## Construction Management (CMGT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Description</th>
<th>Prerequisite</th>
<th>Schedule Type</th>
<th>Contact Hours</th>
<th>Grade Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMGT 10001</td>
<td>Introduction to Construction Management</td>
<td>3</td>
<td>Serves to introduce the basic terms, concepts, procedures and current trends in the construction industry.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 11044</td>
<td>Construction Safety</td>
<td>3</td>
<td>The theories and principles of construction safety and health applied to real-world setting. Upon completion of course materials and required attendance hours, students receive their OSHA 30 certification.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 11071</td>
<td>Construction Materials and Methods I</td>
<td>3</td>
<td>An introduction to principles of building construction, including preparation for the structures and environmental control sequences. Includes a more detailed and systematic look at wood light-frame construction.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 21071</td>
<td>Construction Materials and Methods II</td>
<td>3</td>
<td>Ties together steel and concrete structural systems and the integration of building service systems, with a focus on the construction and detailing of building enclosure systems.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
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<tr>
<td>CMGT 22200</td>
<td>Construction Document Reading</td>
<td>3</td>
<td>The reading and understanding of the drawings that are used to communicate information about commercial and residential buildings.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 25000</td>
<td>Principles of LEED</td>
<td>1</td>
<td>Review of the green building rating system Leadership in Energy and Environmental Design (LEED) as it applies to the construction industry. Focus on preparation for the LEED Green Associate exam.</td>
<td>None</td>
<td>Lecture</td>
<td>1 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 31015</td>
<td>Construction Technology</td>
<td>3</td>
<td>Course provides basic concepts and practices of the construction industry, including estimating, materials, tools, techniques and production of residential construction.</td>
<td>None</td>
<td>Combined Lecture and Lab</td>
<td>1 lecture, 4 lab</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 31023</td>
<td>Construction Surveying</td>
<td>3</td>
<td>The study of surveying, including fieldwork, using state-of-the-art equipment and its relationship to the construction documents.</td>
<td>CMGT 22200</td>
<td>Combined Lecture and Lab</td>
<td>2 lecture, 2 lab</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 31033</td>
<td>Mechanical Systems</td>
<td>3</td>
<td>An overview of mechanical systems in commercial and residential buildings.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 31040</td>
<td>Electrical Systems for Construction Managers</td>
<td>3</td>
<td>An overview of electrical systems in commercial and residential buildings.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
</tr>
<tr>
<td>CMGT 31044</td>
<td>Advanced Construction Safety and Management</td>
<td>3</td>
<td>Course enables students to be able to properly manage the construction safety techniques and practices they learned in CMGT 11044. Course provides the opportunity for students to learn how to utilize management skills to lead and implement an effective construction safety program.</td>
<td>CMGT 11044</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
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<tr>
<td>CMGT 31045</td>
<td>Construction Risk Management</td>
<td>3</td>
<td>Course provides an in-depth study of various risks associated with construction projects, and how those risks affect the construction industry. Topics of discussion include analytical and management techniques used to identify, analyze and respond to risks. Students review actual legal case studies and develop written opinion papers.</td>
<td>None</td>
<td>Lecture</td>
<td>3 lecture</td>
<td>Standard Letter</td>
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</tbody>
</table>
CMGT 31046  INTRODUCTION TO INSURANCE AND WORKER’S COMPENSATION  3 Credit Hours
Introduction to construction-related insurance products and worker’s compensation practices and policies. Course provides the understanding of the legal, management and costing implications associated with each of these, both prior to and during a construction project.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 32001  PROPOSAL DEVELOPMENT AND ANALYSIS  3 Credit Hours
(Repeatable for credit) Students create and combine project management, safety and quality control plans to prepare quantity takeoffs and schedule for a construction project, in the form of a construction proposal and presentation. Further analysis is done on general construction proposals.
Prerequisite: CMGT 10001; and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 33092  CONSTRUCTION MANAGEMENT INTERNSHIP (ELR) (WIC)  1-3 Credit Hours
(Repeatable for credit) Supervised work-study experience in an approved construction-related business that is relative to a student’s program. The course can be taken for 3 credit hours in the semester for full time employment (450+ total hours) or 2 credit hour for part-time employment (300-450 total hours). Repeatable to maximum of 6 credits. To repeat the course for credit, the student must assume a different position or responsibilities if employed by the same organization, or the student must be employed by a different company.
Prerequisite: Minimum 2.250 overall GPA; and Construction Management major or minor; and sophomore standing.
Schedule Type: Practicum or Internship
Contact Hours: 10-30 other
Grade Mode: Standard Letter
Attributes: Experiential Learning Requirement, Writing Intensive Course

