

CONSTRUCTION MANAGEMENT (CMA)

CMA 601. Fundamentals of Construction Management. 3 Credit Hours.

Fundamentals of Construction Management is an introductory-level, graduate course. This course is designed to provide students with introductory knowledge and basic skills they will need to understand and apply as they progress through the program. Students receive an overview of key topics that will be covered in greater detail through core courses and electives during subsequent terms. Each class session provides a primer on a specific area of vital importance, including scheduling, cost estimating and Project Management. Upon completion students will be familiar with basic concepts, terminology, and procedures associated with the industry, and well prepared to study these subjects in greater depth.

Components: LEC.

Grading: GRD.

Typically Offered: Fall & Spring.

CMA 603. Critical Thinking and Communications in Design and Construction. 1 Credit Hour.

Critical thinking is the driver of effective communication. In general, critical thinking is the ability to deal with the contradictions and problems in a tumultuous environment in a reasoned, purposeful and productive way. Decisions are made using an approach that is fair, objective, accurate and based on information that is relevant to the situation. The pursuit of critical thinking equips leaders and managers think rationally, provide sound reasoning and develop a coherent argument. In this Course, students identify and use critical thinking skills, processes and techniques to effectively communicate their ideas.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 610. Financial Management and Accounting for Construction. 2 Credit Hours.

Students in this course study the management of construction company and construction project finances. They learn the fundamentals of construction accounting and depreciation, prepare financial statements for a construction company, analyze company's financial health, conduct cost and profit center analysis, prepare and forecast cash flows, and use the technique of time value of money for economic decision making.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 616. Construction Project Controls. 2 Credit Hours.

Project Planning, Scheduling & Control is the process of coordinating numerous and often complex elements to erect a structure and satisfy the needs of a sophisticated owner. Study of methods for coordinating people, equipment, materials, money, and schedule to complete a project on time and within approved cost. Each phase of the work must be monitored and measured. You cannot control if you cannot measure and you cannot measure if you cannot count. It then becomes the goal of project controls to quantify and govern costs and the goal of the scheduling process to quantify and visualize the progress of the job and make the necessary changes to deliver a successful job.

Prerequisite: CMA 601.

Components: LEC.

Grading: GRD.

Typically Offered: Fall & Spring.

CMA 630. Contract Documents. 2 Credit Hours.

Students in this class will gain a basic knowledge of construction contract documents including agreements, contracts, drawings and specifications, requests for information, change orders, and other documents that make up the body of Contract Documents associated with a given project. The course focuses on understanding the relationship between, contract documents and the construction process, as influenced by Project Delivery Methods We will explore contractual relationships, legal roles and responsibilities, and contract types.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 632. Construction Risk Analysis and Control. 2 Credit Hours.

Construction Risk Management is an advanced-level, graduate course designed especially for disciplines involved in creating the built environment (e.g., architecture, urban planning, infrastructure-related engineering disciplines). The focus will be on identifying and managing risks at the project. A variety of risk analysis concepts, tools and methodologies will be utilized.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 636. Legal Issues in Building Construction. 3 Credit Hours.

This course examines problems that can arise during the course of construction due to different interpretations by various project team members of contract document provisions and communications. These problems can significantly affect the risk, schedule and cost of a project. Students will be encouraged to work in small groups to identify, and to recommend specific actions to avoid and to minimize adverse impacts of, ambiguous contract provisions and project communications.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 640. Virtual Design and Construction (VDC/BIM). 3 Credit Hours.

The building industry is rapidly adopting Virtual Design and Construction (VDC) and Building Information Models (BIM) throughout the project process; design, construction, and facilities management. VDC and BIM are increasingly becoming an umbrella term for a variety of software tools, design methods, and construction processes that allow for more automation, communication and integration between project participants. This course reflects on emerging technologies in the context of Project Management and Integrated Delivery, and includes modeling, visualization, 3D clash detection, digital site layout, 4D modeling, as-built model generation, and digital information management. This course will first introduce basic VDC and BIM concepts and review industry examples of how these concepts play out on design and construction projects.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 642. Emerging Technologies in Design and Construction. 2 Credit Hours.

Technologies emerge in part to address the needs of society, improve sustainability and resiliency, and increase productivity and thus profit margins. There is an undeniable need for efficiency in managing the construction process, and emerging technologies offers perhaps the best opportunities to improve the construction process through better integration and efficiency. This course surveys cutting edge technologies in the construction industry and their applications in the design and construction process.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 644. Sustainable Development. 2 Credit Hours.

This course provides the students with an understanding of the environmental and resource implications of construction activity within the context of sustainable development. It considers the theoretical and methodological basis of approaches designed to quantify the impacts associated with choices made at different stages of the construction life cycle, as well as tools designed to evaluate relative environmental and sustainability performance

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 654. Introduction to Health and Safety. 1 Credit Hour.

Introduces occupational safety hazards associated with the construction industry. Emphasis placed on recognition, evaluation and control of safety hazards particularly as they relate to the Occupational Safety and Health Act.

