



UNIVERSITY OF THE COMMONWEALTH CARIBBEAN

CORPORATE EDUCATION DIVISION

COURSE OUTLINE (Fall 2017)

COURSE TITLE:	UCC Diploma in Construction Management
CODE:	CED111
TOTAL CREDITS:	6 CREDITS
DURATION:	SELF-PACED
TOTAL HOURS:	90 HOURS
PRE-REQUISITES:	OPEN ENTRY
AFFILIATES:	HARVARD UNIVERSITY, DELFT UNIVERSITY OF TECHNOLOGY AND COLUMBIA UNIVERSITY VIA COURSERA AND EDX.

RATIONALE

This course is well suited for practitioners in the construction industry, and those looking to gain entry into the field. Learn at your own pace and complete in up to one (1) year maximum or start your new job in only 5 months by studying 10 hours weekly.

COURSE DESCRIPTION

The biggest sustainability challenge for cities worldwide is adapting existing obsolescent buildings and making them future-proof. In this course, you will learn about adapting buildings for sustainability. This course introduces the key project scheduling techniques and types of cost estimation from the conceptual design phase through the more detailed design phase of a construction project. In addition, the course highlights the importance of controlling costs and how to monitor project cash flow. Students will work on a break-even analysis of construction tasks in a project. Learn different management tools can be used to convert old buildings for sustainable reuse and utilize the practical knowledge you obtain during this course to tackle many challenges related to the built environment.

Prior job experience or studies related to the construction environment is not essential but will be a great advantage and participants who are interested in Real Estate, Project Management, Urban

Planning, Architecture, Construction, Engineering, and Sustainability will find this course relevant.

The course is taught by a multi-disciplinary team of instructors and professors with relevant practical and theoretical experience from the university of Columbia, Harvard university and Delft University of Technology.

GENERAL OBJECTIVES

- Discover the key cost procedures in construction.
- Learn how to adapt buildings sustainably by applying management tools to real-life cases.
- Apply content for academic study or a professional career in construction

STUDENT LEARNING OUTCOMES

On successful completion of this course, participants should be able to:

- Schedule a project utilizing proper techniques and procedures
- Create a network diagram
- Understand fundamentals of Bar Charts, Precedence Diagrams, Activity on Arrow, Range Estimating, Linear Project Operation and Line of Balance
- Understand building adaptation as a cyclical process
- Identify various sustainability challenges that occur in building adaptations
- Apply project management tools that assist in making decision about building adaption
- Translate design concepts into practical solutions for sustainable building adaptation
- Understand types of cost estimation
- Implement monitoring of the project cash flow
- Evaluate construction tasks using break-even analysis
- Analyze, and understand different forms of architectural representation
- Social and historical contexts behind major works of architecture
- Produce your own architectural drawings and models
- Understand architecture as a cultural expression as well as a technical achievement

Unit 1 <u>Managing Building Adaptation: A Sustainable Approach</u> (Delft U. of Technology via Edx)	24 hours
Unit 2 <u>Construction Scheduling</u> (U. of Columbia via Coursera)	18 hours
Unit 3 <u>Construction Cost Estimate</u> (U. of Columbia via Coursera)	18 hours
Unit 4 <u>The Architectural Imagination</u> (Harvard University via Edx)	30 hours

Unit 1 Managing Building Adaptation: A Sustainable Approach

Learning Objectives

At the end of this unit students should be able to:

1. Understand building adaptation as a cyclical process
2. Identify various sustainability challenges that occur in building adaptations
3. Apply project management tools that assist in making decision about building adaption
4. Translate design concepts into practical solutions for sustainable building adaptation.

Content

Managing building adaptation processes

Sustainability and managerial challenges
Cyclical development process of real estate
Management tools

Urban development management

Sustainability policies
Real estate markets
Location opportunities

Construction and project management

Realising adaption plans
Organisational structures
Smart planning methods

Housing transformation management

Asset management

Maintenance and operations

Energy efficiency measures

Unit 2 Construction Scheduling

Learning Objectives

At the end of this unit students should be able to:

1. Schedule a project utilizing proper techniques and procedures
2. Create a network diagram
3. Understand fundamentals of Bar Charts, Precedence Diagrams, Activity on Arrow, Range Estimating, Linear Project Operation and Line of Balance

Content

Construction Scheduling

Bar (Gantt) Charts

Activity Precedence Diagrams

Types of Construction Activity Relationships

Forward and Backwards Pass Calculations

Critical Path and Activity Floats

Work Dates and Calendar Dates

Activity on Arrow

Program Evaluation & Review Technique (PERT) and Range Estimating

Role of the Scheduler

Linear Construction Operations and Line of Balance

Technology Applications for Scheduling

Scheduling for Large Programs

Risk Allocation and Planning

Lean Design in Construction Scheduling

Unit 3 Construction Cost Estimating and Cost Control

Learning Objectives

At the end of this unit students should be able to:

1. Understand types of cost estimation
2. Implement monitoring of the project cash flow
3. Evaluate construction tasks using break-even analysis

Content

Construction Cost Estimating and Control Overview

Understanding Design in the Construction Industry

Types of Cost Estimates

Quantity Take-off and Measurement

Pricing

Pricing and Building the Estimate

Procurement

Post Contract and Cost Estimation

Cost Control Methods

Cost Estimation and Cash Flow

Earned Value Method (EVM)

Unit 4 The Architectural Imagination

Learning Objectives

At the end of this unit students should be able to:

1. Analyze, and understand different forms of architectural representation
2. Social and historical contexts behind major works of architecture
3. Produce your own architectural drawings and models
4. Apply content for academic study or a professional career as an architect

