

Construction Management (CMGT)

CMGT 1010

Introduction to Construction Management WE 3

Presents an overview of the practice of construction management including heavy civil, commercial, and residential construction. Examines the 5 M's of Construction Management-Money, Machines, Materials, Manpower and Marketing. Introduces construction documents including 2D and 3D building information models (BIM). Utilizes guest lecturers, and field trips in addition to traditional classroom activities.

CMGT 1020

Construction Materials and Methods I 3

* Prerequisite(s): MAT 0950 or higher or appropriate test scores

Provides a basic knowledge of the materials and methods used in heavy civil, commercial, and residential construction projects. Includes lectures, site visits and laboratory work. Curriculum covers CSI Divisions 01-05. Lab access fee of \$45 for computers applies.

CMGT 1150

Construction Safety 2

Introduces OSHA safety practices and its role in the construction industry. Reviews related safety theories, procedures and practices used in the construction industry. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 1190

Concrete and Framing Lab 3

Offers applied learning experience in concrete and framing methods on a construction project. Course Lab Supply fee of \$10 for materials applies.

CMGT 1220

Finishing Lab 3

Offers lab experience in finishing methods and techniques on a construction project. Course Lab Supply fee of \$10 for materials applies.

CMGT 2010

Construction Materials and Methods II 3

* Prerequisite(s): MAT 0950 (or higher)

Provides basic knowledge of the materials and methods used in heavy civil, commercial, and residential construction projects. Includes lectures, site visits and laboratory work. Curriculum covers CSI Divisions 06-39. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 2025

Heavy Civil Plans and Specifications 3

* Prerequisite(s): CMGT 1010, CMGT 1020

Designed for students interested in heavy/civil construction and design. Studies plans, standards and specifications for infrastructure construction. Emphasizes roadway systems, highway and bridge construction utilized in the heavy civil construction industry. Utilizes current project plans. May include site visits and guest lecturers as appropriate.

CMGT 2035

Construction Computer Applications 3

* Prerequisite(s) or Corequisite(s): CMGT 1010, and (CMGT 1020 or CMGT 2010), or department approval.

Emphasizes construction industry-specific, project management software use. Covers spreadsheets, scheduling, document manipulation, storage, dissemination and collaboration. Lab access fee of \$45 applies.

CMGT 2060

Construction Job Site Management 3

* Prerequisite(s) or Corequisite(s): CMGT 2010 or CMGT 1020

Covers the role and duties of job site managers of heavy civil and commercial construction projects. Includes documentation, time and cost control, jobsite layout and control, labor relations, conflict resolution, OSHA safety practices. Emphasizes the design and implementation of project safety plans. Focuses on project quality, productivity, cost control and safety management. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 2080

Principles of Construction Scheduling 3

* Prerequisite(s): CMGT 1010, CMGT 2010, and (CMGT 2035 or IM 2010)

Provides fundamental skills required to plan and schedule civil and commercial construction projects. Familiarizes students with computer scheduling software packages used to monitor and control construction projects. Defines the sequencing, phasing, and critical path management of construction activities. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 281R

Internship 1 to 6

* Prerequisite(s): Department approval

Provides on-the-job construction work experience. Includes student, employer, and coordinator evaluations, on-site work visits, written assignments, and presentations. Provides experience in writing and completing individualized work objectives that improve present work performance. May be repeated for a maximum of 6 credits toward graduation. May be graded Credit/No Credit.

CMGT 289R

Construction Industry Seminar .5

Provides the opportunity to hear professionals teach about unique aspects of the industry. Must be repeated twice for one credit for graduation, but may be repeated for a maximum of two credits.

CMGT 299R

Skills USA 1

* Prerequisite(s): Requires adviser or department approval.

Supports and facilitates the goals and objectives of Skills USA pre-professional student organization that develops social awareness, civic, recreational, and social activities. Students may participate in local, state, and national contests. May be repeated for a maximum of 2 credits toward graduation.

CMGT 3010

Construction Materials Testing 3

* Prerequisite(s): CMGT 1020 and (MAT 1010 or higher or EGD 1600) and University Advanced Standing

Investigates the general physical properties of construction materials and their common quality control/assurance tests conducted in the construction industry. Analyzes results of these tests and how they affect construction design. Emphasizes the performance of field and lab testing procedures used in heavy civil construction. Course Lab Supplies fee of \$17 for materials applies.

CMGT 3020

Building Envelopes and Mechanical Systems 3

* Prerequisite(s): CMGT 1010, (CMGT 2035 or IM 2010), and University Advanced Standing

Covers mechanical, electrical and plumbing (MEP) principles. Provides problem solving experience in the analysis and design of building envelopes and MEP systems used in construction applications. Software fee of \$5 applies. Course fee of \$10 for materials, transportation applies. Lab access fee of \$45 for computers applies.

