GENERAL BUILDING
CONTRACTORS ASSOCIATION

Tuition Reimbursement Guide 2020 - 2021

Learn. Explore. Apply.

UPSKILL TO ADVANCE YOUR CAREER

Take an Approved Course through Villanova University*

- PMP® Exam Preparation
- Essentials of Project Management
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*Course descriptions found within the book on the Villanova University page.

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COLLEGE *of* PROFESSIONAL STUDIES

Professional & Continuing Studies
2020-2021 Course Curriculum

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***offered online**
****offered in person or online**

GENERAL BUILDING
CONTRACTORS ASSOCIATION

Dear Students,

GBCA strives constantly to expand its educational and professional development offerings even further, realizing that they both play a vital role in building a successful career in construction. Since 1961, GBCA has conducted comprehensive education and training programs to insure a highly skilled, productive and motivated workforce. Thousands of individuals have participated in GBCA's educational programs to advance their careers in the construction industry over the last 59 years. These courses have been specifically chosen and tailored in collaboration with our university and education partners to suit individuals from entry level positions, to supervisors, to the most seasoned project managers and executives.

Employees of GBCA member companies have unparalleled access throughout the year to a variety of courses and professional development seminars, which are made possible through funding by the Industry Advancement Program (IAP). Continuously offered education and professional development programming enables construction personnel to enhance their knowledge and fine-tune skills, that will in-turn enable GBCA member companies to maintain the highest industry standards.

We encourage you to review the following course offerings and consider participating in the GBCA tuition reimbursement program. The following provides a description for each of the courses chosen for this program. You can visit our website at www.GBCA.com/education to apply or obtain more information on the tuition reimbursement program. We take great pride in that our robust tuition reimbursement program continues to grow year over year. We strive to offer our members access to the best classes and programs, so stay tuned to our website throughout the year. If you have questions not addressed in this guide, please feel free to call us at any time.

Sincerely,

Meg Ginsberg

Meg Ginsberg
Programs Associate

Angela Hendrix

Angela Hendrix
Director, Education & Professional Development

GBCA TUITION REIMBURSEMENT POLICY

General Building Contractors Association supports professional and career development, and educational growth for all its member companies and their employees. Eligible and approved participants can receive reimbursement for tuition of up to $2,000 per individual, per semester for approved courses. Maximum reimbursement for each student is $4,000 per calendar year.

ELIGIBILITY

GBCA Tuition Reimbursement Program is available to employees (field and office personnel) of Active and Associate member companies, and companies that contribute to the GBCA-administered Industry Advancement Program (IAP). IAP contributors must contribute a minimum of $2,000 per calendar year to be eligible. Calendar year is calculated as the immediate 12-month period preceding the date of application. Apprentices, regardless of trade, must be in at least their 3rd year of their apprentice program.

Applicants who drop a class or are dropped from a class, will be ineligible to receive tuition reimbursement for a 12-month period. If you are accepted into a course and discover that you cannot attend, notify GBCA's Education Department and the educational institution immediately. We strongly discourage enrolling unless an applicant is confident he or she will be able to complete the course. Tuition reimbursement is at the discretion of GBCA.

APPLICATION PROCESS

Before enrolling in an approved course, submit a completed Tuition Reimbursement Application. If approved, you will receive a confirmation letter from GBCA. Pending approval from GBCA you must then enroll/register for your course directly with the educational institution.

DISCLAIMERS

The GBCA Tuition Reimbursement Program includes only the basic cost of the course and is not responsible for textbooks, lab fees, late fees, or any other associated fees or costs.

Students are required to pay for the course directly to the educational institution, and must receive a minimum grade of 'B' or better in order to receive reimbursement.

By participating in GBCA's Tuition Reimbursement Program you are agreeing to provide GBCA with an official transcript and proof of payment upon completion of the approved course, and you grant permission to the General Building Contractors Association to supply copies of your grade reports to your employer, or the organization responsible for managing and contributing to the Industry Advancement Program, should it be requested.

We urge you to confirm the day and time of individual courses with each educational institution, as they are subject to change. No course substitutions will be permitted for any reason.

GENERAL BUILDING CONTRACTORS ASSOCIATION

Meg Ginsberg
Programs Associate
General Building Contractors Association
36 South 18th Street, Philadelphia, PA 19103

Tuition Reimbursement Application Form

Note: All sections must be completed and returned to GBCA for approval before the course start date.

1. Applicant Information

First Name	M.I.	Last Name

Street Address	City	ST	Zip Code

Cell Phone	eMail Address

2. Employment Information

a. CURRENT EMPLOYMENT

Employer Name	Occupation/Title

Street Address	City	ST	Zip Code

Supervisor Name

Supervisor Phone	Supervisor eMail

Dates of Employment	

b. PREVIOUS EMPLOYMENT

Employer Name	Occupation/Title

Street Address	City	ST	Zip Code

Supervisor Name

Supervisor Phone	Supervisor eMail

Dates of Employment	

3. Course Details

University/Institution

Course Number & Name	Course Start Date	Course End Date

Course Tuition Amount	

I submit this application with the understanding that GBCA will reimburse me up to $2,000 in tuition costs for the above course if approved. I am responsible for the payment of any additional tuition cost or fees assessed by the school including textbook costs and late payment fees. I will receive my reimbursement provided I achieve a letter grade of B or higher in the course taken. I acknowledge that I am responsible, financially, to pay the learning institution for my course and that upon completion of the course I must contact GBCA to provide proof of payment and an official transcript from my school within 30 days of completing my course. I acknowledge that if I am dropped from or drop this course, I will be ineligible for GBCA tuition reimbursement for one year. If for whatever reason I do not take this course, I will notify GBCA.

Signature _____ Date _____

A COMPLETED APPLICATION MUST BE SUBMITTED FOR EACH REIMBURSEMENT REQUEST.

Community College of Philadelphia

Department of Architecture,
Design & Construction
1700 Spring Garden Street
Philadelphia, PA 19130

www.ccp.edu/node/384

CONTACT **David Bertram**
RA, LEED AP BD+C
Department Chair
Department of Architecture

Design & Construction
Community College of Philadelphia

Phone: (215) 751-8860
Email: dbertram@ccp.edu

COURSE NO. COURSE TITLE

ADC 101 Intro to Design & Construction

This course introduces students to the fields of architecture, interior design, construction and related disciplines. Students learn basic terminology, and documentation standards and techniques. Significant factors influencing design and construction are explored, including historical precedents and design theory, interrelationships between working professionals, the financing of projects, ethical and social concerns, and physical and legal constraints. Selected current topics, such as sustainability, modular design and computer interface are discussed. This overview course provides students with a broad understanding of the design and construction fields. Students will learn contemporary methods for accessing and processing information about the design professions.

ADC 103 CAD Basics

A general introduction to computer-assisted design. Students gain proficiency in the use of CAD software through creating architectural drawings. Students will learn the terminology, functions and principles of CAD operations as well as building documentation. Additionally, students will be introduced to advanced software for three-dimensional modeling, rendering and animation.
Note: This course focuses on the basics of Computer Aided Drafting. It is necessary for the student to take this course before moving on to ADC 163.

ADC 109 Design Studio I

This studio course introduces students to basic design principles and the manual drawing techniques which are used to graphically convey visual/architectural ideas. Delineation is the means by which students will develop an understanding of the design process. Students will learn to work in both two- and three-dimensional media.

ADC 112 Construction Materials and Detailing: Properties

This course introduces students to commonly employed construction materials, from those used in excavation and foundations through framing and roofing. Materials are studied in terms of their historical uses, composition, physical properties, manufacture and assembly, applications, regulatory constraints and sustainability. Basic terminology, principles and processes in design and construction, and factors that influence material selection and material assemblies are discussed. Construction details are examined and developed. Students learn about key issues including sustainable design, new technologies and materials and the importance of effective team collaboration.
Prerequisites: ADC 103 or ADC 109

ADC 123 Construction Print Reading and Specifications

Students learn the skills required for reading a variety of construction plan types, details, schedules, and specifications. Topics include terminology, symbols, and conventions used in both commercial and residential drawings.

Student Learning Outcome
Upon successful completion of the course, students will be able to:

1. Describe the design and production process of construction drawings and the various purposes they serve and identify industry conventions
2. Describe the format and hierarchy of a set of construction drawings and the various drawing types found in a typical set.
3. Interpret and discuss information found on civil, architectural, structural, mechanical, plumbing, and electrical drawings.
4. Determine correct dimensions by performing the various mathematical practices (feet/inches, decimal/fractions) used to show sizes and distances on drawings and in readings and use a fractional rule and an architectural scale.
5. Describe the structure and intent of construction specifications and their divisions.
6. Explain the different purposes and interrelationship of the various document types, including construction documents, specifications, shop drawings, as-built drawings, and fabrication and erection drawings.

Course text-book contains Large Prints for six residential and commercial projects.

Print Reading for Construction

Designed to assist students in reading and understanding residential and commercial prints. The 2013 edition of this text has been extensively revised and expanded. The Large Prints folder included with the text contains six sets of construction prints used with the print reading activities in the text. Of the six sets of prints, five are new. The print sets comprise 140 prints from residential and commercial construction.

ADC 136 Construction Safety & Building Codes

Students will learn about common construction worker safety procedures contained in OSHA regulations, lead safety procedures regulated by the EPA, and the national model building and energy conservation codes produced by the International Codes Council. The focus will be on the International Building Code (IBC), and the International Energy Conservation Code (IECC), as well as state and local adaptations of these. Requirements of the Americans with Disabilities Act (ADA) are also studied.

ADC 146 Construction Supervision and Business Practices

In this course, students will study the organization and operations of a small construction firm, a unit within a larger construction firm, and a facility management department. Topics will include business organization and operations, finance and administration, marketing, code compliance, contract bidding, and construction risk management. Supervision and human relations skills needed by those in supervisory and leadership roles are also studied. Leadership skills and problem solving are emphasized.
Prerequisite: ADC 101.

ADC 159 Design Studio II

This studio design course helps students master techniques used to develop and graphically convey architectural ideas, primarily using computer modeling. Students develop an understanding of the design process related to space through digital and manual delineation.
Prerequisites: ADC 103 and ADC 109.

ADC 160 Presentation Techniques

Introduction to materials and methods in the preparation of architectural presentations, drawings and models. Computer modeling and composition software will be introduced, and students will produce a portfolio with digital and manual pieces. Emphasis is placed on using technique and craftsmanship to make design intent clear and compelling.
Prerequisites: ADC 103, ADC 109

ADC 161 Introduction to Building

Students learn to perform traditional energy audits on buildings as well as comprehensive, whole-home assessments with diagnostic equipment. Students will learn to diagnose critical performance factors in buildings and increase the energy efficiency of the building and the comfort, health and safety of the building's occupants. Students learn to identify major energy related problems and prioritize solutions based on building science principles and cost-benefit analysis. Successful students will be prepared to sit for the Building Performance Institute's (BPI) Building Analyst (BA) Certification examination.
Prerequisite: ADC 101

ADC 163 Digital Documentation in Architecture and Construction

An introduction to architectural construction documents, the process by which they are developed, and their use and function in the progression of design through construction. Students learn to use parametric software (such as Architectural Desktop) and industry-standard symbols, terminology and graphics in the development of a complete set of construction documents. Additionally, students learn to utilize and apply advanced software features to increase productivity and accuracy.
Prerequisite: ADC 103.
Note: *For someone who uses CAD regularly and would like to learn Revit for BIM (Building Information Modeling), ADC 163 is appropriate.*

ADC 186 Surveying

Basic course in site surveying as it applies to building construction. Emphasis is placed on skill development using the builder's level and transit and on computer-based applications for site design. Course work includes fieldwork exercises in measurement, differential leveling and topographic surveying.
Prerequisite: ADC 101.