CMGT 37295  SPECIAL TOPICS IN CONSTRUCTION MANAGEMENT  1-3 Credit Hours
Analysis of significant and current issues in construction management not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 1-3 lecture
Grade Mode: Standard Letter

CMGT 41040  CONSTRUCTION ESTIMATING I  3 Credit Hours
(Slashed with CMGT 51040) Introduction to estimating and the quantity takeoff process needed to complete accurate estimates for all types of construction projects. Students must have the ability to read and understand construction drawings.
Prerequisite: CMGT 22200.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 41041  CONSTRUCTION ESTIMATING II  3 Credit Hours
(Slashed with CMGT 51041) Course covers putting costs to the project, finalizing the bid, incorporating the estimate into the schedule, buying out the project, bidding ethics and using computer spreadsheets, including Excel, to automate estimating functions.
Prerequisite: CMGT 41040.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 41047  FUNDAMENTALS OF INDUSTRIAL AND CONSTRUCTION HYGIENE  3 Credit Hours
Focuses on the environmental, community and occupational health issues within facilities and construction sites. Course provides the opportunity for students to recognize, evaluate and control occupational hazards.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 41048  OCCUPATIONAL SAFETY AND HEALTH LAW  3 Credit Hours
Course focuses on general legal doctrine and practical considerations of the Occupational Safety and Health Act (OSHA). Covers the scope of the act, duties under the act, enforcement, adjudication and OSHA-related litigation.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42030  BUILDING INFORMATION MODELING FOR CONSTRUCTION MANAGERS  3 Credit Hours
Course reinforces and investigate the usage of building information modeling (BIM) as a construction management tool. Students create BIM models, with scheduling and cost loading, to understand how BIM usage is maximized within the built environment. Student utilizes software applications to create the BIM model and integrate the construction schedule and estimate.
Prerequisite: TECH 13580.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42050  INTERNATIONAL CONSTRUCTION MANAGEMENT  3 Credit Hours
Course focuses on the culture and management of international design and construction operations, with an emphasis on business development, financing, planning, contracts and negotiations, special construction techniques in adverse environments, procurement and logistics. A short-term study abroad trip is included in the course.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
CMGT 42051  ALTERNATIVE ENERGY SYSTEMS IN BUILDING DESIGN  3 Credit Hours
Course focuses on the construction application of alternative mechanical, electrical and plumbing systems in the built environment. Emphasis on energy efficient systems, energy conservation, cost benefits, building issues and construction techniques to develop these systems.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42052  MECHANICAL AND ELECTRICAL ESTIMATING  3 Credit Hours
Course focuses on estimating mechanical, electrical, plumbing and fire protection systems for the built environment. Covers detailed estimating practices of mechanical systems, including indirect costs, direct costs, bidding strategies, piping, pumps, plumbing systems, fire protection, HVAC, ductwork, insulation, automatic temperature controls, supports and manpower.
Prerequisite: CMGT 31033 and CMGT 31040.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42053  SUBCONTRACTOR LEADERSHIP AND PRACTICES  3 Credit Hours
Course focuses on the leadership, operations and overall management of subcontractor companies. Emphasis on how subcontractor leaders can avoid mistakes and manage risk to make their scopes of work run more intelligently, effectively and efficiently.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42054  CIVIL ESTIMATING  3 Credit Hours
Course provides an in-depth review and application of civil construction estimating techniques and technology associated with civil estimating practices. Course covers site work, site utilities, substructures and heavy equipment estimating.
Prerequisite: CMGT 10001 and CMGT 41040.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42055  CIVIL UTILITY SYSTEMS  3 Credit Hours
Course discusses the installation, construction, renewal, estimating and management of underground utility systems. Maintains an emphasis on minimal soil and environmental disturbance.
Prerequisite: CMGT 10001.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42056  SOILS AND MATERIALS  3 Credit Hours
Building on previous knowledge of construction, students explore the nature of soils and how they can influence construction operations, soil safety, soils within the construction contract, soil classifications, soil strengths and specification sections tied to soils and materials.
Prerequisite: CMGT 10001.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42105  CONSTRUCTION CONTRACTS AND LAW  3 Credit Hours
(Slashed with CMGT 52105) Course covers the fundamentals of construction contracts and law; the impact of information technology on contracts and contracting; and the effect of contracts and law on the management, administration and costs of construction work.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42107  CONSTRUCTION SCHEDULING  3 Credit Hours
(Slashed with CMGT 52107) The traditional theory of planning, scheduling and controlling construction projects. Current industry standard computer applications for scheduling are utilized.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42110  CONSTRUCTION MANAGEMENT CAPSTONE  3 Credit Hours
The application of all previous construction management courses and experiences to ensure all major learning objectives have been obtained, and that these learning objectives can be applied to performance similar to industry practices.
Prerequisite: Senior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 43096  INDIVIDUAL INVESTIGATION IN CONSTRUCTION MANAGEMENT  1-3 Credit Hours
(Repeatable for credit) Independent study carried out by a student under the supervision of a faculty member. Subject content, objectives, assignments and evaluation methods may vary.
Prerequisite: Junior standing and special approval.
Schedule Type: Individual Investigation
Contact Hours: 3-9 other
Grade Mode: Standard Letter