Components: SEM.

Grading: GRD.

Typically Offered: Summer.

CMA 670. Construction Site Practicum (Materials and Methods Health and Safety). 2 Credit Hours.

This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction site. a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 674).

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 671. Construction Management Practicum (Project Management). 2 Credit Hours.

This course allows students to participate in a supervised work program where they apply MCM coursework knowledge in a practical setting. Students will complete 2 rotations per term. Each rotation will be at a different job site and with a different corporate sponsor. Work is supervised by a SoA faculty member and a corporate sponsor. Students develop conceptual and professional skills related to their practice at a construction office a minimum of 20 hours per week (140 hours per 7-week rotation). Students will also meet with their faculty supervisor 1 hour per week during the term to review progress. Satisfactory performance at the field placement and during on-campus class meetings must be demonstrated before students can proceed to the Professional Internship (CMA 673).

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 674. Capstone Project. 3 Credit Hours.

The Construction Management Capstone Project course introduces the methods and tools necessary to analyze a set of plans and specifications for an active Miami building project (or projects) and includes a comprehensive review and analysis of documentation requirements for the selected project(s). Students are paired with appropriate industry managers and work in small teams, utilizing knowledge acquired from their core courses to develop and draft a comprehensive, professional level project manual. Review of contract plans and documents as well as site visits and interaction with actual project team members are required. To be taken during the final term of study.

Components: LEC.

Grading: GRD.

Typically Offered: Summer.

CMA 676. Interdisciplinary Design Studio/ Integrated Project Delivery. 3 Credit Hours.

Integrated Project Delivery is an alternative to the traditional design-bid-build approach. It is based on enhanced collaboration among design professionals, clients and the building team. These methods can reduce risk and improve the efficiency of the design and construction delivery process. Integrated practice and integrated project delivery are a response to pressures from building owners for a more efficient and predictable process for designing and constructing buildings, and to the increasing availability of advanced digital technologies such as Building Information Modeling. This is an active learning course. Students enrolled in this course will participate in the integrated Design Studio assuming the role of the Construction consultant providing guidance in the design process including; defining goals and standards, Project Costs, Project Schedule, Project Quality, Sustainability, and Performance. Prerequisite: CMA 640

Components: LEC.

Grading: GRD.

Typically Offered: Fall & Spring.

CMA 680. Directed Studies. 1-4 Credit Hours.

This course is designed to provide further study through directed readings, directed research projects or seminars, or special class work related to research in a specific subject related to the construction industry not realizable through an existing course. Students must, in consultation with a faculty member, develop a detailed project proposal indicating the rationale, readings, scope, objectives, and methods prior to beginning the course. Each Directed Studies course is usually initiated in response to student interest and is limited to five or fewer students.

Components: IND.

Grading: GRD.

Typically Offered: Offered by Announcement Only.

CMA 681. Special Topics in Construction. 1-3 Credit Hours.

Group or individual investigations of special topics and current issues relevant to the construction industry. Offered by special arrangement only.

Components: LEC.

Grading: GRD.

Typically Offered: Offered by Announcement Only.

CMA 682. Special Topics in Construction. 1-3 Credit Hours.

Explorations of special topics and current issues relevant to the construction industry. Teaching and learning methods vary depending on the subject matter.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 684. Special Problems. 1-6 Credit Hours.

Explorations of special problems and current topics relevant to the construction industry. Teaching and learning methods vary depending on the subject matter.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 690. Advanced Productivity and Lean Construction. 2 Credit Hours.

The course aims to provide an understanding of the modern concepts and methods in productivity and production system to improve construction practice with lean construction, as well as other tools and techniques for designing and implementing lean construction on projects.

Components: LEC.

Grading: GRD.

Typically Offered: Spring & Summer.

CMA 691. Quality Management and Performance. 1 Credit Hour.

Advanced construction management approaches to quality; process and productivity improvement in construction. Students use of case studies, exercises, and/or term projects to show application of management and quantitative concepts.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 692. Construction Forensics. 1 Credit Hour.

Construction failure, in its many forms, are both interesting and instructive and in the context of this course, students will study construction failures in their many forms.

Components: LEC.

Grading: GRD.

Typically Offered: Summer.

CMA 694. Codes, Standards and Regulations. 1 Credit Hour.

This course provides students with an awareness of different codes, standards, and regulations applicable to the construction industry, how to find the codes and what roles they play in design and construction. The course takes the student through the history of codes, standards, and regulations, their promulgation and their future.

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 701. Operating and Managing a Construction Organization. 3 Credit Hours.

Successfully managing a construction company is a multifaceted undertaking that requires knowledge of common business practices, accounting principles, regional economic conditions and expertise in the building process. This course leads students through the how-to's of running a successful, large, complex construction company. It analyzes how the industry actually works, including contractual relationships with clients in all types of projects from design/build to privatization. It covers the business fundamentals of running a construction company, including issues such as surety and insurance: various types of construction organizations, domestic and international; and company culture - inner-workings of a business that can mean the differences between success and failure.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 702. Professional Leadership Seminar. 1 Credit Hour.