CMGT 3030

Principles of Construction Estimating 3

* Prerequisite(s): (CMGT 2035 or IM 2010), MAT 1010 or higher or EGD 1600, and University Advanced Standing

Introduces the preparation of detailed cost estimates based on contract models and documents. Includes the use of software for performing reliable quantity take-offs. Covers labor, material, and equipment pricing. Includes lectures and laboratory work. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

Course Descriptions

CMGT 3050

Construction Equipment/Planning and Logistics

3

* Prerequisite(s): CMGT 2080, ACC 3000 (recommended) or (ACC 2010 and ACC 2020), and University Advanced Standing, or CMGT Instructor/Program approval for non-CMGT majors

* Prerequisite(s) or Corequisite(s): CMGT 3030

Introduces productivity, logistics and associated costs of heavy equipment required on a typical construction project. Emphasizes equipment used in heavy civil construction. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 3060

Applied Statics and Strength of Materials

3

* Prerequisite(s): (MATH 1060 or EGDT 1610) and University Advanced Standing

Introduces basic principles of statics, coplanar force systems, coplanar-nonconcurrent force systems, stresses and strains, properties of materials, shear and bending diagrams, and beam design. Explores materials used in construction projects.

CMGT 3080

Construction Financial Management

3

* Prerequisite(s): ACC 3000 (Recommended) or (ACC 2010 and ACC 2020), and University Advanced Standing

* Prerequisite(s) or Corequisite(s): CMGT 3030

Builds on basic principles of accounting and finance as utilized in the construction industry. Emphasizes labor burden, financial needs and decision tools, construction accounting systems, cash flow, profit and tax projections on construction projects. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 3090

Principles of Hydrology in Construction Management

3

* Prerequisite(s): (MATH 1060 or EGDT 1610) and University Advanced Standing

Prepares students to manage the behavior of water on construction projects. Includes intensity, duration and frequency curves and runoff, erosion control, storm drain systems, dewatering systems, environmental impacts, and stability of soils.

CMGT 3140

Construction Real Estate

3

* Prerequisite(s): CMGT 3030 and Advanced University Standing

Explores the legal implications of ownership of real property as it relates to new construction and existing improvements. Includes the nature of real property, estates in land, transfer, encumbrances, restrictions, and contracts. Discusses ownership, settlement, taxation, finance, valuation and appraisal.

CMGT 3160

Building Information Modeling

3

* Prerequisite(s): EGDT 1020 or CMGT Instructor/Program approval for non-CMGT majors and University Advanced Standing

Introduces 3D architectural models for cost estimating, clash detection, collaboration between multiple disciplines and documenting and quantifying project data. Covers model design theory, parametric modeling methods, generation of residential and commercial construction plans and details sufficient for cost estimating, building components and systems, and manipulation of model information. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 4010

Construction Contracts

3

* Prerequisite(s): ENGL 2010, CMGT 1010, Junior Standing, and University Advanced Standing, or CMGT Instructor/Program approval for non-CMGT majors

Utilizes appropriate construction documents such as contracts, waivers, change orders, employee documents and specifications. Addresses the dispute process in the United States and the contractual relationship associated with construction project delivery methods.

CMGT 4020

Construction Project Management

3

* Prerequisite(s): (CMGT 2080 or CMGT Instructor/Program approval for non-CMGT majors) and University Advanced Standing

Introduces best management practices in the construction industry pertaining to resource optimization. Utilizes construction planning and problem solving tools on real world construction issues. Identifies and quantifies waste in the industry and determines appropriate methods to eliminate such. Discusses lean philosophy and its impact on construction projects and the industry. Lab access fee of \$45 for computers applies.

CMGT 405G

Global Sustainability and the Built Environment GI WE

3

* Prerequisite(s): CMGT 2060 and Construction Management majors, or CMGT Instructor/Program approval for non-CMGT majors; and University Advanced Standing.

Explores sustainability issues from a global perspective. Discusses global sustainability and focuses specifically on the LEED green building rating system. Emphasizes the local and global impacts on the built environment through writing. May include guest lectures, site visits, and group assignments. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 4500

Senior Capstone

3

* Prerequisite(s): CMGT 2060, CMGT 2080, CMGT 3030, Senior Standing, and University Advanced Standing

* Prerequisite(s) or Corequisite(s): CMGT 3080, CMGT 4010

Designed for senior Construction Management and related majors. Involves execution of a construction project case simulation covering all aspects of construction management for either heavy civil, commercial or residential projects. Engages students with local representatives from the construction industry. Requires a written project report and oral presentations. Software fee of \$5 applies. Lab access fee of \$45 for computers applies.

CMGT 459R

Current Topics in Construction

3

* Prerequisite(s): Declared CMGT major and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in Construction. Varies each semester depending upon the state of technology. May be repeated for a maximum of 6 credits toward graduation.

CMGT 481R

Internship

1 to 4

* Prerequisite(s): Department approval and University Advanced Standing

Provides application of classroom theory while working as an employee in the construction industry. Requires communication of personal goals, tracking performance and work hours with the employer. Credit is determined by the number of hours a student works during the semester and completion of individually set goals. May be repeated for a maximum of 4 credits toward graduation. May be graded credit/no credit.

CMGT 489R**Undergraduate Research in Construction****1 to 3**

* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Creates a significant intellectual or creative product that is characteristic of the construction discipline and worthy of communication to a broader audience. May be repeated for a maximum of 3 credits toward graduation.

CMGT 497R**Independent Study****1 to 3**

* Prerequisite(s): Approval of Construction Technologies Department Chair and University Advanced Standing

Offers independent study as directed in reading or individual projects at the discretion and approval of the department chair. May be repeated for a maximum of 6 credits toward graduation.