

ICT233e Data Programming

Level: 2

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY SEMESTER

E-Learning: BLENDED - Learning is done MAINLY online using interactive study materials in Canvas. Students receive guidance and support from online instructors via discussion forums and emails. This is supplemented with SOME face-to-face sessions. If the course has an exam component, this will be administered on-campus.

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:

Addison-Wesley, 2016: Pandas for Everyone Pearson
ISBN-13: 9780134546933-AA

Addison-Wesley, 2016: Pandas for Everyone Pearson
ISBN-13: 9780134546933

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:

Continuous Assessment Component	Weightage (%)
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
QUIZ	6
TUTOR-MARKED ASSIGNMENT	18
Sub-Total	30

Examinable Component	Weightage (%)
ECA	70
Sub-Total	70

Weightage Total **100**