Business Systems Analysis

ms110

- Course Outline -

Objective

The objective of this course is to develop in students an understanding of the concepts, skills and techniques required to become an effective systems analyst who will work with others to create information systems for businesses.

Lecturer

<table>
<thead>
<tr>
<th>Name</th>
<th>Office</th>
<th>Ext</th>
<th>E-mail</th>
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</thead>
<tbody>
<tr>
<td>Dr. Orla McHugh</td>
<td>Room 375 Cairnes building</td>
<td>5283</td>
<td><a href="mailto:orla.mchugh@nuigalway.ie">orla.mchugh@nuigalway.ie</a></td>
</tr>
</tbody>
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Times

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Venue</th>
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<tbody>
<tr>
<td>Lectures:</td>
<td>Thurs</td>
<td>1–3pm</td>
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<tr>
<td>Workshops:</td>
<td>Wed</td>
<td>12-2pm</td>
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Overall Learning Outcomes

Upon completion of this course you will be able to:

- Understand the role of the systems analyst and their approach to software development
- Understand the role of the project manager and have an appreciation of the use of project management tools in software development
- Have an appreciation of the systems development life-cycle
- Produce key deliverables for the planning and analysis phases of the systems development life-cycle
- Use a variety of analysis and design techniques to document existing information systems or to create new information systems
- Work individually and as a team to create and present (in written form) solutions to assignments and practical exercises

Format

The course comprises one two-hour lecture on a weekly basis plus two hours of hands-on workshops according to the schedule near the end of this document.

Programme(s)

1BF1 - 1st year BSc in Business Information Systems
3BC1 – 3rd Year BComm
4BC2 – 4th year BComm (French)
4BC3 – 4th year BComm (German)
4BC4 – 4th year BComm (Spanish)
4BC5 – 4th year BComm (Italian)
1OA1 – Erasmus & Visiting Students
**Course Material**

Course content is available on [http://nuigalway.blackboard.com](http://nuigalway.blackboard.com)

The course outline, slides for each lecture, weekly assignments and the weekly Multiple Choice Questions (MCQ’s) are available on Blackboard.

**Core Text**


Authors: Valacich, J., George, J. and Hoffer, J. ISBN: 978-0-13-506984-4

Available from the college bookshop ~€70. Copies of the text book are also available in the library.

*Note: Students need their own copy*

**Assessment**

1. End of Year Examination 70%
2. Continuous Assessment 30%*

* Continuous assessment involves the completion and submission of 8 individual assignments, worth a total of 20%, together with nine multiple-choice examinations (MCQ’s) worth a total of 10%. One MCQ will be completed in each workshop.

*Note:* A minimum of 35% is required in the final written examination before marks for continuous assessment can be included in the determination of the overall mark for the subject.

**Workload hours**

Credit weighting: 5 ECTS

Lecture hours: 24

Workshop hours: 18

Independent assignment work: 21

Independent study: 50

Associated hours: 10

Examination: 2

Total Student Effort: 125 hours
## Agenda

<table>
<thead>
<tr>
<th>Topic</th>
<th>Reading</th>
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<tbody>
<tr>
<td><strong>Section 1: Introduction</strong></td>
<td><strong>Valacich, George &amp; Hoffer Chapter 1</strong></td>
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<tr>
<td><strong>Week 1</strong></td>
<td></td>
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<tr>
<td>• What is information systems analysis and design?</td>
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<tr>
<td>• A modern approach to systems analysis and design</td>
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<tr>
<td>• Types of information systems</td>
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<tr>
<td>• The systems development lifecycle</td>
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<tr>
<td>• Different approaches to software development</td>
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**Section Outcomes: You will be able to …**

- Define information systems analysis and design.
- Discuss the modern approach to systems analysis and design that combines both process and data views of systems.
- Describe the role of the systems analyst in information systems development.
- Describe the different sources of software.
- Describe three different types of information systems.
- Describe the information systems development life cycle (SDLC).
- Briefly discuss alternatives to the systems development life cycle.

| **Section 2: Sources of Software** | **Valacich, George & Hoffer Chapter 2** |
| **Week 2** | |
| • Outsourcing | |
| • Sources of software | |
| • Evaluating off-the shelf software | |
| • Reusing software | |
### Section Outcomes: You will be able to …

- Understand the concept of outsourcing
- Identify different sources of software
- Discuss how to evaluate off-the shelf software
- Explain reuse and its role in software development

### Section 3: Managing the Information Systems Project

**Weeks 3, 4**

- Managing the information systems project
- Skills required to be an effective project manager
- Critical Path Scheduling
- Gantt Charts and Network Diagrams
- Using commercial project management software packages.

