-322 Project Controls II Starting with the development of measured program or project objectives, this course, delivered over the Fall and Spring Semesters consecutively provides the complete step process and project tested examples and templates of how to establish and maintain an effective cost and schedule management system from project inception through to completion to ensure that project requirements are addressed. The Spring semester will start with the award process for construction work, and focus on all aspects of Project Controls during project execution, completion and start up.

CM-341 Design Theory Design Theory - (3 Credits)

Design Theory is a two-part course focusing on the role that design theory plays in our built environment. Students will first become acquainted with the principles of design theory. They will then explore how these principles, in conjunction with the concerns of the environment, specificity of site, and building typology, come together to create the structures of our modern world.

CM-346 Estimating - (3 Credits)

CM 346 Estimating Understanding how to prepare a detailed construction cost estimate including performing material quantity takeoffs, pricing labor and equipment and evaluating overhead costs

CM-347 Planning and Scheduling - (3 Credits)

The Contractor is responsible for preparing and submitting the construction schedule to the Owner and the Architect: refer to AIA Document A-201 (2007), General Conditions of the Contract for Construction, Section 3.10.1. This course introduces the construction management student to concepts of planning and scheduling that are the responsibility of the Contractor. Topics covered include: Parameters Affecting Project Planning, Schedule Information Presentation, Network Diagramming and Calculations with CPM, and Resource Allocation and Management. Students will have the opportunity to apply their knowledge of planning and scheduling to a set of actual construction documents.

CM-352 Construction Failures - (3 Credits)

This course is an in-depth look at famous (and infamous) structural collapses, with an eye toward analyzing them and taking away the lessons that can be learned. This is most relevant to the application of new ideas in the design process, seen by examining common errors that led failures.

CM-391 Professional Bid Proposal Simulation - (1 Credit)

The goal of this course is to provide the Construction Management student with hands-on experience in a simulated bid proposal situation. The students will need to collaborate to develop a professional proposal binder including a company description, resumes, relevant experience, cost estimate, schedule, logistics plan, safety plan, Quality Assurance and Quality Control (QA/QC) process, Equal Opportunity Employment (EOE) policy, union/non-union labor issues, contract, sustainable initiatives (USGBC LEED), BIM strategy, and value engineering recommendations. In addition the students will need to develop Requests for Information (RFIs), and respond to Addenda, and simulated sub-contractor telephone negotiations. The students will need to assess each other's strengths and assign traditional Construction Manager roles: project executive, project manager, superintendent, cost estimator, scheduler, and safety officer. Time management and public presentation skills are essential.

CM-401 Construction Management I - (3 Credits)

Covers construction project management from conception to completion. Students explore feasibility studies, site selection, planning, programming, design coordination and contracting procedures of actual construction. Emphasis is on contractor operations, project administration, job planning, CPM scheduling and subcontract coordination.

CM-402 Construction Management II Practical Construction Management - (3 Credits)

Covers construction project management from conception to completion. Students explore feasibility studies, site selection, planning, programming, design coordination and contracting procedures of actual construction. Emphasis is on contractor operations, project administration, job planning, CPM scheduling and subcontract coordination.

CM-404 Project Management - (3 Credits)

Construction Project Management is the art and science of organizing the Work. The construction project manager requires an understanding of all aspects of the project including: bidding and estimating, procurement, labor relations, scheduling, project controls, legal and contractual issues, construction technology, means and methods of construction, site safety regulations, and administrative procedures. This course introduces the Construction Management student to the following concepts: roles and responsibilities of the construction team; labor relations; administrative systems and procedures; cost control data and procedures; documentation at the job site and office; quality control philosophies and techniques; and computer applications. Ethics will also be addressed.

CM-419 BIM for Construction Managers Studio - (3 Credits)

The focus of this class is to get fundamental knowledge of the concept of BIM and how to manage the model and extract the data that is useful for Construction Management. It will simulate the path of design and construction of a significant building type, such as a 30-story office tower. A range of cutting edge software will be used to model and then harvest the embedded data from the building information model, which are then used to inform the design and construction. Through BIM we create buildings that are well-designed, accurately-built, economical, and sustainable throughout their complete life cycle.

CM-446 Sustainable Construction Management - (3 Credits)

This course explores three methodologies of Construction Management for Sustainable Projects. The course will enable students to meet the challenges of green building construction and the benefits of construction environmentally friendly, sustainable buildings. Topics include project management, field management, project delivery, documentation, and risk. Case studies are discussed throughout the course and students present sustainable procurement proposals individually and in teams at the conclusion of the term.

CM-451B Architecture of New York City - (3 Credits)

New York City is a virtual storehouse of American architecture. The stock of buildings includes examples of nearly every style of architecture from colonial to postmodern. This course reviews the various historical eras of architecture in New York City and analyzes how they were affected by construction technology and social and economic forces. Lectures present the stylistic groupings of architecture and are supplemented by visits to the unique historic districts and architectural sites of the city.