ADC 212 Construction Materials and Detailing: Methods

This course introduces students to a comprehensive range of construction materials, techniques and systems commonly employed in the construction and finishing of buildings and spaces, from interior finishes and treatments (including lighting, color and acoustics) through exterior cladding or enclosures. Materials are studied in terms of their composition, physical properties, manufacture and assembly, applications, regulatory constraints and sustainability.
Prerequisite: ADC 103 or ADC 109.

ADC 226 Structures I - Analysis

Study of the principles of statics and strength of materials as they pertain to the design of statically determinant structures. Course work includes the concepts of unit stress, strain, deformation and moment of inertia. End reactions, shear and moment diagrams are developed for simple beams.
Prerequisites: ADC 101 and MATH 118 or higher.

ADC 227 Structures II — Design

Introduction to the means and methods employed in the design of structural members, including beams, columns, trusses and connections. Course work consists of structural applications for timber, steel and concrete.
Prerequisite: ADC 226.

ADC 236 Construction Cost Estimating I

Introduction to quantification of building components including blueprint reading, take-offs and application of unit costs.
Prerequisite: ADC 101.

ADC 237 Construction Cost Estimating II — Computer Methods & Cost-Benefit Analysis

This is the second of two courses that cover the principles and practice of construction cost estimating. It builds on the first course (ADC 236), using computerized methods to produce the detailed cost estimates that contractors use to determine the cost of construction for commercial and residential projects. The course covers the role of estimating and bidding in the construction industry. It also introduces cost-benefit analysis, which encourages sustainability by determining the true cost and value of a building throughout its life.
Prerequisite: ADC 236.

ADC 246 Contracts & Specifications

Study of the purposes, structure and provisions of contemporary construction industry contracts. Relationships among owners, architects and other design professionals, general and subcontractors, and vendors and suppliers are reviewed in detail. Students learn to adjust standard contract formats and specifications to tailor them for individual projects, according to C.S.I. procedure.
Prerequisite: ADC 101.

ADC 253 Environmental Systems I

An overview of environmental control systems used in modern buildings, focusing on mechanical, electrical, and plumbing systems. Students will gain a basic understanding of and foundation in these systems and their design. Through application and practice, students will learn the interrelationships between systems and approaches to integrating them into building design and construction.
Prerequisite: ADC 101 and ADC 103 or ADC 109.

ADC 254 Environmental Systems II

Components and systems used to control the environment of modern buildings are studied, expanding student's knowledge of Mechanical, Electrical, and Plumbing (MEP) systems. Specialized building systems are also studied, including fire protection, vertical systems, signaling, and communication. Additionally, students will gain an understanding of specialized topics related to sustainability, including alternatives to traditional MEP systems. Students will become prepared for the LEED Green Associate Examination.
Prerequisite: ADC 101 and ADC 103 or ADC 109

ADC 261 Construction Management and Scheduling

This course is a thorough survey of the construction project management process from initial conception to completion. Topics include feasibility analysis, siting/staging issues, software application, personnel management, contractual procedures and job-site safety. Students will be introduced to basic contractor operations, project administration, job planning and Critical Path Method scheduling. After building a conceptual base, students will apply their scheduling knowledge to simulated projects. In this latter phase of the course students will use the most current and prevalent project planning software.
Prerequisite: ADC 246.

ADC 286 Building Rehabilitation and Energy Retrofit

This course will examine three integrally related topics: 1) the re-development process by which existing building stock is rehabilitated, 2) construction issues specific to the rehabilitation of existing buildings and 3) energy retrofit, which includes sustainability and related strategies. ADC 286 will introduce students to a broad array of tools, including construction management techniques and methods, energy audits and retrofits as well as public and private financing options and project management relative to building rehabilitation for both small and large scale projects, especially in urban neighborhoods.
Prerequisite: ADC 101

- **REGISTRATION:** Students who have never taken a class at CCP must apply to be a student and should identify themselves as a "guest" student. Contact David Bertram, dbertram@

ccp.edu or Tony Palimore, apalimore@ccp.edu with questions. Students who have taken classes here before can register online.

- All of the courses listed above are undergraduate and would count towards the 63 credits needed to receive an Associate degree in Applied Science from the Community College of Philadelphia. Courses also count when transferring to most four-year colleges or universities.

- Carpenters JAC graduates are awarded 18 credits towards CCP's AAS in Construction upon graduation from their apprenticeship program. Contact David Bertram for more information on this at dbertram@ccp.edu.

DREXEL UNIVERSITY
Construction Management
College of Engineering

Construction Management Program
College of Engineering
3101 Market Street, Suite 130
Philadelphia, PA 19104

www.drexel.edu/engmgmt/cmgt

CONTACT **Jessica Cruz**
Academic Advisor

Construction Management Program,
College of Engineering
Drexel University

Phone: (215) 895-5943
Email: jc635@drexel.edu

COURSE NO. COURSE TITLE

CMGT 101 Intro to Construction Mgmt.

This course will introduce the basic history and management concepts of the construction industry to students with the expectation that upon completion students will have an overview of the industry. Career choices, industry firms, and key players in the Construction Management process will be explored.

CMGT 161 Building Materials & Constr. Methods I

This course is designed to explore the range of building materials in use today and their interrelationships in a construction project. Topics will include a study of the major components of construction materials, the selection process, specification, alternatives, procurement, placement and quality management for the building systems covered. Foundations, excavations, wood framing and steel construction and the role these materials play in the success of a project once chosen will be considered and evaluated.

CMGT 162 Building Materials & Constr. Methods II

Continues CMGT 161. Covers concrete, reinforced concrete, site cast and pre-cast concrete, brick and concrete masonry, reinforced masonry, and properties of these materials & construction methods associated with them.

CMGT 240 Economic Planning for Construction

Covers techniques for economic decision making for building and infrastructure construction topics. Topics include cash flow, present worth analysis, equivalent annual worth, rate of return, risk analysis, and benefit/cost analysis.

CMGT 261 Construction Safety

Covers OSHA liability, general safety, hazard communication, fire, material handling, tools, welding, electricity, scaffolding, fall protection, cranes, heavy equipment, excavation, concrete, ladders and stairways, confined space entry, personal protective equipment, and health hazards. Course approved by the OSHA Training Institute.

CMGT 262 Building Codes

Familiarizes students with the content of the BOCA International Building Code (emphasizing the non-structural provisions), the purpose and intent of code requirements, and how to apply the code to structures and occupancies. Examines how the code is used as a tool in design and construction and prepares students for the advent of a single model building code planned for the nation.

CMGT 263 Understanding Construction Drawings

This course examines a variety of construction documents, including drawings, details, graphic standards, sections, and quantities for competitive bidding and execution of projects. Both residential and commercial construction documents will be examined.

CMGT 265 Information Technologies in Construction

The objective of this course is to expose students to a large variety of information technologies in construction and will discuss the impact of these technologies on work environments, processes, and work quality. Students will investigate a variety of issues surrounding IT in construction including implementation, standards, integration, knowledge management and the underlying technology.

CMGT 266 Building Systems I

This course covers construction management and design concepts relating to heating, ventilation, and air conditioning systems and the integration of these systems into the building design and construction process.

CMGT 267 Building Systems II

Continues CMGT 266. This course covers construction management concepts relating to electrical systems, wiring, lighting, signal and data systems, and transportation systems and the integration of these into the building design and construction process.

CMGT 270 Principles of Statics for Construction Managers

This algebra-based course is the study of forces acting upon structural elements. Analytic and graphic methods are used to illustrate resultants and reactions, equilibrium, centroids and moments of inertia applied to static structures. Analysis includes, stress, strain, axial loading, bending, and deflection of beams.

CMGT 355 Introduction to Sustainability in Construction

An overview of the design and construction of high performance buildings. Students will gain topical familiarity with the wide range of issues related to sustainable design and construction. The USGBC's green building certification program will be covered in detail. Both historical and contemporary case studies will be utilized.

CMGT 361 Contracts & Specifications I

Analyzes construction contracts, specifications, and practices with regard to business law and liability. Required for construction management students. Elective for others.

CMGT 362 Contracts & Specifications II

Continues CMGT 361. Examines contractor, architect, and engineer responsibilities through case studies and class discussions.

CMGT 363 Estimating I

Covers discussion of the estimating function and review and applications of material quantity survey techniques used in estimating costs of construction projects. Includes types of approximate and precise methods of estimating and their uses, and computer applications. Required for construction management students.

CMGT 364 Estimating II

Covers pricing and bidding of construction work including cost factors, labor and equipment, productivity factors, prices databases, job direct and indirect costs, methods of estimating time, materials, equipment, subcontractors' work, general expenses, and profit, bid preparations and submission, and computer applications.

CMGT 365 Soil Mechanics in Construction

Gives an overview of the types of problems encountered in geotechnical construction. Subjects covered will be composition, groundwater fundamentals, settlement and consolidation, stability of earth slopes, types of foundations and behavior of difficult soils.

CMGT 371 Structural Aspects in Construction I

The first of two course series designed specifically for construction management majors. The sequence addresses the interactions of different kinds of loads with common structural elements and design considerations for typical construction materials. This course places emphasis on the design of wood framed construction.

CMGT 372 Structural Aspects in Construction II

The second part in a two-course sequence for Construction Management majors. The course places emphasis on the design and analysis of concrete and steel frame construction.

CMGT 375 Building Information Modeling in Construction

This course is intended to provide students with a hands-on introduction to Building Information Modeling (BIM) in Construction. Emphasis will be placed on the use of BIM to support current construction activities such as design review, coordination, scheduling, logistics, estimating, and project close-out. Topics will include an introduction to 3D BIM modeling, 3D coordination and clash detection, 4D visual scheduling and logistics, 5D estimating, and BIM for Facility Management. Students will learn the fundamentals of the most widely used software applications in the construction industry: SketchUp, Revit and Navisworks.

CMGT 385 Selling and Negotiation Techniques in Construction

Applies negotiation and marketing principles to the construction industry. Includes understanding the roles of market research, business development planning, negotiation and networking techniques. Students will acquire the skills and techniques to prepare a winning presentation and negotiations.

CMGT 450 Management of Field Operations

This course is intended to equip students with knowledge and skills required to successfully manage and support construction field operations. Knowledge areas include contract administration, project engineering, site superintendence, and other topics critical to field operations.

CMGT 451 Heavy Construction Principles & Practices

This course is intended to provide students an introduction to the principles and practices employed in heavy construction. The course content is presented from a practical perspective focusing on actual field applications.

CMGT 461 Construction Management

Covers construction management concepts and practices, the management system, construction planning and programming, project control, environmental management, total quality management, and ethics in construction management.

CMGT 463 Value Engineering

Covers the value concept, value engineering job plan, and techniques of project selection.

