



**Course** Systems Development: Design (2014-2015)

**Code / Version** INFO2080 (101)

**Total Hours** 60

**Credits** 4

**PreRequisite(s)** INFO2070 (100) Systems Development: Analysis  
or INFO8000 (100) Systems Development: Concepts & Analysis  
or INFO2070 (101) Systems Development: Analysis

**CoRequisite(s)**

## Course Description

Upon completion of this course, the student will understand the Systems Development Life Cycle and the Object-Oriented Design methodology using the Unified Modeling Language. An object-oriented approach will be applied to a business system case study utilizing a Computer Assisted Systems Engineering tool to design a proposed solution from the requirements prepared in the Systems Development: Analysis course. Emphasis will be placed on typical industry practices, documentation and presentation skills in a team environment.

**PLAR Eligible:** Yes

## Course Outcomes

Successful completion of this course will enable the student to:

1. Create a complex, realistic user interface prototype.
2. Design a set of complex, realistic classes.
3. Design a complex, realistic database.
4. Describe the foundations of agile development.
5. Recognize the number and diversity of development methodologies.
6. Explain the need to pick and choose analysis and design techniques for each project.

Essential Employability Skills addressed in this course		Taught	Reinforced	Assessed
Communication	<sup>n</sup> Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience	X		X
	<sup>n</sup> Respond to written, spoken, or visual messages in a manner that ensures effective communication		X	
Numeracy	<sup>n</sup> Execute mathematical operations accurately			
Critical Thinking and Problem Solving	<sup>n</sup> Apply a systematic approach to solve problems	X		X
	<sup>n</sup> Use a variety of thinking skills to anticipate and solve problems	X		X
Information Management	<sup>n</sup> Locate, select, organize, and document information using appropriate technology and information systems	X		X
	<sup>n</sup> Analyze, evaluate, and apply relevant information from a variety of sources	X		X
Interpersonal	<sup>n</sup> Show respect for the diverse opinions, values, belief systems, and contributions of others	X		
	<sup>n</sup> Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals			
Personal	<sup>n</sup> Manage the use of time and other resources to complete		X	



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Essential Employability Skills addressed in this course			Taught	Reinforced	Assessed
Personal	<sup>n</sup>	Take responsibility for one's own actions, decisions, and consequences		X	

## Unit Outcomes

Successful completion of the following units will enable the student to:

### 1.0 Prototyping the User Interface

- 1.1 Describe software prototypes.
- 1.2 Differentiate between proof of concept, “keeper” and throwaway prototypes.
- 1.3 Create a functioning UI prototype for a case study with no non-essential code.

### 2.0 Designing Classes

- 2.1 Draw design class diagrams for a case study using common notation with Visual Paradigm.
- 2.2 Recognize advanced class diagram notation.
- 2.3 Design classes for a case study that implement inheritance, polymorphism, and encapsulation.
- 2.4 Design classes for a case study that implement common design patterns.
- 2.5 Design classes for a case study that apply common object-oriented programming principles.
- 2.6 Design classes for a case study that use association, aggregation, composition and delegation.
- 2.7 Design classes for a case study that are maximally cohesive and minimally coupled.
- 2.8 Design classes for a case study that use enumerations and collections.
- 2.9 Design interfaces and abstract classes for a case study.
- 2.10 Draw package diagrams with Visual Paradigm

### 3.0 Designing Databases

- 3.1 Draw entity-relationship diagrams with Visual Paradigm.
- 3.2 Apply normalization to the design of a database for a case study.

### 4.0 Agile Development Foundations

- 4.1 Describe core agile values and suggested updates.
- 4.2 Describe core agile principles and suggested updates.
- 4.3 Recognize lean principles.

### 5.0 Agile Methodologies

- 5.1 Give examples of the many agile and non-agile methodologies that are available.
- 5.2 Explain the need to pick and choose appropriate techniques from a variety of methodologies for each project.
- 5.3 Explain the basics concepts of Scrum.
- 5.4 Explain the basics of Extreme Programming.
- 5.5 Describe the characteristics of the hybrid DAD methodology.
- 5.6 Describe human factors in a DAD project.

### 6.0 DAD Project Phases

- 6.1 Describe the Inception phase.
- 6.2 Explain how the project vision is developed and documented.
- 6.3 Explain how the initial project scope is determined.
- 6.4 Explain how the initial technical strategy is determined.



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| 6.5 | Explain initial release planning.                  |
| 6.6 | Explain project team formation.                    |
| 6.7 | Describe the Construction phase.                   |
| 6.8 | Explain iterative development during construction. |
| 6.9 | Describe the Transition phase.                     |
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### Required Student Resources

Scott Ambler et al. Disciplined Agile Delivery (1st). IBM Press.

### Optional Student Resources

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### Evaluation

The minimum passing grade for this course is 55 (D).

In order to successfully complete this course, the student is required to meet the following evaluation criteria:

Assignments	40.00
Mid-term Exam	30.00
Final Exam	30.00
	<hr/>
	100.00 %

A passing grade in both the tests/quizzes and assignments portions independently is required in order to attain standing in this course. If the student fails one or both portions, then the lowest failing mark is submitted.

### Other

Conestoga College is committed to providing academic accommodations for students with documented disabilities. Please contact the Accessibility Services Office.

The policies and procedures in the Conestoga College Student Guide apply to this course.

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**Prepared By** John McKay

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**School** Information Technology

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**Date** 2014-08-22

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