## CONSTRUCTION MANAGEMENT (CMGT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CMGT 10001</td>
<td>INTRODUCTION TO CONSTRUCTION MANAGEMENT</td>
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<tr>
<td></td>
<td>Serves to introduce the basic terms, concepts, procedures and current trends in the construction industry.</td>
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<td></td>
<td>Prerequisite: none.</td>
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<td></td>
<td>Schedule Type: Lecture</td>
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<td></td>
<td>Contact Hours: 3 lecture</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 11044</td>
<td>CONSTRUCTION SAFETY</td>
<td>3</td>
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<tr>
<td></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>
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<td>Prerequisite: none.</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 11071</td>
<td>CONSTRUCTION MATERIALS AND METHODS I</td>
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<tr>
<td></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>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<td>Contact Hours: 3 lecture</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 21071</td>
<td>CONSTRUCTION MATERIALS AND METHODS II</td>
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<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>
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<td>Prerequisite: none.</td>
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<td></td>
<td>Schedule Type: Lecture</td>
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<td>Contact Hours: 3 lecture</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 22200</td>
<td>CONSTRUCTION DOCUMENT READING</td>
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<td></td>
<td>The reading and understanding of the drawings that are used to communicate information about commercial and residential buildings.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<tr>
<td>CMGT 25000</td>
<td>PRINCIPLES OF L.E.E.D.</td>
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<td>Review LEED as it applies to the construction industry with a focus on preparation for the LEED Green Associate exam.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<td>Contact Hours: 1 lecture</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 31015</td>
<td>CONSTRUCTION TECHNOLOGY</td>
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<td></td>
<td>This course provide basic concepts and practices of the construction industry, including estimating, materials, tools, techniques and production of residential construction.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Combined Lecture and Lab</td>
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<td></td>
<td>Contact Hours: 1 lecture, 4 lab</td>
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<tr>
<td>CMGT 31023</td>
<td>CONSTRUCTION SURVEYING</td>
<td>3</td>
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<td>The study of surveying including fieldwork using state of the art equipment and its relationship to the construction documents.</td>
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<td>Prerequisite: CMGT 22200.</td>
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<td></td>
<td>Schedule Type: Combined Lecture and Lab</td>
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<td>Contact Hours: 2 lecture, 2 lab</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 31033</td>
<td>MECHANICAL SYSTEMS</td>
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<td></td>
<td>An overview of mechanical systems in commercial and residential buildings.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<td></td>
<td>Contact Hours: 3 lecture</td>
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<td>Grade Mode: Standard Letter</td>
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<tr>
<td>CMGT 31040</td>
<td>ELECTRICAL SYSTEMS FOR CONSTRUCTION MANAGERS</td>
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<td>An overview of electrical systems in commercial and residential buildings.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<td>Contact Hours: 3 lecture</td>
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<td>CMGT 31044</td>
<td>ADVANCED CONSTRUCTION SAFETY AND MANAGEMENT</td>
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<td>This course will build on the Construction Safety course to enable the student to be able to properly manage the construction safety techniques and practices learned in the OSHA 30 hour course. Further, this course will provide the student with the opportunity to learn how to utilize management skills to lead and implement an effective construction safety program.</td>
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<td>Prerequisite: CMGT 11044.</td>
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<td>Schedule Type: Lecture</td>
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<tr>
<td>CMGT 31045</td>
<td>CONSTRUCTION RISK MANAGEMENT</td>
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<td>This course provides an in-depth study of various risks associated with construction projects and how those risks impact the construction industry. Topics of discussion include analytical and management techniques used to identify, analyze and respond to risks. Students will review actual legal case studies and develop written opinion papers.</td>
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<td>Prerequisite: none.</td>
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<td>Schedule Type: Lecture</td>
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<td></td>
<td>Contact Hours: 3 lecture</td>
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CMGT 31046 INTRODUCTION TO INSURANCE AND WORKER'S COMPENSATION 3 Credit Hours
This course will introduce the students to construction related insurance products and worker's compensation practices and policies. Further, students will understand 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
(Repeattable twice for credit) Create and combine Project Management, Cost Control, and Quality Control plans and prepare quantity takeoffs and schedule for a construction project, in the form of a construction proposal and presentation. Further analysis will be done on general construction proposals.
