

## MODULE DESCRIPTOR

<b>MODULE TITLE</b>	Systems Analysis and Database Design		
<b>MODULE CODE</b>	CO1605 (L4)	<b>CREDIT VALUE</b>	20 / 10 ECTS
<b>SCHOOL</b>	SCHOOL OF SCIENCE		

### MODULE AIMS

1. To develop investigative and analytical skills that will enable students to analyse systems.
2. To provide an interactive and stimulating learning environment, with emphasis on group discussion and teamwork.
3. To explore the nature of systems.
4. To develop the knowledge and skills necessary for robust database design and implementation.

### MODULE CONTENT

This module introduces the student to:

1. Interactions between the stakeholders and analysts in the specification of information systems
2. The techniques of information gathering and representation using appropriate tools and techniques
3. The process of database design using normalisation
4. The role of the Database Management System
5. The design and implementation of robust database systems

#### Introduction and Concepts of Systems Analysis

Role of the Analyst

Acquisition of knowledge from stakeholders

Gathering of existing knowledge: Sampling, Interviewing, Questionnaire design, Investigation, Observation, etc.

#### Project Life Cycles

The Systems Development Life Cycle

Agile Life Cycles

#### Modelling

The use of UML and associated diagramming tools for modelling systems with diagrams such as Use Cases, Class Diagrams, State Transition Diagrams, Sequence Diagrams and Activity Diagrams

#### Introduction to Databases

Database Concepts and Models

The role of the Database Management System

Database design using normalisation to 3NF

Structured Query Language (SQL)

Data Integrity, Protection and Security

Input and Output Devices

Security and Backup

Testing and review techniques

The module content may vary according to current knowledge, trends and practices

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## INTENDED LEARNING OUTCOMES

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On successful completion of this module a student will be able to:

1. Identify the various forms and sources of information available to the facilitator of a systems development.
  2. Capture, document and structure the information applicable to a basic problem definition in a form suitable for interpretation by a system designer.
  3. Design, implement and evaluate a reasonably complex database system.
  4. Explain the concepts of lifecycles, databases and users.
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## TEACHING METHODS

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A combination of lectures with tutorial / practical sessions.

The aim of the module is to develop the investigative and analytical skills that will enable students to progress to more advanced levels of systems analysis. The module will provide an interactive and stimulating learning environment, and will explore the nature of systems, and the notion of the systems design process.

Students will develop the knowledge and skills necessary to use, design and implement a reasonably complex system.

Lectures will cover theory and will be used to introduce concepts, techniques, and information.

Tutorial/Practical classes will reinforce the learning from the lectures, and will enable students to practise and discuss systems analysis and design techniques such as Use Case Diagrams and Class Diagrams, questionnaire design, etc. individually and in small groups. Students will investigate relevant topics using the Internet, make use of appropriate tools for analysis, and the use of software such as MySQL for implementation of designs.

The assessment will comprise a portfolio of worksheets that will document the development of systems analysis and database design skills. Group work may be used to allow students to appreciate the benefit of good communication, share experiences and value the user's needs.

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## ASSESSMENT METHODS

This module is assessed through a Portfolio (60%) and an examination (40%).