CMGT 467 Techniques of Project Control

This course covers construction planning, scheduling, network systems, and communications required for project control, diagram logic, and Earned Value Analysis.

CMGT 468 Real Estate

Overview of the development process including site selection, residential densities, market analysis and cash flow analysis.

CMGT 469 Construction Seminar: Contemporary Issues

This course is intended to prepare students for professional practice through a survey of the current and future state of the industry.

CMGT 485 Habits of Successful Design and Build Construction

The course develops specific and essential skills necessary for success within the construction workforce and project environments. Students will learn to convert virtues to habits for life and career success in the challenges of the construction industry. Strategic skills in planning and scheduling, information handling, critical event completion, problem solving, negotiating, and team building techniques crucial to the construction process will be analyzed and developed.

CMGT 486 Leading in the Construction Industry

Leadership fundamentals for Constructors. Investigation of self mastery to include behavioral profiles and emotional intelligence quotients to establish a baseline for skill development

and personal growth required in the construction industry. Engagement in team building and communication models. Examination of leadership traits and skills through analysis of theory and comparison of construction industry leaders.

CMGT 491 Senior Capstone I

First component of a three-part capstone series. It is the initial problem proposal phase. Students meet with clients and establish project goals, budget, and timeline. Emphasis on proposal writing, defining customer needs, and effective presentation skills.

CMGT 492 Senior Capstone II

Continues CMGT 491. This course requires preparation of options and alternative solutions to the problem defined in the proposal phase. It requires a written and oral progress report.

CMGT 493 Senior Capstone III

Continues CMGT 492. Requires presentation of alternative solutions to client representatives in both oral and written reports.

CMGT I499 Construction Management Independent Study Project

Self-directed within the area of study requiring intermittent consultation with a designated instructor..

UNDERGRADUATE CERTIFICATE PROGRAMS

http://catalog.drexel.edu/undergraduate/collegeofengineering/constructionmanagementcert/

FUNDAMENTALS of CONSTRUCTION MANAGEMENT

(18.0 quarter credits)
The Certificate introduces students to the basic concepts of the construction industry.

Requirements

CMGT 101 **Introduction to Construction Management**

CMGT 161 **Building Materials and Construction Methods I**

CMGT 162 **Building Materials and Construction Methods II**

CMGT 163 **Building Materials and Construction Methods III**

CMGT 261 **Construction Safety**

CMGT 263 **Understanding Construction Drawings**

CONSTRUCTION SCIENCE

(18.0 quarter credits)
This certificate focuses on introducing students to design concepts relating to heating, ventilation, and air conditioning systems and the integration of these systems into the construction process.
http://catalog.drexel.edu/undergraduate/collegeofengineering/constructionscience/index.html

Successful completion of Fundamentals of Construction Management.

Requirements:

CMGT 266 **Building Systems I**

CMGT 267 **Building Systems II**

CMGT 363 **Estimating I**

CMGT 364 **Estimating II**

Select two of the following:

CMGT 262 **Building Codes**

CMGT 265 **Information Technologies in Construction**

CMGT 450 **Management of Field Operations**

CONSTRUCTION MANAGEMENT CONCEPTS

(19.0 quarter credits)

This Certificate focuses on construction contracts, specifications, and practices with regard to business law and liability. The certificate also covers value engineering and construction planning, scheduling, network systems, as well as the communications required for project control and claims prevention.

Successful completion of the Fundamentals of Construction Management Certificate and the Construction Science Certificate.

Requirements

CMGT 361 **Contracts And Specifications I**

CMGT 362 **Contracts and Specifications II**

CMGT 385 **Selling and Negotiation Techniques in Construction**

CMGT 461 **Construction Project & Company Management**

CMGT 463 **Value Engineering**

CMGT 467 **Techniques of Project Control**

MASTER'S IN CONSTRUCTION MANAGEMENT (45 quarter credits)

Required:

Core Classes **(15 credits)**
CMGT 501 Leadership in Const
CMGT 505 Const Acct & Fin Mgmt
CMGT 510 Const Control Tech
CMGT 512 Cost Est& Bidding
CMGT 515 Risk Mgmt in Const

Culminating Experience **(6 credits)**
CMGT 696 Capstone Part I
CMGT 697 Capstone Part II

Concentration Options:

Project Management **(24 credits)**
CMGT 525 Appl Const Project Mgmt
CMGT 528 Const Contract Admin
CMGT 530 Equip App & Economy
CMGT 532 International Const Pract
CMGT 538 Strategic Mgmt in Const
CMGT 540 Schedule Impact Anal
CMGT 548 Quality Mgmt & Perform
CMGT 550 Productivity Analysis

OR

Real Estate (select any 8 courses)
(24 credits)
REAL 568 Real Estate Development
REAL 571 Adv. Real Estate Invest.
REAL 572 Adv. Market Research
REAL 573 Sales & Market Real Est
REAL 574 Real Estate Econ Urban
REAL 575 Real Estate Finance
REAL 576 Real Estate Valuation
REAL 577 Legal Issues in RE
CMGT 535 Comm Impact Anal

OR

Sustainability & Green Construction
(24 credits)
CMGT 535 Comm Impact Anal
CMGT 545 Sustainable Prin& Prac
CMGT 546 Sustainable Tech
CMGT 547 LEED Concepts
CMGT 558 Community Sustain
_____Elective*
_____Elective*
_____Elective*

GRADUATE CERTIFICATES

CONSTRUCTION MANAGEMENT GRADUATE CERTIFICATE

(18.0 quarter credits)
http://online.drexel.edu/online-degrees/business-degrees/cert-construction-management/index.aspx

CMGT 510 Construction Control Techniques

This course addresses the knowledge and skill sets required to successfully plan and control complex construction projects. Topics include procurement and contracts, pre-bid planning, contract budgets and cash flow, and planning case studies.

CMGT 512 Cost Estimating & Bidding Strategies

This is an advanced course in construction estimating addressing competitive bidding strategies. Topics include profit objectives, analyzing the competition, and determining optimum combo of price, cost and volume.

CMGT 515 Risk Management in Construction

This course presents risk management techniques and practices specific to construction projects. Students will gain an understanding of the risks stemming from technical and business sources related to the construction process, and to identify, quantify, and develop the appropriate response strategies.

CMGT 525 Applied Construction Project Management

This course presents the knowledge and skills required to successfully manage complex construction projects. Topics include the project management hard skills such as estimating and budgeting, time management, and planning.

CMGT 528 Construction Contract Administration

This course introduces the managerial and legal aspects of construction contract administration. The student is introduced to basic concepts of contract law employed in construction and the rules of interpretation. Topics include changes and change orders, disputes, differing site conditions, and defective documents.

CMGT 538 Strategic Management in Construction

This course presents concepts in strategic management within construction organizations. Topics include clients/constructors/competencies, portfolio management, and marketing strategies for construction firms.

REAL ESTATE GRADUATE CERTIFICATE (18 quarter credits)

http://online.drexel.edu/online-degrees/business-degrees/cert-realestate/index.aspx

REAL 568 Real Estate Development

This course will provide a comprehensive exploration of the development process for real estate development projects. Residential, multi-family, single family, apartments, office buildings, retail projects, industrial developments and the development process for each market segment.

REAL 571 Advanced Real Estate Investment & Analysis

This course will explore the market analysis and feasibility methods in framing and supporting investment decision making for real estate projects. Detailed market analysis strategies will be employed and case studies will be analyzed to deepen the student's knowledge and judgment for investment decision making.

REAL 572 Advanced Market Research & Analysis

This course will explore the market research methods used to understand and dissect geographical and demographical real estate markets. Detailed market research strategies will be employed and case studies will be analyzed to deepen the student's knowledge of market research techniques and resources.

REAL 575 Real Estate Finance

This course will focus on the options and implications of different financing methods with the unique tradeoffs associated with each considered.

REAL 577 Legal Issues in Real Estate Development

This course will explore the unique legal requirements of the real estate business including property rights, involuntary transfers, easements, private restrictions, public restrictions, zoning and land development laws.

Select one of the following:

REAL 573 Sales & Marketing of Real Estate

This course will explore the strategies for successful marketing of real property bases on market research and development strategies.

REAL 574 Real Estate Economics in Urban Markets

This course will offer a unique and detailed perspective on urban real estate development and the special sub-markets in which they exist. Attention will be given to the characteristics of the particular economic factors relevant in urban real estate markets.

REAL 576 Real Estate Valuation & Analysis

This course will introduce the concepts of real estate valuation, appraisals, and the relationship of these to financing and cash requirements.

SUSTAINABILITY AND GREEN CONSTRUCTION GRADUATE CERTIFICATE

(18 quarter credits)
http://online.drexel.edu/online-degrees/business-degrees/grad-cert-sustainability-greenconstruction/index.aspx

CMGT 535 Community Impact Analysis

This course provides an overview of community impact assessment, including the benefits of conducting such an assessment. It also provides general guidelines for conducting a community impact assessment, including the types of impacts that should be assessed during the process and related issues.

CMGT 545 Sustainable Principles & Practice

This course addresses the fundamentals of green building concepts and practices underlying sustainable construction from a perspective of the LEED Green Building rating system.

CMGT 546 Sustainable Technology

This course addresses the sustainable technologies in the built environments and is presented as a whole building design system. The course is organized into three major categories — Design Guidance, Project Management, and Operations & Maintenance.

CMGT 547 LEED Concepts

This course addresses the fundamental concepts and practices underlying the LEED Green Building rating system.

CMGT 558 Community Sustainability

This course provides clear direction to students to design cities and developments that are sustainable and reduce environmental harms.

Admission/Registration:

- The B.S. in Construction Management program requires the completion of 186 credit hours most of which are face to face offerings. If a student wishes to pursue a Bachelor's degree or undergraduate certificates in Construction Management as a full-time, part-time or transfer student they must apply for admission into Drexel University. For information on how to apply for undergraduate studies at Drexel, please visit http://www.drexel.edu/undergrad/ or call 215-895-2400. Once accepted into Drexel and the Construction Management program, students will be assigned an academic advisor that will help them with registration.

- Students wishing to pursue the online graduate certificates or the Master's in Construction Management must apply to Drexel University as well. For more information on how to apply for the fully online graduate certificates and Master's in Construction Management, please visit http://online.drexel.edu/. GBCA members must enter their organization's affiliation code GBCA on their application to qualify for their tuition reduction. Once accepted and admitted in the program, students may contact academic advisor Jessica Cruz (215-895-5943) for help with registration.

- Drexel University offers tuition support to military members through the Yellow Ribbon Program. More information can be found at the following link: http://drexel.edu/drexelcentral/finaid/financing/veterans/yellow-ribbon-program/

- Classes dates and times are subject to change. Questions can be directed to Jessica Cruz at jc635@drexel.edu.

Graduate Studies Department
355 Gerri C. LeBow Hall
3220 Market Street, Suite 370
Philadelphia, PA 19104

CONTACT **Mercedes Moultrie**
Program Manager & Academic Advisor
Phone: (215) 571-3939
Email: mm342@drexel.edu

GRADUATE-LEVEL COURSES

PROJ 501 Introduction to Project Management

This course will prepare students to manage scheduling, supply management, project team recruiting, resource allocation, time/cost tradeoffs, risk assessment, task coordination, team-building, progress monitoring, and post-project assessment through a comprehensive overview of project management. Case studies are used to illustrate the principles and tools of project management as a process.