Prerequisite: CMGT 10001 and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 32095 SPECIAL TOPICS IN CONSTRUCTION MANAGEMENT (ELR) 1-3 Credit Hours
Supervised work-study experience in approved construction related business relative to a student's construction management major or minor. The course can be taken for three (3) credit hours per semester for full time employment (450 or more total hours for the duration of the semester) or two (2) credit hour for part-time (300-450 total hours for the duration of the semester). 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. Construction Management students are required to take (3) credit hours at one time at least once.
Prerequisite: construction management (COMA) major or minor; and sophomore standing; and a cumulative 2.250 GPA.
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
Introduction to estimating and the quantity takeoff process needed to complete accurate estimates for all types of construction projects.
Prerequisite: CMGT 22200.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 41041 CONSTRUCTION ESTIMATING II 3 Credit Hours
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
This course is a part of the Safety Management Concentration in the Bachelor of Science in Construction Management and focuses on the environmental, community and occupational health issues within facilities and construction sites. It will provide 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
This course focuses on general legal doctrine and practical considerations of the Occupational Safety and Health Act (OSHA). Further, it 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 41049 INTERNSHIP (ELR) 1-3 Credit Hours
This course is further reinforcement and investigation of the Construction Management tool. This course will further reinforce and investigate the usage of Building Information Modeling (BIM) as a Construction Management tool. BIM models will be created, with scheduling and cost loading, utilized to understand how BIM usage is maximized within the Built Environment. This course 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 42030 BUILDING INFORMATION MODELING FOR CONSTRUCTION MANAGERS 3 Credit Hours
This course will further reinforce and investigate the usage of Building Information Modeling (BIM) as a Construction Management tool. BIM models will be created, with scheduling and cost loading, utilized to understand how BIM usage is maximized within the Built Environment. This course utilizes software applications to create the BIM model and integrate the construction schedule and estimate.
Prerequisite: none.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42050 INTERNATIONAL CONSTRUCTION MANAGEMENT 3 Credit Hours
The 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 this 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
This course focuses on the construction application of alternative mechanical, electrical, and plumbing systems in the built environment. The course has an 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
The course focuses on estimating mechanical, electrical, plumbing, and fire protection systems for the built environment. The course 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 31040 and CMGT 31033.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42053  SUBCONTRACTOR LEADERSHIP AND PRACTICES  3 Credit Hours
This course focuses on the leadership, operations, and overall management of construction subcontractor companies. The course has an 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
This course will provide an in depth review and application of Civil Construction Estimating techniques and technology associated with Civil Estimating practices. This course will cover 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
This course discusses the installation, construction, renewal, estimating, and management of underground utility systems; while maintaining 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
This course will build on the students previous knowledge of construction and enable the student to explore the nature of soils, 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
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 the costs of construction work.
Prerequisite: none.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CMGT 42107  CONSTRUCTION SCHEDULING  3 Credit Hours
The traditional theory of planning, scheduling and controlling construction projects. Current industry standard computer applications for scheduling is 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
Introduction to estimating and the quantity takeoff process needed to complete accurate estimates for all types of construction projects. The ability to read and understand construction drawings is needed.
Prerequisite: graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
CMGT 51041 ADVANCED ESTIMATING 3 Credit Hours
Putting costs to the project, finalizing the bid, incorporating the estimate into the schedule, buying out the project, budding ethics and using computer spreadsheets and software 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
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 the 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
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
This course will further reinforce and investigate the usage of Building Information Modeling (BIM) as a Construction Management tool. BIM models will be created, with scheduling and cost loading and utilized to understand how BIM usage is maximized within the Built Environment. This course will utilize software applications to create the BIM model and integrate the construction schedule and estimate. Research on the application of BIM in the industry will also be performed.
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. 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