This course will explore in a seminar format leaders and leadership situations. Industry leaders will share years of experience and tell their stories. It is an eclectic group who face diverse challenges. The key elements of leadership will be discussed and a framework for thinking about leadership created to provide focus for discussions. The goal will be to enhance students' understanding of and openness to growth as leaders. It is not to teach students to lead. It is to help them think more insightfully about the subject and gain an understanding of what they can do to become more effective.

Components: SEM.

Grading: GRD.

Typically Offered: Fall.

CMA 708. Preconstruction Services. 2 Credit Hours.

Pre-construction services grew out of construction cost estimating to encompass the other activities in planning a project with the intent to help deliver a satisfactory project that meets the owner's objectives. The preconstruction team participates in design decisions, evaluations, studies, value engineering, value analysis, scheduling, constructability reviews, and more. The course covers the analysis of pre-construction services including, feasibility studies, conceptual estimating, scope definition, cost estimating & GMP, constructability & design review, value engineering, and bid review & comparison.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 710. Construction Finance, Planning and Analysis. 2 Credit Hours.

This course is designed for industry professionals to enhance their skills in managing the finances of a construction organization and create a sustainable corporate enterprise. The emphasis is on accounting and managerial finance principles from the perspective of a company President or General Manager.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 720. Advanced Planning and Scheduling. 2 Credit Hours.

In depth understanding of the theory and techniques associated with planning, analysis and control. This is a practice oriented, construction project-planning, management and control course emphasizing standard quantitative and qualitative techniques. The Planning, Management, and Control skills necessary to function effectively on complex projects share a common requirement for understanding scheduling, cost control, and their inter-relationship for ensuring successful project performance.

Components: LEC.

Grading: GRD.

Typically Offered: Summer.

CMA 722. Case Studies in Risk Management. 2 Credit Hours.

Through the case studies and discussion, this course focuses on the safety practices mandated by government regulation and required by good business practice. Exposure analysis, risk management, risk transfer and the costs associated with each will be examined.

Components: LEC.

Grading: GRD.

Typically Offered: Fall & Spring.

CMA 724. Human Resource Management. 1 Credit Hour.

This course uses case studies to discuss the variety of issues that contribute directly to organizational and professional development. Included are the strategies used to create working environments geared toward success on the job. Managing an organization's people is often the most challenging and complex task required of a manager. It is also the responsibility, if executed well, that permits a person to rise to the senior level of management, or prevents a manager from rising to the senior level if done poorly. The objective of the course is to teach the basic principles of strategic human resource management—how an organization acquires, rewards, motivates, uses, and generally manages its people effectively

Components: LEC.

Grading: GRD.

Typically Offered: Fall, Spring, & Summer.

CMA 726. Case Studies in Construction Management. 2 Credit Hours.

Case Studies in Construction Management uses case studies to analyze and integrate the various disciplines found in the development of the Built Environment from the perspective of Construction Management.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 730. Managing Legal Issues in Building Construction. 2 Credit Hours.

This course is not intended to make lawyers out of Construction Management students. It is, rather, an effort to introduce those who might become involved in the construction industry to legal issues which are essential elements of construction projects. The course, which will be taught by practitioners and participants in the field, provides an overview of the legal issues which confront the construction executive from proposals and preconstruction services through post occupancy and warranty.

Components: LEC.

Grading: GRD.

Typically Offered: Fall.

CMA 734. Prevention and Resolution of Contract Disputes. 2 Credit Hours.

This course covers the variety of contractual relationships in the construction industry and the actions that may result in disputes. Emphasis is given to the steps required for rapid, cost-effective resolution of disputes. Resolution techniques such as negotiating, mediation, arbitration, and litigation are examined, and case studies requiring oral and written presentations are incorporated into the class sessions.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.

CMA 740. Project Feasibility Analysis and Valuation. 2 Credit Hours.

This course provides students with the essential tools needed to analyze the feasibility of a real estate development project, including the process for determining the asset's valuation based on projected cash flows. For a construction organization, understanding how a client/owner evaluates project opportunities and forecasts asset performance furnishes valuable insight into the critical cost and revenue assumptions that drive a project's expected returns.

Components: LEC.

Grading: GRD.

Typically Offered: Summer.

CMA 799. Capstone Research. 2 Credit Hours.

This course will guide students in the development of their research topic. It integrates applied classroom and current industry practice and knowledge through observation and interpretation of realistic CM issues

Components: RSC.

Grading: GRD.

Typically Offered: Fall.

CMA 801. Executive Capstone Project. 4 Credit Hours.

The executive program concludes with a 4 credit Capstone Project focused on the assessment of problem areas in a selected project or organization and applying knowledge gained to increase efficiency, eliminate errors and increase profitability.

Components: LEC.

Grading: GRD.

Typically Offered: Spring.