



UNIVERSITY OF THE COMMONWEALTH CARIBBEAN

CORPORATE EDUCATION DIVISION

COURSE OUTLINE (Fall 2017)

COURSE TITLE:	UCC DIPLOMA IN WEB DEVELOPMENT
CODE:	CED110
TOTAL CREDITS:	12
DURATION:	5 MONTHS TO 1 YEAR/ SELF-PACED
TOTAL HOURS:	181
PRE-REQUISITES:	NONE / OPEN ENTRY
AFFILIATES:	UNIVERSITY OF MICHIGAN, UNIVERSITY OF CALIFORNIA, JOHN HOPKINS UNIVERSITY, AND COURSERA

RATIONALE

A web developer understands the work involved in building a website from the bottom up for the internet or on a private intranet network. The principles of site layout, features and functionality are used in every online environment.

COURSE DESCRIPTION

This course gives an introduction into building server-wide web applications, APIs and databases. It includes Ruby on Rails, JavaScript, data structures and algorithms. This programme is entrance into a new career or increased earning potential with acquisition of new skills. 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.

GENERAL OBJECTIVES

- Understand server wide web applications and their function
- Assess site layout, design and speed of network and their ease of use
- Discuss the key relational systems involved with performing each function
- Identify and use appropriate approaches to solve problems within each function

STUDENT LEARNING OUTCOMES

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

1. Outline practical concepts of coding
2. Design an HTML page
3. Understand and utilize JavaScript and Cascading Style Sheets (CSS)
4. Build web pages with Ruby on the Rails framework
5. Automate interactions with relational databases
6. Demonstrate integration of data representation and web linking with best practices
7. Resolve computational problems
8. Implement data structures using different programming languages
9. Evaluate the functionality of graphs using algorithms

Summary of Content

Unit 1	HTML, CSS and JavaScript (U. of Michigan)	35 hours
Unit 2	Ruby on Rails (Johns Hopkins University)	54 Hours
Unit 3	Data Structures and Algorithms (U. of California)	92 Hours

Unit 1	HTML, CSS and JavaScript	2.3 Credits
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Learning Objectives

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

1. Outline practical concepts of coding
2. Design an HTML page
3. Understand and utilize JavaScript and Cascading Style Sheets (CSS)

Content

Introduction to HTML 5

Theory of a Webpage

Introduction to Cascading Style Sheets (CSS3)

Write and Test Code

Best Practices of Programming

Interactivity with JavaScript

Web Page Creation

Document Object Model (DOM)

Capstone Project

Unit 2 Ruby on Rails

3.6 Credits

Learning Objectives

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

1. Build web pages with Ruby on the Rails framework
2. Automate interactions with relational databases
3. Demonstrate integration of data representation and web linking with best practices

Content

Ruby on the Rails: An Introduction

Web Application Development

Web Application Integration

Heroku PaaS (Platform as a Service)

Rails with Active Record and Action Pak

Database Interaction

Database Automation

Active Record Object / Relational (ORM) Framework

SQL Injections

User Authentication

Ruby on Rails Web Services and Integration with MongoDB

MongoDB NoSQL Database

CRUD Operations

Mongo Ruby API

Web Services using REST

Web Services with Rails

Capstone Project

Unit 3 Data Structures and Algorithms

6.2 Credits

Learning Objectives

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

1. Resolve computational problems
2. Implement data structures using different programming languages
3. Evaluate the functionality of graphs using algorithms

Content

Algorithmic Toolbox

Algorithmic Techniques
Dynamic Programming and Genomic Studies
Designing New Algorithms

Data Structures

Computational Problems
Priority Queues in C++, Java and Python
Balancing Binary Trees

Algorithms on Graphs

Navigation Service
Graph Properties
Capstone Project

TEACHING STRATEGIES

Video Lectures

Peer Reviews

Reading Material

Projects

Course Materials

COURSE PARTICIPATION

Course Name	Audit Course/s Option	Online Course Exam (USD)	UCC Proctored Exam Fee (JMD)
Unit 1			
Introduction to HTML 5	Open Entry	\$45	\$5,625
Introduction to Cascading Style Sheets (CSS3)	Open Entry	\$45	\$5,625
Interactivity with JavaScript	Open Entry	\$45	\$5,625
Unit 2			
Ruby on the Rails: An Introduction	Open Entry	\$45	\$5,625
Rails with Active Record and Action Pak	Open Entry	\$45	\$5,625
Ruby on Rails Web Services and Integration with MongoDB	Open Entry	\$45	\$5,625
Unit 3			
Algorithmic Toolbox	Open Entry	\$45	\$5,625
Data Structures	Open Entry	\$45	\$5,625
Algorithms on Graphs	Open Entry	\$45	\$5,625
Professional Diploma	Not Applicable	\$405	\$50,625

**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

A student MUST register a pass in the capstone projects and when added to the passed coursework grade, 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 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

BIBLIOGRAPHY

Required Text(s)

Michael Mendez: The Missing Link: An Introduction to Web Development and Programming,
www.opensuny.org

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 or email: corporate_edu@ucc.edu.jm