Content

Form and History

Reading Architecture: Column and Wall

Hegel and Architectural History

Aldo Rossi and Typology

The Technology Effect

The Crystal Palace: Infrastructure and Detail

The Dialectics of Glass and Steel

Technology Tamed: Le Corbusier's Machines for Living

Representation and Context

Drawing Utopia: Visionary Architecture of the 18th Century

The Pompidou Center in the City of Paris

Presenting the Unrepresentable

TEACHING STRATEGIES

Video Lectures

Peer Reviews

Reading Material

Quizzes

Course Material

COURSE PARTICIPATION

Course Name	Audit Course/s Option	Online Course Exam (USD)	UCC Proctored Exam Fee (JMD)
Unit 1: Managing Building Adaptation	Open Entry	\$45	\$12,000
Unit 2: Construction Scheduling	Open Entry	\$45	\$12,000
Unit 3: Construction Cost Estimating and Cost Control	Open Entry	\$45	\$12,000
Unit 4: The Architectural Imagination	Open Entry	\$99	\$18,000
Professional Diploma	Not Applicable	\$234	\$54,000

**Supporting documents may be required to validate issuance of a professional diploma where all course exams have been completed online. Exam fees are subject to change without notice.*

COURSE EVALUATION

ASSESSMENT/ EVALUATION

Real-world scenarios will be included in each unit of the course to enforce the skills being taught. The projects will build on information you have learned in the courses and allow you to add your own research. Projects may be peer-reviewed by your classmates; in turn you may peer-review the work of others. Instructions on how to conduct peer-reviews will be included in the course.

A student **MUST** register a pass in the quizzes and when added to the completed coursework, must have an overall passing grade to be successful in each Unit. Students are encouraged to do all pieces of course work and each course quiz. Summative assessment will be by course completion, graded quizzes and/or capstone projects for each unit.

Students have the option on the completion of each course to register for the course exam online or at a UCC campus. Exams fees can be paid online for the online exam option or at UCC for either the online exam or to sit the exam at the nearest UCC campus.

AWARD

The Affiliate University will award a Certificate of Achievement directly to the student for each online course exam completed successfully. University credits will be awarded by the UCC to students registering for each proctored course exam through UCC as each course exam is successfully completed. A UCC Diploma will be awarded after all course exams have been successfully completed. Students must register for and complete each course exam except when participating by way of Course Audit. Exams may be completed 100% online or at a UCC test facility scheduled monthly, subject to demand. Supporting documents may be requested to validate issuance of a professional diploma in cases where all course exams have been completed online.

LEARNING RESOURCES

Course material, videos, textbook, international faculty

ACADEMIC INTEGRITY AND COPYRIGHT

UCC demands a high level of scholarly behavior and academic honesty on the part of its students. Any assignment, test paper, project, or report submitted by you and that bears your name will be assumed to be your own original work that has not been previously submitted for credit in another course unless you obtain prior written permission to do so from your lecturer.

In all assignments, or drafts of paper, you may use words or ideas written by other individuals in publications, websites or other sources, but only with proper attribution. “Proper attribution” means that you have fully identified the original source and extent of your use of the words or ideas of others that you reproduce in your work for this course. This is normally done in the form of a footnote or parenthesis. Failure to do so is plagiarism and is considered a form of academic dishonesty. Please refer to the UCC Library and Information Centre if you are uncertain how to cite your references.

IMPORTANT NOTE ON PLAGIARISM

Plagiarism is a form of intellectual theft. If you fail to acknowledge your sources or make it appear that someone else's work is your own, you are guilty of plagiarism. The scholarly world operates by exchanging information and crediting the sources of that information. If you violate that process, you have committed a crime in the academic community. If you are having difficulty completing a paper on time, or need some additional help, or are unsure of how or where to document a source, please contact your lecturer or go to the librarian for help so you can avoid inadvertently or intentionally plagiarizing a source.

You will be charged with plagiarism if you:

- ❖ Copy from published sources without adequate documentation.
- ❖ Intentionally or unintentionally appropriate the ideas, language, key terms, or findings of another without sufficient acknowledgment that such material is not your own and without acknowledging the source.
- ❖ Purchase a pre-written paper (either by mail or electronically).
- ❖ Let someone else write a paper for you.
- ❖ Reproduce someone else's project.
- ❖ Submit as your own someone else's unpublished work, either with or without permission
- ❖ Incorrectly cite or neglect to cite borrowed materials

Consequences of Plagiarism

- ❖ If the final work you submit—all of it—is not yours, it does not matter how you came by it. Charges of plagiarism are brought to the attention of Academic Affairs, which initiates an investigation that may lead to formal charges.
- ❖ The process for the investigation and adjudication of charges may be accessed at the Dean of Students' Office.
- ❖ Plagiarism is a serious offense that can result in a variety of sanctions (failure of the course in which the plagiarism occurred and suspension from UCC among them).

Appropriate Uses of Sources

A mark of strong academic writing is demonstrated when one appropriately identifies sources in his/her arguments and analyses. This practice is called documentation. Guidelines for how to correctly cite materials used within your writing and assembling the list of works that you cite in your paper are available in style manuals. Information from these style manuals can be accessed in UCC's Library & Information Centre

- ❖ Whenever you draw on another's work, you must specify what you borrowed, whether facts, opinions, or quotations, and where you borrowed them from.

Avoiding Plagiarism

- ❖ Contact your lecturer and honestly discuss a strategy for completing an assignment rather than risk humiliation and legal charges.
- ❖ Become thoroughly acquainted both with the various ways in which plagiarism is construed, and with sources of proper documentation.

Reference:

American Psychological Association (2009). *Publication Manual of the American Psychological Association*, (6th ed.). New York: American Psychological Association

For further information, contact UCC Corporate Education Division Ph: 1876-665-3999/4056 or email: corporate_edu@ucc.edu.jm