PROJ 502 Project Planning & Scheduling

This course will prepare students to master concepts in project planning, scheduling and control. Project scheduling methods are covered including: critical path systems, critical chain scheduling, statistical analysis, Program Evaluation Review Technique, linear resource leveling, and legal ramifications on contracted projects.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 510 Project Quality Management

Quality management is related to project management. Examines basic quality concepts and explores the three sub-processes of quality management: quality planning, quality assurance, and quality control as they relate to project management.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 515 Project Estimation & Cost Management

This course will provide an overview of project financial and economic principles involved in product and system development. It is intended to familiarize project managers with methods in project accounting, budgeting, cost estimation, financial management, design optimization, and economics.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 520 Project Risk Assessment & Management

Examines the risk factors throughout every phase of a project. Looks at the overall project planning process, explores the use of high-level risk assessment tools, and describes key ideas for project risk planning. Models for risk analysis, assessment, and classification are presented.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 525 E-Tools for Project Management

This course will examine the use of electronic tools as a means of creating a virtual workplace. Issues related to the use of the e-tools for collaboration and decision making for project management will be explored.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 530 Managing Multiple Projects

Examines the complex and simultaneous management principles and techniques required to manage multiple projects. Emphasis is placed on a theory and practice of project management that is rigorous and disciplined, yet flexible.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 535 International Project Management

Examines the uniqueness and adaptations of project management when operating in an international context. Details the investigation of cultural, legal, and regulatory environments as the context of international project management.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 540 Project Procurement Management

Examines role of procurement in project management including processes and activities needed to acquire products, services and results required to accomplish a project from outside the project organization. Planning, conducting administering and closing procurements are course components as are relevant legal and ethical issues, contract capacity, authority, public and private bidding processes and dispute resolution methods.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 601 Project Leadership

Examines the environments required for building, maintaining, and leading successful project teams.
Co-requisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 602 Project Teamwork

Examines the environments needed for being a successful and contributing member of a project team.
Co-requisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 645 Project Management Tools

Examines theories relating to project management software acceptance, use of project management tools, and how tools relate to project success. Develops in-depth skills in a widely-used project management software package and provides exposure to other selected project management tools for successful collaboration in collocated and virtual project teams.
Prerequisite(s): PROJ 501 (or equivalent) [Min Grade: B]

PROJ 650 Project Stakeholder Management

Examines theories and processes required to identify the individuals, groups, organizations, and other stakeholders that could impact or be impacted by a project. Also covers analyzing stakeholder expectations and their influence on the project and developing strategies for engaging project stakeholders in effective project decisions to ensure successful project outcomes.

PROJ 665 Managing Project Knowledge

Examines how knowledge services are designed, developed, and implemented within an organization and a project. The goal is to build expertise with knowledge management materials and skills needed to succeed in building an effective knowledge strategy within a project, a program, and an organization. Students learn strategies for building knowledge services, including the theories, models, methods, processes, and social factors that promote successful change.

PROJ 670 Project Management Methodologies: Managing Project Lifecycles

Examines project management methodologies, including Project Management Institute (PMI)® global standards, Agile, PRINCE 2, SCRUM, ITIL, and other leading methodologies. Reviews how project lifecycles are designed, developed, and implemented within a project and across the organization. Builds knowledge and expertise with major project management methodologies and materials and develops skills needed to select, adapt, and apply an effective strategy for

a project, a program, and an organization. Students learn strategies for managing projects throughout their lifecycles, including the theories, models, methods, processes, and other factors that enhance project success.

PROJ 695 Capstone Project in Project Management

Provides an opportunity for the student to successfully integrate knowledge and skills acquired during their master's program in project management. Students will evaluate the project management practices in an organization and create a report that identifies strengths and weaknesses in an organization and recommend strategies for improvement.
Prerequisites: PROJ 502 [Min Grade: B] and PROJ 510 [Min Grade: B] and PROJ 515 [Min Grade: B] and PROJ 520 [Min Grade: B] and (PROJ 525 [Min Grade: B] or PROJ 645 [Min Grade: B]) and PROJ 530 [Min Grade: B] and PROJ 535 [Min Grade: B] and PROJ 540 [Min Grade: B] and PROJ 603 [Min Grade: B]

PROJ I599-I799 Independent Study in Project Management

Provides individual study or research in project management under faculty supervision. Course may be repeated for credit.

PROJ T580-T780 Special Topics in PROJ

Topics decided upon by faculty will vary within the area of study.

PROGRAM OFFERINGS IN PROJECT MANAGEMENT

GRADUATE CERTIFICATE IN PROJECT MANAGEMENT

16.5 credits (6 courses: 5 required plus 1 elective)
http://catalog.drexel.edu/graduate/collegeofprofessionalstudies/projectmanagementgradcert/

The Graduate Certificate in Project Management, a part-time, fully online program, is designed to support the growing need for project management graduate education. It provides students with the knowledge necessary for successful professional and leadership careers in the rapidly-expanding field of project management and will prepare students to pursue the Certified Associate in Project Management (CAPM)® or Project Management Professional (PMP)® credential from the Project Management Institute (PMI).

PROGRAM REQUIREMENTS

Required Courses

PROJ 501	Introduction to Project Management	3.0cr
PROJ 502	Project Planning & Scheduling	3.0cr
PROJ 510	Project Quality Management	3.0cr
PROJ 515	Project Estimation & Cost Management	3.0cr
PROJ 601 **OR**	Project Leadership	1.5cr
PROJ 602	Project Teamwork	1.5cr

Elective courses (Select 1 of the following): 3.0cr

PROJ 520	Project Risk Assessment & Management
PROJ 525	E-Tools for Project Management
PROJ 530	Managing Multiple Projects
PROJ 535	International Project Management
PROJ 540	Project Procurement Management
PROJ 645	Project Management Tools
PROJ 650	Project Stakeholder Management
PROJ 665	Managing Project Knowledge

M.S. IN PROJECT MANAGEMENT

45.0 credits (15 courses: 12 required plus 4 elective)
http://catalog.drexel.edu/graduate/collegeofprofessionalstudies/projectmanagementms/

The Master of Science (MS) in Project Management, a part-time, fully online program, is designed to equip professionals with the knowledge expected of project managers in any field. The course content is mapped to the internationally-recognized Project Management Institute's (PMI) A Guide to the Project Management Body of Knowledge (the PMBOK Guide)®.

PROGRAM REQUIREMENTS

Required Courses

PROJ 501	Introduction to Project Management	3.0
PROJ 502	Project Planning & Scheduling	3.0
PROJ 510	Project Quality Management	3.0
PROJ 515	Project Estimation & Cost Management	3.0
PROJ 520	Project Risk Assessment & Management	3.0
PROJ 530	Managing Multiple Projects	3.0
PROJ 535	International Project Management	3.0
PROJ 540	Project Procurement Management	3.0
PROJ 601	Project Leadership	1.5cr
PROJ 603	Project Teamwork	1.5cr
PROJ 645	Project Management Tools	3.0
PROJ 695	Capstone Project in Project Management	3.0
Free Electives		12.0

PROJECT MANAGEMENT PROGRAM FEATURES

- All students have access to Drexel facilities, technical support, services, libraries, and software
- The Graduate Certificate can be completed in as little as 1 year
- The Graduate Certificate has been declared eligible for financial aid by the US Department of Education
- The MS can be completed in as little as 2 years
- Use electives to complete a graduate minor or graduate-level certificate in a specific area of interest (e.g. Graduate Certificate in Construction Management or Graduate Certificate in Sustainability & Green Construction)
- Students can apply for admission to the Graduate Certificate or MS in Project Management in fall or spring
- The Graduate Certificate and MS can be pursued part-time
- Courses in the Graduate Certificate and MS are offered every term
- Courses in the Graduate Certificate and MS are offered entirely on-line, so they can be completed ANYWHERE

Drexel's Project Management Program: A PMI® Registered Education Provider (R.E.P.)

The Project Management program in the College of Engineering at Drexel University is approved by the Project Management Institute (PMI) as a Registered Education Provider (R.E.P.). This designation indicates that Drexel has met or exceeded rigorous standards for the quality and the effectiveness of its program as defined by PMI. As a result, PMI has authorized Drexel to issue professional development units (PDUs) to meet the education requirements needed by PMI credential holders.

This designation has many benefits to the project management student. An alignment with PMI, the world's largest project management association, provides a verified focus of the course material and learning outcomes so that the student is assured an optimal experience. All courses must be current and align with PMI's Global Standards assuring quality of content leading to the student's professional development.

For more information about the Project Management Institute, visit www.pmi.org.

ADMISSION & REGISTRATION INFORMATION

Students wishing to pursue the online Graduate Certificate in Project Management or the MS in Project Management should visit the Drexel University Online website (http://online.drexel.edu/) for admissions criteria and to apply. **NOTE:** GBCA members qualify for a tuition reduction. Applicants should enter the organization affiliation code **GBCA** and select ***General Building Contractors Association*** on their application to receive their tuition savings.

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Jefferson.edu/ConstructionManagementMS

CONTACT **Gulbin Ozcan-Deniz, Ph.D., LEED AP BD+C**
Director and Associate Professor

Phone: (215) 951-2914
Email: gulbin.deniz@jefferson.edu

B.S. IN CONSTRUCTION MANAGEMENT

4-year Professional ABET-ANSAC Accredited Degree

COURSE NO. COURSE TITLE

CMGT-101 Construction Graphics

Course Description Students will be introduced to the graphical language of construction and design through a combination of interactive lecture\demonstration classes, graphic exercises, and hands on exercises. The hands on exercises will include the reading and interpretation of graphics. Graphic and field exercises will present a variety of opportunities for student understanding and expression of both visible field conditions and conceptual details as well as immersing the students in the use of graphics to accurately describe existing built conditions.

CMGT-102 Introduction to the Construction Industry

This course introduces students to the basic process and pathways of a construction project. The course will explore the various types of construction along with identifying terms and specific industry vocabulary, participants and their roles. The course will include discussions on the methods of contracting used by Construction Managers and there will be group classroom activities simulating real-life construction management challenges. Students will be introduced to topics including planning, programming and documentation from pre-construction to project close-out in a lecture/discussion format. The principles will be reinforced through individual and group classroom activities and exercises.

