

# ICT233 Data Programming

**Level:** 2

**Credit Units:** 5 Credit Units

**Language:** ENGLISH

**Presentation Pattern:** EVERY REGULAR SEMESTER

## Synopsis:

This course introduces students to the language (that is, protocol) adopted in the communication between a web server and client (browser), called the HyperText Transport Protocol (HTTP). Students will learn to write a program to talk HTTP with web servers to download web pages from the World Wide Web (WWW). By understanding the format of the web pages in HyperText Markup Language (HTML), the information in the web pages can be extracted in the form of an object. Students then learn how to design traditional database and store the information of the objects using the Object-Relational Mapping (ORM) method. Students will also learn how to Create, Read, Update and Destroy (CRUD) records of a database system. A data structure, DataFrame, will be introduced so that CRUD operations on information can be performed through a programming language.

## Topics:

- How to retrieve web page information
- HyperText Transport Protocol (HTTP)
- How to structure and store web page information in an object
- HTML parsing and regular expressions
- How to store object information in a database
- Basic data modeling
- Object-Relational Mapping (ORM)
- How to exchange data between processes
- Data exchange format (XML-based) and processing
- Database file processing
- CRUD on table structure
- DataFrame data structure

## Textbooks:

Dr. Charles Russell Severance: Python for Everybody: Exploring Data in Python 3 3 CreateSpace Independent Publishing Platform  
ISBN-13: 9781530051120

Kyran Dale: Data Visualization with Python and JavaScript (2nd Edition) 2 O'Reilly Media, Inc  
ISBN-13: 9781098111823

**Learning Outcome:**

- Analyse HTTP for information retrieval
- Design parsing methods to extract information from web pages
- Apply Object-Relational Mapping between information in an object and a database
- Compose query languages to retrieve information from a database
- Develop programme to perform CRUD operations on database information
- Formulate communication methods for exchanging information over the WWW

**Assessment Strategies - Regular Semester (Daytime Class):**

<b>Components</b>	<b>Description</b>	<b>Weightage Allocation (%)</b>
Overall Continuous Assessment	PRE-CLASS QUIZ 1	1
	PRE-CLASS QUIZ 2	1
	PRE-CLASS QUIZ 3	1
	QUIZ 1	3
	TUTOR-MARKED ASSIGNMENT 1	24
Overall Examinable Components	ECA	70
<b>Total</b>		<b>100</b>

\*The information listed is subject to review and change.