CM-461 Building Codes and Zoning - (3 Credits)

This is a study of zoning and building code requirements. Special emphasis is placed on the life safety and accessibility sections of the building code and roles of building departments and their authority. The approval and permit process is discussed as it relates to various types of alterations and building structures.

CM-462 Restoration & Renovation - (3 Credits)

This course consists of a series of lectures and readings to enable students to assess and restore property damage and to recognize and appreciate the techniques necessary to rehabilitate and renovate old structures. The lectures are designed in the chronological order employed by an architect, construction manager and/or general contractor in the restoration and renovation of historic buildings. This course concentrates on the construction methods, tools and materials necessary to restore the style and grace required to protect our housing stock and American heritage.

CM-463 Real Estate Development - (3 Credits)

Introduces the principles of real estate development with an emphasis on economic issues. Topics covered include participants in the development process, types of real estate development, contract and closing procedures and tools, tax shelters, and an overview of the development process. The roles played by the public and private sectors are examined with an emphasis on discerning the differences in perspectives associated with each sector.

CM-471 Construction Law - (3 Credits)

This introduction to law and contracts helps students to avoid entanglements and disputes and to develop awareness of legal rights so that construction claims can be settled by negotiation, not litigation.

CM-491 Professional Bid Proposal Simulation - (1 Credit)

The goal of this course is to provide the Construction Management student with hands-on experience in a simulated bid proposal situation. The students will need to collaborate to develop a professional proposal binder including a company description, resumes, relevant experience, cost estimate, schedule, logistics plan, safety plan, Quality Assurance and Quality Control (QA/QC) process, Equal Opportunity Employment (EOE) policy, union/non-union labor issues, contract, sustainable initiatives (USGBC LEED), BIM strategy, and value engineering recommendations. In addition the students will need to develop Requests for Information (RFIs), and respond to Addenda, and simulated sub-contractor telephone negotiations. The students will need to assess each other's strengths and assign traditional Construction Manager roles: project executive, project manager, superintendent, cost estimator, scheduler, and safety officer. Time management and public presentation skills are essential.

CM-491A Independent Study - (1 Credit)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, and the chairperson.

CM-491B Independent Study - (2 Credits)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, and the chairperson.

CM-491C Independent Study - (3 Credits)

Students pursuing advanced projects not available in regular course offerings may apply for independent study if they have a minimum GPA of 3.0 and have at least sophomore status. Students must submit a written description of the project and its relationship to their curriculum. The application must be approved by the faculty member directing the work, and the chairperson.

CM-499 Capstone Project - (3 Credits)

The Capstone Project is the culmination of all of the knowledge accumulated during the first three years of the Construction Management Program. Students will be assigned a set of construction documents for a real project. The students will develop a Construction Management Project Proposal based on the construction documents. The Project Proposal will include (at minimum): Project Approach; Project Cost; Project Schedule; Project Staffing; Safety Plan; Value Engineering Proposals; and Site Logistics Plan. Following the preparation of the Project Proposal, the students will prepare a public presentation to be reviewed and critiqued by a jury of Construction Management Professionals.

CM-9400 Internship I (0 Credit) - (0 Credits)

Students wishing to combine practical experience with construction management study may apply for an internship with participating companies if they have a minimum GPA of 3.0 and at least sophomore status. Students, in conjunction with the faculty advisor and employer, prepare a written description of the studies to be accomplished as part of the internship and their relationship to the curriculum. The application must be approved by the faculty advisor, the chairperson, and the employer.

CM-9401 Internship I (1 Credit) - (1 Credit)

Students wishing to combine practical experience with construction management study may apply for an internship with participating companies if they have a minimum GPA of 3.0 and at least sophomore status. Students, in conjunction with the faculty advisor and employer, prepare a written description of the studies to be accomplished as part of the internship and their relationship to the curriculum. The application must be approved by the faculty advisor, the chairperson, and the employer.

CM-9402 Internship I (2 Credit) - (2 Credits)

Students wishing to combine practical experience with construction management study may apply for an internship with participating companies if they have a minimum GPA of 3.0 and at least sophomore status. Students, in conjunction with the faculty advisor and employer, prepare a written description of the studies to be accomplished as part of the internship and their relationship to the curriculum. The application must be approved by the faculty advisor, the chairperson, and the employer.

CM-9403 Internship I (3 Credit) - (3 Credits)

Students wishing to combine practical experience with construction management study may apply for an internship with participating companies if they have a minimum GPA of 3.0 and at least sophomore status. Students, in conjunction with the faculty advisor and employer, prepare a written description of the studies to be accomplished as part of the internship and their relationship to the curriculum. The application must be approved by the faculty advisor, the chairperson, and the employer.