CMGT-104 Introduction to Estimating and Scheduling

This course teaches the methodology, procedures, and organizational techniques involved in the preparation of a competitive bid and schedule. Conceptual and detailed estimates are prepared based on real construction documents. The course is structured in laboratory modules that cover the Project Development Process. The intent is to pull the process together in a single course to provide a strong understanding of preliminary design, estimation, scheduling, and analysis. Students will be engaged in the lecture/discussion classroom setting and actively apply the techniques through a variety of practical group exercises and laboratory case experiences of increasing complexity. Estimating with computer software is introduced.
Prerequisite: CMGT-102

CMGT-200 Construction Project Planning & Scheduling

This course teaches the study and application of the tools and concepts used in planning and controlling construction projects. Students will employ the Critical Path Method (CPM) of project scheduling, resource leveling, and time-cost analysis using manual and computer-based methods to develop and maintain working project schedule models. The course will broaden the student's understanding and use of construction scheduling methods pertinent to the management of a construction project.
Prerequisite: CMGT-104

CMGT-202 Construction Cost Estimating & Budgeting

This course will broaden and deepen the student's understanding of construction cost estimating. Topics include general principles of measuring work and preparing quantity takeoffs. Step-by-step methods of estimating to produce an accurate construction cost estimate using the latest in electronic takeoff technology are covered. The course culminates with the students preparing a complete cost estimate for a specific project.
Prerequisite: CMGT-104

CMGT-204 Behavior of Materials

The course will broaden and deepen the student's understanding of the external forces systems acting on structural elements and strength of materials-the internal forces and deformations that result from external forces.
Prerequisite: CMGT-104

CMGT-206 Building Systems

Through analysis of relevant case studies, this course examines building mechanical and electric systems from the construction manager's point of view. The class will review how the basic design calculations are performed to determine how building systems are selected and designed. Student will review design documents including drawings and specifications on how

the subcontractor bid packages are determined and how the subcontracts are purchased. Assessment of the shop drawing process including the review of the mechanical systems shop drawing coordination process, construction of systems, turn-on and energization, start-up, testing, systems balancing, commissioning of systems, final turn-over, training, and demonstration to the Owner and close- out will be included.
Prerequisite: CMGT-104

CMGT-208 Materials & Methods of Construction

This course is an introduction to the materials, assemblies and methodologies of general construction organized around Construction Specifications Institute division format. Topics include site-work and excavation techniques and proceed through basic building systems in concrete, masonry, wood, plastic and steel along with interior and exterior finishes. Emphasis is placed on achieving design intent through appropriate construction techniques and sequencing. Case studies, site visits, ongoing project examples are an integral part of the course.
Prerequisite: CMGT-104

CMGT-300 Construction Accounting and Cost Control

This course familiarizes students with construction cost accounting systems and reporting formats. Students will examine the sources of cost data and report generation and will evaluate performance based on analysis of data for labor, material, equipment, and subcontract cost. Emphasis is placed on the formulation of management decisions and the ongoing evaluation of their effectiveness. The course will broaden the student's understanding and use of construction cost accounting systems and reporting methods pertinent to the management of a construction management financial system.
Prerequisite: CMGT-202

CMGT-302 Construction Contract Administration

This course explains the various facets of construction contract administration from both the contractor's and construction manager's point of view. The student will be introduced to the construction contract documents typically used for effective project management. Topics will include contract components, types of construction contracts, subcontracts and supply contracts, design/build contracts, bidding and award of contracts, negotiation, claims and disputes, changes to the work, time and cost, correction of the work and contract completion.
Prerequisite: CMGT-202

CMGT-304 Construction Safety & Risk Management

This course familiarizes students with best practices for risk identification, assessment, and mitigation for construction businesses and projects. Students will examine case examples of construction industry businesses and construction project site conditions, identify and assess specific risks, and formulate management plans to mitigate and manage the risks. Particular emphasis is placed on OSHA compliance and worksite safety management.
Prerequisite: CMGT-206

CMGT-306 Construction Site Operations

This course familiarizes students with methods, procedures, and practices required for the effective management of field operations preparing students to assess construction project sites and prepare comprehensive site management plans. The course explores aspects of site management such as layout, logistics, sustainable practices, administration, and false work in a hands-on collaborative environment.
Prerequisite: CMGT-206

CMGT-310 Construction Surveying

This course presents the basic surveying principles and their applications in construction. Students are introduced the use of surveying equipment to achieve horizontal and vertical distance measurement, horizontal and vertical angle measurement, and computation of coordinates. The course includes additional topics like field data collection for site mapping, such as topographic surveys, boundary surveys, feature location, ground survey control, and traverse computations in addition to construction layout practices with the use of digital instruments.
Prerequisite: CMGT-202

CMGT-401 Codes and Specifications

This course offers an introduction to building code requirements, material specifications and performance standards, and their application to the building design and construction process. Students develop an appreciation for and understanding of how building codes seek to ensure building performance and occupant safety and how related standards and specifications support these goals.
Prerequisite: Permission of Program Director

CMGT-403 Introduction to BIM

This course introduces students with the basic concepts of Building Information Modeling (BIM) with practical applications of Autodesk Revit. The sequence will include starting a project, adding basic building elements, modifying elements as needed, and creating a 3D Revit model. Students will be able to get used to the Revit interface and explore how information and building components are integrated in BIM. The course will also introduce utilizing Revit for purposes in addition to modeling, such as estimating. Students will develop the Revit model of an actual building to strengthen their BIM knowledge.
Prerequisite: Permission of Program Director

CMGT-410 Principles and Practices of Heavy Construction

This course is intended to provide students with an introduction to the principles and practices employed in heavy/civil infrastructure and marine construction. The course content is presented from a practical perspective focusing on the management of heavy/civil construction projects. The course is designed for construction management majors as well as those majoring in related fields and is intended to provide a broad understanding of heavy construction techniques and contracting.
Prerequisite: CMGT-200, 202 & 300

CMGT-450 Construction Management Seminar

This seminar course is an opportunity for upper-level construction management students to explore emerging trends in the construction industry while integrating the knowledge and skills developed through their previous coursework. Seminar discussions will respond to readings, guest lecturers and project reviews presented by industry partners. The course includes individual and group research projects the results of which are also discussed during seminar meetings. Material and discussions will include topics such as professional practice, integrated project delivery, industry specific ethical challenges, sustainable practice, and career alternatives.
Prerequisite: CMGT-300 & CMGT-302

CMGT-499 Construction Capstone Project

This course is the application of course materials covered in the four-year curriculum to an actual construction project. Students are required to submit and present a comprehensive bid package with a detailed quantity takeoff and estimate, a list of activities with appropriate relationships, a (critical path method) CPM network schedule, and Leadership in Energy and Environmental Design (LEED) certification plan. Preparation includes developing a company organization along with detailed project bid. Students will be working in groups of 3-4 to set up the construction company and prepare submittals for a commercial project. The course requires each team making a presentation to an “owner/client organization” and an audience consisting of faculty, alumni, and representatives from the industry. The students are required to not only apply all that they have learned but also to synthesize and integrate the knowledge gained to solve additional

problems they have not previously encountered. In addition to testing their knowledge, the course emphasizes collaboration and communication skills through written submittals and report writing, oral assignments, and facilitated classroom discussion.
Prerequisite: Completion of at Least 36 Credit Hours of CMGT Courses

The B.S. in Construction Management is the 4-year accredited professional degree at Jefferson to become a Construction Manager or a Project Manager. This is a 121-123 credit program with course offerings during the day and the evening.

The B.S. in Construction Management program at Thomas Jefferson University is accredited by the **Applied and Natural Science Accreditation Commission (ANSAC) of ABET**. ABET-ANSAC evaluates 4-year Construction Management programs to approve that "Graduates of Construction Management programs will have the knowledge, as well as the technical, administrative and communication skills, necessary to succeed in the construction industry."

WEBSITE
Jefferson.edu/ConstructionManagementBS

M.S. IN CONSTRUCTION MANAGEMENT

MCM-600 Construction Estimating & Scheduling

This course focuses upon the planning and scheduling stages of the building process including preconstruction phase, with particular emphasis upon reading construction documents and basic estimating principles applied to small-scale and commercial projects. Techniques for estimating unit quantities and costs of materials, labor and equipment are introduced with given industry applications, building specifications, and computer software. Scheduling principles are introduced with Critical Path Method (CPM) through calculations and software applications.

MCM-602 Construction Information Modeling

This course is a BIM-based course to introduce students the aspects of the related BIM software. Students will be expected to develop their skills, including architecture, structure, and mechanical, electrical, plumbing (MEP) components of BIM, using the required software through lectures and self-study. Students will be introduced to estimating and collaboration skills relative to the application of the software to real-world cases.

MCM-603 Construction Law: Roles & Responsibilities

Current legal problems associated with the construction industry are investigated from management's perspective by considering the roles assigned to various project participants, reviewing case law, and studying statutory requirements. Students will gain the knowledge to effectively identify and manage the legal and contractual risk associated with construction. This includes understanding current legal and ethical problems associated with the entire building process from preconstruction through project closeout. The class scrutinizes contractual relationships, delivery methods, insurance, bonding, indemnification, dispute resolution, and other risk management tools to better deliver projects on time, within budget, and avoid legal claims.

MCM-604 Project Finance & Cost Control

This course probes the economics of construction and analyzes project control systems used to effectively manage cost and time. Principles drawn from cognate business fields, specifically accounting, finance, and taxation, are given real-life application relative to construction projects of multiple types and scales. Key budgetary issues are examined in-depth, including financial statements and balance sheets, variance analysis and optimum cash flow methods, as well as efficient cost reporting systems. Additional topics include internal controls, financial analysis and presentation, contractor surety and lending, and fraud, with particular emphasis upon cost-effective methods to procure and deliver construction projects including lump sum, unit price, cost-plus, and design-build.

MCM-606 Construction Risk Management

This course examines the key concepts, models, codes, tools and techniques used in managing risks within the architecture, construction, and engineering industries. The course will focus on planning for the effective implementation of the risk management process, identification, and qualitative and quantitative assessment of risks, appropriate strategies to respond to risks, and how to sustain the risk management process throughout the life of a construction project. Site safety concepts will be introduced in connection to OSHA requirements. Topics also include quality management and environmental requirements.

MCM-608 Construction Environmental Management

This course examines the key concepts, systems, laws, tools and techniques used in managing environmental risks within the architecture, construction and engineering industries. The course will focus on environmental issues from a construction business management perspective and include analytical techniques, management processes and business strategies that aid successful reconciliation of environmental and economic performance goals for construction operations. Through a combination of real-life cases, readings, lectures, videos, and simulations, class sessions will seek to engage students in discussions aimed at developing systems of corporate environmental management, covering compliance, environmental risk management, pollution prevention, product stewardship, supply chain management, and communication.

MCM-612 Advanced Construction Project Management

This course is intended to broaden and deepen the student's understanding of the Construction Management body of knowledge and depends on the student having successfully completed the prerequisite courses. The course details the project management process from the perspective of a construction project management team planning, executing, controlling, and closing-out a construction project. Emphasizing pre-construction planning, topics will include construction project management concepts, practices and systems, project controls, and risk, safety, environmental, and quality management. The course content will also address constructability and value engineering, project start-up, site layout and logistics, management means and methods, and ethical considerations. This course intends to provide the in-depth knowledge needed to for the student to start working on the Masters Project.
Prerequisite: CMGT-600, CMGT-602, CMGT-603, CMGT-604, CMGT-606

MCM-614 Materials & Methods of Construction

This course explores a management approach to evaluation and policies involving materials, assemblies and methodologies of general construction. Students are exposed to basic building materials, components, and systems and the appropriate techniques to evaluate their value, constructability, and other characteristics affecting project success. Emphasis is placed on the development of company policies regarding material selection, procurement, handling and assembly. Case studies and ongoing project examples are an integral part of the course.

MCM-616 Real Estate Development

This lecture course will educate students on all aspects of sustainable development ranging from construction startup to project financing to management of green construction. Students will learn techniques of cost benefit analysis including such aspects as impact of zoning and code ordinance for green projects to understanding tax incentives for such projects. Students will complete case studies and finish the semester with a completed proposal for a sustainable project.

