

CONSTRUCTION MANAGEMENT (CMGT)

CMGT 1310 Intro Construction Management 3 Credits

Department: College of Business

An introduction to the construction industry and management of construction projects. Materials and methods used in light, heavy, and industrial construction industries, including soils, above and below ground piping, concrete, asphalt, etc. Construction of a small project. Applies principles of ethics, oral and written communication.

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 1320 Light Construction Materials and Methods 3 Credits

Department: College of Business

This course studies light-duty construction systems and an introduction to BIM/CAD. Topics include light frame construction, interior and exterior finish systems, insulation, and sustainability. Course will focus on the development of a fundamental knowledge base for managing construction projects through case study and hands-on experience. Applies principles of oral and written communication. Lab activities may include job site visits and performing field tests.

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 2310 Heavy Construction Materials and Methods 3 Credits

Department: College of Business

Introduction to heavy construction principles and the use of BIM/CAD materials, assemblies and print reading; foundations; concrete construction - including cast-in-place, precast concrete systems and formwork; masonry; finishes; and steel construction. Also applies oral and written communications. Lab activities may include job site visits and performing field work and tests.

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 2330 Fundamental Statics 3 Credits

Department: College of Business

Fundamentals of structures under load and at rest are introduced; forces and equilibrium, methods of joints, method of sections, methods for multi-force members, and load tracing.

Prerequisite(s): MATH 2312 and PHYS 1305

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 2350 Construction Surveying 3 Credits

Department: College of Business

Introduction to the basic principles of construction surveying. Use of equipment for measurement of horizontal and vertical distances and angles. Field practice and calculations associated with design and layout of small construction projects.

Prerequisite(s): MATH 2312

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 2420 Construction Graphics Communication 4 Credits

Department: College of Business

Study and practice of communicating through manual and digital graphics. Emphasis on developing hand-printing and hand-sketching abilities; reading civil, commercial, and industrial construction documents; developing three-dimensional building information modeling (BIM) ability; and using these concepts to perform construction estimating and layout.

Prerequisite(s): CMGT 1310 and (CMGT 1320 or CMGT 2310)

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 3330 Structural Behavior I 3 Credits

Department: College of Business

A completion of fundamental mechanics; centroid and moment of inertia, shear force and bending moment, deflections and rotations, statically determinate and indeterminate structures. Properties and behavior of steel materials in construction. Applications in temporary steel construction structures such as scaffolding, and steel erection/bracing.

Prerequisite(s): CMGT 2330

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 3340 Industrial and Mechanical Construction 3 Credits

Department: College of Business

A survey of the systems, including equipment, piping, and materials, used in industrial construction, and applicable codes. Course includes process laboratories, and development of an industrial construction execution plan.

Prerequisite(s): CMGT 2420

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 3350 Electrical Systems 3 Credits

Department: College of Business

Survey of the principles and practices of electrical and electronic systems in residential, commercial, and industrial construction. Includes design, installation, applicable codes, and energy conservation.

Prerequisite(s): CMGT 2420

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 3360 Structural Behavior II 3 Credits

Department: College of Business

Introduction to properties and structural behavior of reinforced concrete members, including concrete design. Basic principles of foundation behavior. Applications in temporary concrete construction structures such as concrete forms.

Prerequisite(s): CMGT 3330

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 4100 Internship/Independent Study 1 Credit**Department:** College of Business

Four hundred hours of pre-planned, unique practicum that provides knowledge and skills not found in the traditional classroom setting. Special learning objectives in one of the following is recommended, but other objectives will be considered: project management, acquisition and development of residential land, scheduling, construction technology, field operations, office operations, building materials, estimating, finance, marketing, construction management, and/or land use codes and regulations. A final report and oral presentation are required under supervision of an academic advisor. It is strongly recommended this course be completed during the summer preceding a student's final semester or year.

Prerequisite(s): CMGT 2420**Restriction(s):**Students with a class of Freshman or Sophomore may **not** enroll.

Enrollment limited to students in the BS-CONS program.

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4199 Special Topics in Construction Management 1 Credit****Department:** College of Business

This course is intended for the investigation of new or special problems in construction, construction science, and construction management under the guidance of a faculty member. This course may be repeated for credit when topics of investigation differ.

May be Repeated for a maximum of 4 hours

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4270 Strategic Analysis and Evaluation 2 Credits****Department:** College of Business

This course takes a comprehensive approach to sharpen analytical, decision-making, leadership, and communication skills using (1) senior paper, and writing other CM technical documents, and (2) construction business strategy game. This course also includes the CM program exit exam and exit interview.

Corequisite(s): CMGT 4470**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4310 Construction Planning and Scheduling 3 Credits****Department:** College of Business

Basic construction project management and scheduling procedures. Work breakdown structure, critical path method, and scheduling logic. Activity durations, status reports, resource allocation, and control. Covers elements of construction ethics and safety.

Prerequisite(s): CMGT 2420**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4325 Construction Project Management 3 Credits****Department:** College of Business

Study of the concepts and tools used for the management and control of the construction jobsite, including topics of safety, equipment management, quality control. Covers elements of construction ethics.

