

## **MODULE: SYSTEMS ANALYSIS AND DESIGN (course code BSCH-SAD)**

**Griffith College Dublin – Computing Science**

**Fall semester**

**This module is intended for at least sophomore level students who are majoring in this field (not intended for first-year students).**

### **Aims**

This module introduces you to the concepts of system analysis and design. You will be introduced with different software development methodologies. You will learn how to perform a feasibility study. You will be taught how to perform requirements analysis and develop system models. You will also learn various techniques of software testing.

### **Learning Outcomes**

Upon successful completion of this module, you should be able to:

1. define and compare the different software development lifecycle models
2. perform a feasibility analysis
3. list and explain the phases and deliverables of structured system analysis and design
4. create process, logic and data models
5. describe software verification, validation and user acceptance testing
6. define and explain unit, integration and system testing

### **Indicative Content**

<b>Topic</b>	<b>Description</b>
System concepts	Computer-Based System Elements : HW, SW, people; System Boundaries;
Overview of software process	Software engineering paradigms – classic life cycle, Waterfall, Rapid Application Development, and Agile methods;
Feasibility analysis	Technical, Organisational, Economic and scheduling feasibility; Terms of reference, Definition of project scope Feasibility Study report.
Requirements analysis	Problem definition; communication techniques; requirements elicitation; fact-finding techniques

Structured system analysis and design	Life Cycle Model, Phases and deliverables, Process modelling techniques - Data Flow Diagrams, Structured English, Tight English; Logic modelling techniques - Decision Tables, Decision Trees; Data modelling techniques – ERD's, Normalisation, Data Dictionary
Software testing	Software verification and validation Unit Testing, Integration testing, System testing User acceptance testing

### Assessment Methods

Continuous assessment will be based on a combination of some of the following:

- DFD and DRD assignments
- Selected homeworks
- Class tests
- Quizzes
- Oral examination

The written examination addresses all the learning outcomes. The continuous assessment addresses learning outcomes 2–4.

### Primary Reading

Lejk, M. & Deeks, D. *An Introduction to System Analysis Techniques (2<sup>nd</sup> Edition)*, Addison Wesley, 2002