MCM-618 Heavy Construction Practices and Principles

This course is intended to provide students with an introduction to the principles and practices employed in heavy/civil infrastructure and marine construction. The course content is presented from a practical perspective focusing on the management of heavy/civil construction projects. The course is designed for construction management majors as well as those majoring in related fields and is intended to provide a broad understanding of heavy construction techniques and contracting.

MCM-901 Master's Project

Construction managers today are part of a team-oriented enterprise, working in collaboration with architects, clients, developers and sub-contractors in the conceptualization and realization of the built environment. This independent study serves as the culminating experience in the program and requires the student to translate the design intentions of the architect and the expectations of the client into sustainable built form. Working in consultation with an advisor from the construction industry, the student must choose a specific project, secure an advisor, and produce a comprehensive manual that addresses design concerns, constructability issues, and construction methodologies. The manual should include a company and project overviews, detailed estimate, schedule, cash flow, a 3D model created with BIM, site logistics plans, risk, environmental, quality, and safety management plans, as well as a LEED proposal. An oral defense, supported by visual documentation realized via relevant digital technologies, will be presented for review and critique by a jury of committee members composed of industry practitioners and faculty.
Prerequisite: CMGT-612 & SDN-601

The M.S. in Construction is a 36-credit program with course offerings primarily in the evening, hybrid, and/or online version to allow students to have the flexibility of planning their schedules and continuing to work in their jobs.

DEGREE OPTIONS

- MCM On Campus - https://www.jefferson.edu/academics/colleges-schools-institutes/architecture-and-the-built-environment/programs/construction-management-ms/degree-options/masters-program.html
- MCM Online - https://www.jefferson.edu/academics/colleges-schools-institutes/architecture-and-the-built-environment/programs/construction-management-ms/degree-options/online-masters-program.html

MCM On-Campus includes classes located on the East Falls Campus. MCM Online includes fully online courses.

WEBSITE
Jefferson.edu/ConstructionManagementMS

Office of Continuing Education
1600 Woodland Road
Abington, PA 19001

https://abington.psu.edu/working-professionals

https://abington.psu.edu/project-management-certificate-penn-state-abington

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CONTACT **Marjie Devlin, MBA**
Education Program Manager

Phone: (215) 881-7396
Email: mmd6048@psu.edu

PROJECT MANAGEMENT CERTIFICATE PROGRAM

The Project Management Certificate Program is a structured sequence of courses that prepare students for careers in the construction planning and business fields. Throughout this program, students will be able to apply project management practices through hands on exercises. Upon completion of the certificate program, students will have earned **8.4 Continuing Education Units (CEUs)** that they can put towards achieving the **Project Management Professional (PMP) credential** through the Project Management Institute.

COURSE NO. COURSE TITLE

PM 01 **Project Initiation & Planning (PJMGT 5000)**

This course introduces the student to the project management process; the role of the Project Manager; project communications, and project leadership. It begins the planning process covering topics such as the objectives, scope, and success criteria. This is the first of four courses required for the Certificate in Project Management.

PM 02 **Project Scheduling & Integration (PJMGT 5001A)**

This course continues to build upon the lessons learned in “Project Initiation and Planning”. Content covers the work breakdown structure, project schedule, PERT/GANTT/CPM methods, and project integration. This is the second of four courses required for the Certificate in Project Management.
Prerequisite: Project Initiation and Planning (PJMGT 5000)

PM 03 Project Management Costing & Control (PJMGT 5002)

To understand the cost estimating techniques, earned value analysis, change management, and lessons learned. Specific course objectives include: Understanding the project management discipline; Creating a cost estimate and cost baseline; Addressing project changes; Project reporting; Conducting lessons learned.
Prerequisite: Project Scheduling and Integration (PJMGT 5001A)

PM 04 Project Risk and Management (PJMGT 5003)

To understand the related project management risks, creating a risk register, and to understand how to manage a project. Specific course objectives include: understanding the project management discipline; risk identification; qualitative and quantitative risk analysis; project management skills; ethics in project management.
Prerequisite: Project Management Costing and Control (PJMGT 5002)

AE 5558 Introduction to Mechanical, Electrical, Plumbing and Fire Protection Systems

This course introduces the principles of the building systems with the intent to provide the construction/project managers with the knowledge to identify, integrate, and coordinate with project engineers and consultants. The building systems to be covered include, but are not limited to the following:

- HVAC Systems (Heating, ventilation, and air conditioning) and the impact on design solution
- Indoor Air Quality; impact from products and their application
- Electrical Systems/Energy Controls, code requirements
- Communication and Data Systems
- Plumbing Systems, and code requirements
- Fire Protection Systems, code requirements

The course is lecture based and includes class discussions and workbook assignments. The course also reviews the construction document components to each of the building systems

AE 5001 Introduction to Structural and Building Envelope Systems

The course will introduce the principles of structural systems and the building envelope with the intent to provide the construction/project managers with the knowledge to identify, integrate, and coordinate with project engineers and consultants. The building systems to be covered include, but are not limited to the following:

- Foundation Systems - Footing, Slabs
- Wall Systems - Masonry, Steel, Curtain Wall, Rain Screen
- Roof Systems - Various membranes, Flat Roof, Sloped Roofs, Trusses
- Fenestration Systems - Glazing, Veneers
- Structural Forces - Compression, Tension, Bending, Shear, Moments

The course is lecture based and includes class discussions and workbook assignments. The course reviews the construction document components to each of the building systems.

LEAN SIX SIGMA CERTIFICATE PROGRAM

The Lean Six Sigma method fosters continuous improvement in any construction, business, service or manufacturing business. This three-course Lean Six Sigma Certification Program combines classroom experience with hands-on learning, providing students with the tools necessary to better position their organization to exceed expectations in the areas of: improved services, products, and offerings; process improvement; quality; on-time delivery; eliminating waste; competitive advantage; and business profitability. Students are not required to hold any previous Six Sigma training to enroll. A Penn State certificate is awarded upon completion of the three required courses. Students may sit for a certification exam at the end of the third class as part of their application for Six Sigma Black Belt Certification.

LSS 01 SYSEN 5606: Lean Six Sigma Theory and Application

This course provides students with an introduction to Lean Six Sigma and the tool sets of process management, statistical analysis, elimination of non-value-added waste, and team/time management. It provides the student an overview of Six Sigma, Lean Manufacturing/Enterprise, and Lean Six Sigma methodologies. Grounded in real-world applications with real-world benefits and opportunities, this course will demonstrate philosophies of the Lean and Six Sigma gurus such as Deming and Crosby. Various tool sets such as visual management, value stream mapping, Kaizen, and Kanban will be demonstrated to show how to reduce waste. This course is the required pre-requisite for SYSEN 5605.

LSS 02 SYSEN 5605: Lean Six Sigma for Continuous Improvement

This course provides students with an intermediate knowledge of Lean Six Sigma and the tools to improve safety, increase communications, enhance teamwork, increase productivity, and decrease costs—all while adding value to their customer. In addition to the tools presented, the material will offer a cross-functional approach that includes the disciplines of service, research, development, suppliers, manufacturing, marketing/sales, and distribution. This course is the required pre-requisite for SYSEN 5625.
Prerequisite: SYSEN 5606: Lean Six Sigma Theory and Application

LSS 03 SYSEN 5625: Lean Six Sigma Customer Driven

This course provides students with an advanced knowledge of Lean Six Sigma and is centered around the voice of the customer, adding value to the customer base, and increasing your business profitability. Knowing what customers care about allows for the prioritization of goals,

that leads to increased efficiencies, or profitability, for your customers and your business. This course contains the comprehensive final examination which incorporates previous knowledge from the SYSEN 5606 Lean Six Sigma Theory and Application and SYSEN 5605 Lean Six Sigma for Continuous Improvement courses.
Prerequisite: SYSEN 5605: Lean Six Sigma for Continuous Improvement

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- **PLEASE NOTE: Disclaimer: PMI and PMP are registered trademarks of the Project Management Institute, Inc.**
- **Registration is now open. Penn State Abington Campus is located at 1600 Woodland Road, Abington, PA 19001. Register by phone at: 215-881-7389 Monday - Thursday 8:00 a.m. - 9:00 pm; Friday until 4:30 pm. Contact Robin Burgess at 215-881-7401 with any questions. Also check dates for classes as they are subject to change.**
- **Penn State Abington is offering all non-credit courses remote via Zoom for the Fall 2020 session. There is a 10% discount for all GBCA members.**

Global Learning & Partnerships
225 Rowan Boulevard
Glassboro, NJ 08028

admissions.rowanu.com/

CONTACT **Carlos Parker**
Advisor
Email: parkerc@rowan.edu

John Coulter
Admissions
Phone: (856) 266-3034
Email: coulterj@rowan.edu

COURSE NO. COURSE TITLE

CM 01301 Fundamentals of the Construction Industry I

This course provides a general overview of the planning, administration, management, and cost of construction projects and an introduction to the methodology used in executing specific designs. Emphasis is placed on the organization of construction firms, use and types of primary construction equipment, estimating and quantity take-offs, contractual and management systems, scheduling, project administration, and inspection of construction operations.

CM 01302 Fundamentals of the Construction Industry II

Students will be introduced to the design process and development of construction documents. It covers the standard design phases: programming, conceptual design, schematic design, design development, construction documents and construction administration, and the format and utilization of project manuals including contract specifications, the interpretation and analysis of engineering plans and specifications, and the new technologies being used in the design including Building Informational Modeling (BIM) and sustainable (green) practices. The course also explores the various common project delivery methods.

CM 01303 Project Building Systems

Students will learn the description and identification of the equipment and materials used in mechanical systems for heating, ventilating and air conditioning, electrical, plumbing, fire protection, piping, gas, lighting, water and waste water, conveyance, life safety systems, environmental, security, audio/visual, and building system controls. The course also provides and introduction to building structural and envelopes systems.

CM 01304 Project Administration

This course provides exposure to and use of various types of projects control systems for project efficiency and documentation. Students will learn how the submittal process operates and is monitored. They will also be shown a variety of tools used in tracking project documentation, and essential elements related to contract law and administration.

CM 01305 Construction Cost Accounting, Estimating & Finance

Introduction to various costs of construction including direct and indirect project costs, comparison of hard and soft costs, job cost analysis and forecasting of cost to completion, labor, material and equipment expenses, cash flow, overhead, profitability, and general conditions costs. Students will learn research techniques used to create accurate estimating and bidding procedures.

CM 01306 Construction Project Planning & Scheduling

Students will learn procedures used in project planning and scheduling that employ float methods of scheduling logic. They will examine the critical path series of activities of project completion, including the use of computer software applications for problem solving, and related tools, spreadsheets, and information management. Also covered are work breakdown structures, activity durations, status reports, resource allocation, re-planning, monitoring, and updating of projects. Students will develop projects site logistics plans.

CM 01407 Advanced Leadership & Communication

This course is designed to teach students to become more effective leaders and communicators in the construction industry. Drawing on various case studies, students will examine ethical practices in the industry. They will define and role-play effective communications strategies that simulate situations they may encounter within the industry such as general-to-subcontractor, corporate, and labor relations. Students in this course will also examine principles of negotiation and dispute resolution in the construction industry.