Prerequisite(s): CMGT 2420**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4340 Construction Soils and Earthwork 3 Credits****Department:** College of Business

Basic principles of soil mechanics/engineering and earthwork are coupled with practical examples that show how construction methods and operations are controlled and/or influenced by natural soils. The course takes a non-design approach in the presentation of this terminal geotechnical course specifically dealing with soils in construction for the construction personnel who do not contemplate further study of soil mechanics or foundation design.

Prerequisite(s): CMGT 2330**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4350 Legal Practices in Construction 3 Credits****Department:** College of Business

Construction contracts for commercial projects. Contract procedures, bidding, changes, substitutions, specifications, insurance, bonding, claims, disputes and payments. Responsibilities of owners and contractors. Covers national and local labor law and labor relations.

Prerequisite(s): BULW 3310**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4370 Construction Safety Management 3 Credits****Department:** College of Business

The study of safety standards, procedures and tools used in the construction industry. Emphasis on applicable safety codes, OSHA safety requirements, job safety analysis and the history and impact of construction safety. Covers elements of construction ethics.

Prerequisite(s): CMGT 2420**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4380 Sustainable Built Environment and Society 3 Credits****Department:** College of Business

Introduction to the concept of sustainability and understanding of its impact on the environment and society. Covers fundamentals of sustainable technologies and practices for development and operation of built environment, including buildings and infrastructure. It addresses energy-efficient design and construction, as well as sustainable use of natural resources and renewable energy. It also introduces the USGBC LEED Certificate Program and economic analysis of sustainable practices.

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4399 Special Topics in Construction Management 3 Credits****Department:** College of Business

This course is intended for the investigation of new or special problems in construction, construction science, and construction management under the guidance of a faculty member. This course may be repeated for credit when topics of investigation differ.

May be Repeated for a maximum of 12 hours

Grade Mode(s): Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 4420 Construction Cost Estimating and Analysis 4 Credits****Department:** College of Business

Basic construction project management and scheduling procedures. Work breakdown structure, critical path method, and scheduling logic. Activity durations, status reports, resource allocation, and control. Covers elements of construction ethics and safety.

Prerequisite(s): CMGT 2420**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS

CMGT 4470 Capstone Construction Project 4 Credits**Department:** College of Business

Development of an actual construction project and/or a business plan. Covers elements of construction ethics; applies principles of oral and written communication. This course should be taken in the last semester.

Prerequisite(s): CMGT 2350 and CMGT 3340 and CMGT 4370 and CMGT 4310 and CMGT 4420**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5310 Construction Planning and Scheduling 3 Credits****Department:** College of Business

Basic construction project management and scheduling procedures. Work breakdown structure, critical path method, and scheduling logic. Activity durations, status reports, resource allocation, and control. Covers elements of construction ethics and safety.

May be Repeated for a maximum of 9 hours

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5315 Advanced Construction Planning 3 Credits****Department:** College of Business

Theoretical knowledge and practical applications of advanced methodologies for planning, scheduling, monitoring and controlling construction projects. Advanced level applications of 4D scheduling and Primavera P6 for creating and managing construction schedules. Introduction to statistical modeling and computer simulation for planning. software packages widely used in the construction industry. Review of the standard techniques for planning and scheduling - CPM, PERT and LOB.

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5330 Construction cost Management 3 Credits****Department:** College of Business

This course discusses the essential cost estimating and management principles needed by construction managers, including accounting and financial management, to profitably manage the finances of construction companies. Topics in construction cost estimating, construction financial management, construction accounting system, management of costs, profits and cash flows are studied.

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5340 Advanced Construction Project 3 Credits****Department:** College of Business

Exploration of the fundamentals of advanced technologies for managing construction projects, such as image processing, building information modeling (BIM), virtual construction and information communication (ICT)-based project management software package. Application of the theoretical knowledge of project management using advanced technologies. Introduction to the project management body of knowledge and the study of key project management processes.

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5350 Legal Practices in Construction 3 Credits****Department:** College of Business

Construction contracts for commercial and industrial projects. Contract procedures, bidding, changes, substitutions, specifications, insurance, bonding, claims, disputes and payments. Responsibilities of owners and contractors. Covers national and local labor law and labor relations. Course covers elements of construction ethics.

May be Repeated for a maximum of 9 hours

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5355 Conflict and Negotiation Mgmt 3 Credits****Department:** College of Business

This course provides an in-depth coverage of construction contract claims and dispute resolution. Topics include: differing site conditions, contract interpretation and administration, delays and accelerations, identification of conflicts and claims, schedule and cost analysis in claims, change order, dispute resolution and negotiation and records and documentation.

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS**CMGT 5385 Sustainable Practices in CM 3 Credits****Department:** College of Business

This course discusses how sustainability and green construction concepts and principles applied throughout the design and construction process. Topics included are the concepts and principles of sustainable development; the newest technologies in green construction and materials; infrastructure sustainability and resilience; case studies on the applications of sustainability concepts in design and construction.

Restriction(s):Undergraduate level students may **not** enroll.**Grade Mode(s):** Standard Letter, Registrar do not use FN, Registrar do not use FS