Valacich, George & Hoffer
Chapter 3

### Section Outcomes: You will be able to …

- Describe the skills required to be an effective project manager
- Describe the skills and activities of a project manager
- Explain what is meant by critical path scheduling
- Describe the process of creating Gantt charts and Network diagrams
- Discuss the use of commercial project management software packages

### Section 4: Systems Planning & Selection

**Week 5**

- Project identification, selection, initiation and planning
- Project scope statements and baseline project plans
- Methods for assessing project feasibility
- Tangible and intangible benefits and costs
- Structured walkthroughs

Valacich, George & Hoffer
Chapter 4
Section Outcomes: You will be able to …

- Describe the steps involved when identifying and selecting projects and initiating and planning projects
- Explain the need for and the contents of a project scope statement and a baseline project plan
- Describe the various methods for assessing project feasibility
- Describe the differences between tangible and intangible benefits and costs
- Describe the activities and participants within a structured walkthrough

Section 5: Determining System Requirements

Week 6, 7

- The process of determining requirements
- Traditional methods for determining requirements
  - Interviews and listening
  - Direct observation
- Modern methods for determining system requirements
  - Joint application design
  - Prototyping
- Business process redesign
- Determining systems requirements for Internet applications

Valacich, George & Hoffer
Chapter 5

Section Outcomes: You will be able to …

- Describe options for designing and conducting interviews
- Develop a plan for conducting an interview to determine system requirements
- Explain the advantages and pitfalls of observing workers and analysing business documents to determine system requirements
- Participate in and help plan a Joint Application Design (JAD) session
- Use prototyping during requirements determination
- Select appropriate methods to elicit system requirements
- Explain business process redesign and how it affects requirements determination
- Understand how requirements determination techniques apply to the development of Internet applications.

Section 6: Process Modelling

Week 8, 9

- Data-flow diagrams (DFD’s)
  - Rules for drawing data-flow diagrams
  - Symbols for data-flow diagrams
  - Context Diagrams

Valacich, George & Hoffer
Chapter 6
## Context
- Level 0 Diagrams
- Balancing data-flow diagrams

### Section Outcomes: You will be able to ...
- Understand the process of logical data modeling
- Draw data-flow diagrams (DFD’s) following specific rules and guidelines
- Decompose data-flow diagrams into lower-level diagrams
- Balance higher-level and lower-level data-flow diagrams
- Use data-flow diagrams as a tool to support the analysis of information systems

## Section 7: Conceptual Data Modelling

**Weeks 10, 11**

- The process of conceptual data modelling
- Data modelling terminology
  - Entity relationship diagrams
  - Entities
  - Attributes
  - Candidate keys
  - Identifiers
  - Multi-values attributes
  - Relationships
  - Associative entities
- Relationships

### Section Outcomes: You will be able to ...
- Define key data modeling terms
- Draw an entity relationship diagram to represent common business systems
- Explain the role of conceptual data modeling in the overall analysis and design of an information system
- Detail the different relationships between entities
- Distinguish between a relationship and an associative entity

## Section 8: Revision of Process Modelling and Conceptual Data Modelling

**Week 12**

- Revision of key symbols in process and data modelling
- Revision of rules that are used to create process and data models
- Generation of conceptual data models using process models as an input.
- Use of software packages to draw process and
data models that can be saved as images.

**Section Outcomes: You will be able to …**

- Relate data modeling to process modelling
- Use modeling software packages to generate electronic copies of process and data models.

**Lecture, Assignment & Lab Schedule:**

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture</th>
<th>Workshop</th>
<th>Assignment Due</th>
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**Workshops & Assignments:**

Workshops will begin in week 4 of the first term (before Christmas) and persist to week 12 inclusive, thus providing 9 workshops. Each session is of 2 hours’ duration. Throughout the semester there are 8 individual assignments. Each student will have 1 week to complete each assignment. The solution to your assignment must be submitted to your tutor in the workshop on the week following the receipt of the assignment. Corrected submissions will be returned to each student during the workshop in the week following the submission. To avail of the associated marks each student must submit solutions to assignments by the date indicated on each assignment. Late submissions will not be accepted.

**Resubmissions:**

There are no facilities or opportunities to resubmit assignments should student(s) fail to submit by specified deadlines in the first instance, or find that student(s) are resitting the written examination at Autumn.

**General:**

It is highly advisable to purchase the textbook as early as possible, and to use it wisely.

This course outline is available on blackboard in pdf format. Should you have a visual disability and require the document in another format, please contact me and I will oblige.