CM 01408 Industrial Relations in the Construction Industry

This course examines various perspectives (union, management, government) on the collective bargaining system in place in the construction industry. Topics include the legal and regulatory environment, problem solving, and the roles of labor and corporations.

CM 01409 Building Energy Systems for Construction Managers

The Building Energy Systems for Construction Managers course provides a conceptual understanding of functions and performances of energy systems including mechanic al, electrical, electronic, and plumbing and transport systems in residential and commercial buildings. The

course also provides information on integration between energy systems and other building components. While introducing the concepts of alternative energy sources, energy efficiency, structural implications of mechanical systems, indoor air quality, and environmental control strategies, the course familiarizes students with more recent and current efforts in sustainability and green building ideas. The course also introduces codes and standards relevant to energy devices used in building construction, such as National Fire Protection Association (NFPA), American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and National Electrical Code (NEC).

CM 01410 Building Construction Systems & Codes

This course provides a conceptual understanding of functions and performance of structural building systems. The primary purpose of this course is to provide familiarity with use of construction code with reference to International Building Codes (IBC) 2012. For anyone in the field of construction or construction management it is necessary to know about the concepts and fundamental aspects of the code. As a result, the course is intended to provide an understanding of how the code was developed, how it is to be interpreted, and how it is applied to design and construction of buildings, the goal of the course is to make implementation of the code easier, and clearer to understand. Other than discussions on structural elements and their construction methods, the course covers issues such as use and occupancy, types of construction, fire-resistive constructions, interior finishes, building material, inspections, and tests.

CM 01411 Construction Safety and Loss Prevention

This course offers a practical guide for eliminating safety and health hazards from construction worksites. The Handbook of OSHA Construction Safety and Health addressed the occupational safety and health issues faced by those working in the construction industry. The course covers a vast range of issues including program development, safety and health program implementation, intervention, and prevention of construction incidents, regulatory hazards faced by those working in the construction industry and sources of information. The course also features updates for construction regulations, construction job audit, training requirements, and OSHA regulations. It includes new record keeping guidelines and forms with additional material on focused inspections. Containing updated contact information for the newest agencies, the course also presents a model safety and health program, examples of accident analysis and prevention approaches.

CM 01412 Capstone Course

In the course, students will build on what they have learned in the major, integrating the theory and knowledge that they gained in class with practical experience in the construction industry. Capstone projects are developed through a series of project meetings between the student and program faculty, with significant written deliverables.

REGISTRATION

Please reach out to John Coulter for questions regarding the application process at 856-266-3034 or coulterj@rowan.edu. To begin the admissions process, visit https://apply.rowan.edu/apply.

Rowan University's Online B.A. in Construction Management is a degree program that provides 36 of the remaining credits necessary to complete a 120 credit bachelor's degree. In addition to transfers from other accredited colleges and universities, credit toward the degree may be awarded for apprenticeships and prior work experience.

NEW

Graduates of the Carpenters JAC may be awarded up to 35 credits upon completion of their apprenticeship program. Contact Academic Advisory Carlos Parker for more information at parkerc@rowan.edu.

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The Construction Management Certificate Series is a 9-month series of classes designed to provide business management tools to existing and aspiring independent contractors. Participants who complete the series will earn a Special Certificate of Completion from the Temple University Fox School of Business and the Small Business Development Center.

Virtual Classes Start in September. Course Fee is $2,300.

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TOPICS COVERED:

- Team Building and Baseline Assessment
- Construction Blue Prints
- Methods & Materials
- OSHA Regulations for Contractors
- Quantity Take-Off & Cost Estimating
- Project Scheduling & Budgeting
- Accounting
- Loans
- Contract Administration & Control
- Contract Law
- Pre-Business
- Bonding & Insurance

College of Engineering
TEMPLE UNIVERSITY®

Department of Civil &
Environmental Engineering,
Construction Management
1947 N. 12th Street
Philadelphia, PA 19122

https://www.temple.edu/academics/degree-programs/construction-engineering-technology-major-en-cnet-bsct

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CONTACT **Denise Guiteras**
Administrative Specialist

Civil and Environmental Engineering
Department

Phone: (215) 204-7814
Email: dguiter@temple.edu

B.S. IN CONSTRUCTION ENGINEERING TECHNOLOGY (BSCET)

COURSE NO. COURSE TITLE

CMT 2124 Construction Methods & Materials

Materials and construction processes of importance to the designer and constructor; construction equipment and methods of handling and placing these materials on the job.

CMT 2125 Construction Contracts and Specifications

Analysis of construction contract law cases, analysis of selected contracts, bidding and contract award procedures, interpretation of specifications. Preparation of written reports and oral presentations are required.

CMT 3121 Construction Estimating

Estimating quantities of materials, labor, and equipment for various construction tasks; pricing of cost items; indirect costs; types of bids and bidding process; term project using actual construction blueprints; written and oral presentations; computer applications using spreadsheet program and Sage (Timberline) Estimating Software.

CMT 3123 Construction Estimating Lab

Introduction of the construction bidding process and construction documents; blueprint reading; programming and database generation with spreadsheet software; computer applications using Sage (Timberline) Estimating Software.

CMT 3322 Construction Planning & Scheduling

Field office planning, quality control plan development, construction planning and scheduling; term project using actual construction blueprints; written and oral presentations; computer applications using Primavera Project Planner Software.

CEE 3341 Environmental and Safety Aspects of Construction

Construction-related environmental issues, erosion control, wetland areas, habitat protection. Issues which relate to protective equipment, safety and potential hazards for construction workers, construction equipment operators, and others impacted by on-going construction activities; with laboratory.

CMT 3145 Structural Analysis

The analysis of statically determinant structures under static and moving loads, techniques of determining the deflection of structural members, and analysis of indeterminate structures.

CMT 2271 Building Systems

A basic study of the primary mechanical and electrical equipment and systems used in buildings. Design principles for selecting and sizing various systems are stressed throughout the course. Mechanical topics include plumbing, heating, ventilating, air condition, water supply, fire protection, and sanitary sewer systems. Electrical topics include basic principles of electricity, single and three phase systems, transformers, branch circuits and feeders, and residential and commercial illumination.

CMT 4335 Steel and Wood Structures

Structural systems and framing plans are developed for simple wood and steel structures. Typical framing members are designed and analyzed for adequate strength and serviceability.

CMT 4336 Concrete and Masonry Design

Structural systems and framing plans are developed for simple concrete and masonry structures. Typical sub-systems and framing members are designed and analyzed for adequate strength and serviceability. The design of plain and reinforced concrete footings is included.

CMT 4396 Capstone in Construction

Synthesis of estimating, scheduling, and cost control for selected construction projects. Project management computer application. Preparation of written reports and oral presentations is required.

CCET 4373 Construction Finance Management

Construction cost accounting systems, job costing approaches, project budgeting, financial reporting procedure. Term project; written and oral presentations. Computers applied as required.

***There are minimum 124 total credits required to complete the Bachelor of Science program in Construction Engineering Technology. Please register at** www.temple.edu**.**

SBDC | FOX
Small Business Development Center
TEMPLE UNIVERSITY

Construction Management Certificate Program
Small Business Development Center
1510 Cecil B. Moore Avenue, Suite 200B
Philadelphia, PA 19121

http://www.temple.edu/sbdc

CONTACT **Jamie Shanker-Passero**
Associate Director

Temple University Small Business
Development Center

Phone: (215) 204-7282
Email: jshanker@temple.edu

CONSTRUCTION MANAGEMENT CERTIFICATE PROGRAM

The Construction Management Certificate Program (CMC) is a non-credit, certificate program designed to provide business management tools to existing and aspiring independent contractors in residential rehabilitation, remodeling, and light commercial work. The program takes 9 months to complete beginning in September. This year classes will be hosted virtually.

The course is ideal for construction contractors, technically skilled workers engaged in various trades such as carpenters, plumbers, electricians, apprentices, new companies in business for up to 4 years, novice construction managers and real-estate developers. There are no pre-requisites for the program.

CMC consists of 12 modules taught by practitioners in the construction industry. Each participant is required to attend all 12 modules and complete the following: a team project, a professional team resume, team project presentation and a Business concept paper. The individual courses below cannot be taken as a stand-alone course. All participants must be registered in the program in order to enroll in any of the modules.
Fee: $2,500 ($2,300 if paid in full before class begins)

The following 12 modules are included in the **Construction Management Certificate Program**:

COURSE NO. COURSE TITLE

FOXSBDC0012 Team Building & Business Management

This is the introductory course to the Construction Management Certificate Program (CMC). Participants are engaged in a variety of exercises and activities designed for team building purposes. Participants are placed into teams based on their level of experience and personal goals. The activities are designed to develop a baseline assessment of each participant, show them how to work in a group setting and establish team goals. They are also exposed to various concepts such as business ethics, maintaining a good credit history, acceptable business practices in the industry, etc.

FOXSBDC0013 Construction Blueprint Reading

This course is designed specifically for those who desire basic knowledge of Print Reading (construction blueprints) or further knowledge of construction drawings. This course utilizes a combination of text, design plans, and structural sketches along with many realistic, hands-on activities and exercises. Upon completion of this course participants will be able to navigate construction documents and proficiently understand and translate the information the drawings depict. This course teaches interpretation and visualization of residential and commercial construction prints.

FOXSBDC0014 Methods & Materials

This course provides participants an overview of the materials and the methods used for the construction of residential and commercial buildings from the foundation to the roof. Upon completion of this course, participants will learn: the basic elements of the building process, characteristics of various building materials, application methods, and the role building materials play in the achievement of a more sustainable environment.

FOXSBDC0015 Quantity Take-Off & Cost Estimating

This course is designed to help contractors figure out the materials and labor costs associated with a construction project. Participants are taught to manually figure out the quantity take-off process with the aid of a variety of resources that are used as benchmarks throughout the process. One major objective of the course is to teach participants how to leverage the plethora of data that is readily available through cost estimating data sets during the life cycle of construction projects. Participants are also introduced to cost estimating software and data sets that help make the process more manageable.

FOXSBDC0016 OSHA Regulations

This course is designed to inform construction industry workers and employers on how to recognize, avoid and promote safety and health hazards in industry work spaces. It promotes the major objectives stipulated by OSHA and ensures that workers in the construction industry are more knowledgeable about workplace hazards. This course also provides information regarding workers' rights, employer responsibilities, and how to process and file complaints when necessary. This course does not certify participants for OSHA 30-Hour Construction.

FOXSBDC0017 Accounting for Contractors

This course covers tax implications based on the type of financing source utilized and the associated benefits where applicable. Participants will learn how to plan and develop budgets that will enable them to manage, fund, and finance construction projects. The goal of this course is not to prepare contractors to become accountants but rather to provide them tools that will help them understand the operations of their business from a financial perspective.

FOXSBDC0018 Loans

This course helps contractors to familiarize themselves with the various types of financing available to fund a project. It teaches contractors when and how to utilize the various sources and the costs associated with these sources. Participants will learn about traditional and alternate sources of financing, how to make financial projections and learn of alternative methods of financing a projects.

FOXSBDC0019 Project Scheduling & Budgeting

This course is designed to equip contractors with the tools that will help keep their project on schedule. Participants will learn how to communicate what work needs to be done, the type of resources necessary to perform and manage the job and the time frame and order in which the various complex steps need to be completed. Construction project managers will be able to effectively communicate the effort needed to deliver a completed project on time and on budget. This course provides an overview of the methods of accounting that are available to construction companies.

FOXSBDC0020 Contract Administration & Control

Construction projects can be very complex in nature depending on the type of construction project being executed. Managing and monitoring quality of the finished product is absolutely necessary and has become critical for the ultimate success of large scale projects. Construction managers need to be able to optimize construction timelines and cost which require intimate knowledge of building practices and operations. This course will teach contractors how to manage quality and total control of a project.

FOXSBDC0021 Contract Law

This course is designed to educate contractors on how construction contracts are formulated through the bidding process. It places emphasis on the construction specific applications of contract law. It covers the basic difference between private and public construction contracts. Participants learn how to distinguish between these different types of contracts and know what each requires. The elements of a contract will be explored as well as the risks involved and the consequences involved with non-performance on a contract. Various contract terms will be explained so that participants get a general understanding of these terms and how disputes can be settled through arbitration.

FOXSBDC0022 Pre-Business

This course provides a comprehensive introduction to the fundamentals of starting and managing a business. Aspiring construction business owners will get an overview of the many issues involved in planning and launching a new business venture. Topics include personal and lifestyle issues of the entrepreneur/business owner, the legal, financial and tax implications of starting a business, business registration, government regulations and compliance issues.

FOXSBDC0023 Insurance & Bonding

This course introduces participants to the various types of risks involved and how to plan effectively. Tools such as surety bonds provide financial security and assurance that contractors will be able to pay all parties involved including suppliers, laborers etc. This course covers the benefits of using surety bonds and the various types of contract surety bonds available to cover projects.

FOXSBDC0024 Team Project Meeting & Lab Session

This course is one of the main requirements towards the completion of the Construction Management Certificate Program (CMC). Participants are placed into teams at the beginning of the program for the sole purpose of undertaking a major team project. The team project runs concurrently with all of the technical courses and the project is incorporated into the course work.

For additional information about the program visit the Temple SBDC website
https://noncredit.temple.edu/public/category/courseCategoryCertificateProfile.do;jsessionid=DBF218E5E1396C6958B8AC88789D2093?method=load&certificateId=6512623

UNIVERSITY OF DELAWARE
PROFESSIONAL & CONTINUING STUDIES

Division of Professional and Continuing Studies
501 S. College Ave
Newark, DE 19716

www.pcs.udel.edu

CONTACT Phone: (302) 831-7600
Email: continuing-ed@udel.edu

The University of Delaware's Division of Professional and Continuing Studies (UD PCS) offers the following non-credit programs perfectly suited to the Building/Design Industry. Payment plans, early-bird discounts, military discounts and **GBCA Members are eligible for up to 15% discount** on most non-credit professional development programs offered by UD PCS.

PROJECT MANAGEMENT CERTIFICATE

This popular non-credit certificate program starts you on the path to earning the Project Management Institute's (PMI®) Project Management Professional (PMP®) designation, giving you hands-on experience with practical tools, risk assessment, and team techniques that support effective project management.

Our instructors bring decades of project management experience to enrich classroom discussion and learning, and our program carries the PMI® Registered Educational Provider certification.

- Offered in Fall and Spring semesters, this 10-week program meets once a week from 6-9:30 pm
- UD's **Wilmington** campus on **Wednesday** nights
- Offered online on Monday nights
- Participants earn 35 project management education hours, enough to sit for the CAPM® or PMP® Exam
- **For details, please visit:** https://www.pcsreg.com/projectmanagement or call 302-831-7600

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PROFESSIONAL DRONE PILOT TRAINING ACADEMY

UD-PCS introduces a comprehensive set of Unmanned Aircraft Systems (UAS) training to drone novices and advanced users alike. Whether you are a beginner seeking FAA Part 107 pilot certification or an advanced pilot responsible for vital construction and building design issues, UD has a drone training course that fits your needs and skill level.

- **Schedule:** All of UD PCS's Drone courses are offered on Saturdays and Sundays
- **Location:** UD's Newark Campus. 501 S. College Ave. Newark, DE 19716
- **For details on each program, please visit:** www.pcs.udel.edu/drone

Available Classes

- **Ground School and FAA Part 107 Test Prep**
- **Foundations of Flight**

OCCUPATIONAL SAFETY TRAINING

UD has partnered with the Delaware Valley Safety Council to offer three intensive training programs taught by OSHA Outreach Trainers. Our Certified Occupational Safety Specialist and Certificate for Occupational Safety Managers courses are designed for entry-level safety professionals and experienced safety professionals wishing to stay current in the field. **For details on each program, please visit:** www.pcs.udel.edu/occupational-safety.

CERTIFIED OCCUPATIONAL SAFETY SPECIALIST (COSS)

This course is designed for entry-level safety professionals as well as experienced safety practitioners wishing to stay current in the field. Safety training is applicable to a wide range of industries, including construction, manufacturing, transportation, energy and utilities, public safety and security, healthcare, food, government, and human resources.
Prerequisite: high school diploma or equivalent.

CERTIFICATE FOR OCCUPATIONAL SAFETY MANAGERS (COSM)

This program benefits all organizational safety leaders involved in processes and decision-making as well as other managers and professionals charged with workplace health and safety for their organizations. Prerequisite: minimum two years of safety, health or environmental work experience.

GBCA Members are eligible for up to 15% discount on UD PCS non-credit professional development courses.

Villanova University
College of Professional Studies
800 Lancaster Avenue
Villanova, PA 19085

www.cps.villanova.edu

CONTACT **Eileen Callahan**
Manager Outreach

College of Professional Studies

Phone: (610) 519-6478
Email: eileen.callahan@villanova.edu

Professional Education Programs and Approved Courses

PROJECT MANAGEMENT PROFESSIONAL PROGRAM

Project managers are highly skilled, in-demand professionals throughout nearly every industry. Now, more than ever, businesses are becoming more project oriented and relying on talented project professionals to ensure goals are reached efficiently and effectively. Villanova University's Project Management Professional on-campus program includes foundational courses for current or aspiring project managers and advanced certification prep courses.

Courses

- Project Management Essentials
- Project Management (PMP Exam Prep)

FACILITIES MANAGEMENT PROFESSIONAL PROGRAM

This program is ideal for facility managers and sustainability facility managers looking to increase their expertise or gain industry recognized designations. Upon program complettion, professionals have the opportunity to earn industry recognized designations - IFMA's Facility Management Professional® (FMP®) and Sustainability Facility Professional® (SFP) credentials.

Courses

- Facilities Management
- Sustainability for Facilities Professionals

SUPPLY CHAIN MANAGEMENT

(Individual Course)

This stand-alone course is designed for professionals interested in earning the Certified Supply Chain Professional (CSCP) designation. The APICS CSCP exam content is used to to help students prepare to earn this industry recognized credential, which helps position you as a supply chain expert. Course content and instructor focus is on practical approaches to global end-to-end supply chain management in an atmosphere that fosters peer networking.

West Virginia University Online
Morgantown, WV 26506

https://online.wvu.edu/programs/safety-management-m-s/

CONTACT **Jenny Fuller, MS, CSP**
Industrial and Management Systems Engineering

Safety Management Program

Phone: (304) 293-9438
Email: Jenny.Fuller@mail.wvu.edu

ONLINE MASTER OF SCIENCE IN SAFETY MANAGEMENT

(Required Courses (10)

COURSE NO. COURSE TITLE

SAFM 501 Safety Management Integration

Consideration of integrated arrangements, staff roles, management theory, staff liaison, project improvement, effectiveness, audits, and collaboration needed to assure success of the safety function.

SAFM 502 Controlling Environmental and Personnel Hazards

Investigation of hazard control principles relating to environmental facilities and equipment including control procedures recommended by authorities from the fields of engineering, medicine, and public health as well as from the field of safety.

SAFM 505 Safety Legislation and Compliance

Comprehensive study and analysis of federal and state legislation which mandates compliance with certain safety conditions and practices related to work performed in occupational and comparable settings.

SAFM 528 Economic Aspects of Safety

PR: Graduate standing. An overview of economic factors that must be considered when justifying the development and implementation of safety initiatives, including examining published research, cost estimating, ROI, risk assessment, benefit-cost analysis, and project planning.

SAFM 534 Fire Safety Management

Analysis of fire services usually provided under safety manager jurisdiction, with special attention to legal bases, organizational structure, services rendered, training needs, and management techniques.

SAFM 550 Loss Control and Recovery

Identifying and elimination areas of loss or recovering from losses of people, property, and efficacy via management practices, insurance and worker's compensation, and other management techniques and resources effective in controlling those losses.

SAFM 552 Safety and Health Training

Analysis of safety and health performance discrepancies, developing and conducting training programs to eliminate those discrepancies and the evaluation of program effectiveness in terms of cost effectiveness and organizational impact.

SAFM 640 Instrumentation for Safety Managers

Anticipation, recognition, and evaluation of industrial hygiene topics encountered by safety managers. Fundamental instrumentation techniques are presented in laboratory and lecture formats. Management-oriented control and remediation programs are developed.

SAFM 580 Fundamentals of Environmental Management

An introductory but comprehensive overview of topics related to environmental technology as it applies to safety management. Focuses on regulation and technology relative to environmental management. Includes field trip. *Alternative to SAFM 580 may be proposed to the student's adviser

SAFM 689 Professional Field Experience 1-18 Hours

PR: Must have completed 12 hours in SAFM and consent. Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. *For students who can document at least three (3) years of experience and obtain approval from the advisor, a substitute for SAFM 689 may be selected.

ELECTIVES: (two courses required)

ELECTIVE: SAFM 533 Disaster Preparedness

Major elements involved in disasters and emergencies, preparedness planning, systems utilization, and attention to essential human services, with emphasis on community action.

SAFM 578 Substance Abuse in the Workplace

The problem, nature, and effects of alcohol and drug use in the workplace; approaches for treatment and avoidance such as EAP's, community programs, and testing; development of management approaches and programs.

SAFM 641 Leadership Development for Safety Management

PR: SAFM 501 and SAFM 505. This course presents concepts in ethics, leadership in crisis and non-crisis modes, experiential training, and creating a values-congruent workplace even under conditions of non-support by upper management

Note: Other electives are possible by coordinating with the student's advisor
Total: 36 hours

All M.S. degree candidates are required to perform research (thesis or problem report option) and follow a planned program of study. The student's faculty advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the students with the necessary support to complete their degree and prepare them for their career.

Students who do not hold a baccalaureate degree in safety management may be required to take a set of undergraduate courses above and beyond the minimum coursework requirements.

For admission into the M.S. Safety Management Program, applicants must meet department admission standards and ABET/ASAC prerequisite course requirements, which are currently a minimum of sixty-three credit hours of approved science, mathematics, and other technical courses. Of these, at least fifteen credit hours must be junior or senior level. In addition, students must have a minimum of twenty-one hours of social sciences, humanities, and/or communications. On an individual basis, the faculty may identify additional prerequisite coursework. Applicants will be advised about their specific requirements at the time of admission. Applicants not meeting all of the listed requirements may be considered for admission as provisional students.

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