CMGT 51040  CONSTRUCTION ESTIMATING I  3 Credit Hours
(Slashed with CMGT 51040) Introduction to estimating and the quantity takeoff process needed to complete accurate estimates for all types of construction projects. Students must have the ability to read and understand construction drawings.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 51041  ADVANCED ESTIMATING  3 Credit Hours
(Slashed with CMGT 41041) Course covers putting costs to the project, finalizing the bid, incorporating the estimate into the schedule, buying out the project, bidding ethics and using computer spreadsheets, including Excel, to automate estimating functions.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
CMGT 52105  CONSTRUCTION CONTRACTS AND LAW  3 Credit Hours
(Slashed with CMGT 42105) Course covers the fundamentals of construction contracts and law; the impact of information technology on contracts and contracting; and the effect of contracts and law on the management, administration and costs of construction work.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 52107  CONSTRUCTION SCHEDULING  3 Credit Hours
(Slashed with CMGT 42017) The traditional theory of planning, scheduling and controlling construction projects. Current industry standard computer applications for scheduling are utilized.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 52110  ADVANCED CONSTRUCTION MANAGEMENT  3 Credit Hours
A comprehensive application of construction management principles and practices to various situations and projects according to construction industry methods and performance standards.
Prerequisite: Graduate standing; and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 62030  BUILDING INFORMATION MODELING FOR CONSTRUCTION MANAGEMENT  3 Credit Hours
Course reinforces and investigate the usage of building information modeling (BIM) as a construction management tool. Students create BIM models, with scheduling and cost loading, to understand how BIM usage is maximized within the built environment. Student utilizes software applications to create the BIM model and integrate the construction schedule and estimate. Students also perform research on the application of BIM in the industry.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 62040  CONSTRUCTION METHODS IMPROVEMENTS  3 Credit Hours
A focused study of the philosophy and principles of quality management as applied to the construction industry. Course presents a project-based approach to the principles and practices of Total Quality Management (TQM) in construction projects and the application of TQM and other quality measures during different phases of the construction process.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 62050  INTERNATIONAL CONSTRUCTION MANAGEMENT  3 Credit Hours
Topics include operating and sustaining an international business or business presence, the global market, project funding, case studies and best practices. Course includes project-specific case studies.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 62060  NEGOTIATION IN THE BUILT ENVIRONMENT  3 Credit Hours
Examination of negotiation theories, strategies and tactics as applied to transactions in the construction and technological environments. Establishment of win-win environment in dealing with the project parties by adopting creative means to solve problems and resolve disputes. Practice through negotiation case studies, scenarios and role playing.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 62070  ENGINEERING ECONOMICS AND STRATEGIC DECISION MAKING  3 Credit Hours
Application of engineering economic principles related to evaluating alternative solutions, replacement decisions and retention decisions. Includes decision and risk analysis, sensitivity analysis, expected value, benefit cost analysis, public sector economics, economic cycle, operation research, strategic management and entrepreneurship in the technological environment.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 67295  SPECIAL TOPICS IN CONSTRUCTION MANAGEMENT  1-4 Credit Hours
Analysis of significant and current issues in construction management not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 1-4 lecture
Grade Mode: Standard Letter

CMGT 67296  INDIVIDUAL INVESTIGATION IN CONSTRUCTION MANAGEMENT  1-3 Credit Hours
Independent study carried out by a student under the supervision of a faculty member. Subject content, objectives, assignments and evaluation methods may vary.
Prerequisite: Graduate standing; and special approval.
Schedule Type: Individual Investigation
Contact Hours: 3-9 other
Grade Mode: Standard Letter-IP

CMGT 67320  APPLIED SUSTAINABILITY IN CONSTRUCTION MANAGEMENT  3 Credit Hours
Investigation of strategies and methods used by construction managers and others to assist in developing sustainable built environments. Course takes a close look at standards for environmentally sustainable construction and at the application of best management practices for construction activities. Focus is on LEED certification, international standards on environmental management systems and other established criteria, guidelines, standards and tools associated with green building. Provides an in-depth discussion and practical application of LEED assessment, guidelines and standards for various building sectors. Includes a major individual design project/case study involving research in green construction and design on a particular construction project, along with the application of LEED guidelines, assessment and methods to the project.
Prerequisite: Graduate standing; and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter