

City University of Hong Kong
Course Syllabus

offered by College/School/Department of Electrical Engineering
with effect from Semester B in 2017/2018

Part I Course Overview

Course Title:	Object-Oriented Programming and Design
Course Code:	EE2311
Course Duration:	One Semester (13 weeks)
Credit Units:	3
Level:	B2
Proposed Area: <i>(for GE courses only)</i>	<input type="checkbox"/> Arts and Humanities <input type="checkbox"/> Study of Societies, Social and Business Organisations <input type="checkbox"/> Science and Technology
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	CS2363 Computer Programming or CS2311 Computer Programming or equivalent
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	EE3206 Java Programming and Applications
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

The aim of this course is to provide students with an understanding of the object-oriented design and programming techniques. Java, a prime object-oriented programming language, is used to illustrate this programming paradigm.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Apply object-oriented programming paradigm and common design patterns to system designs.		✓	✓	
2.	Apply structural programming approach to solve more complex computation problems.		✓	✓	
3.	Explain how and why genericity is implemented in computer programs.		✓		
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3				
Lecture and Tutorial	Teaching activities are primarily based on lectures followed by simple examples to show students the basic skills. More practical problems are then studied during tutorials in a small class setting that promotes discussions. The tutorial problems are typically related to the contents of the last lecture.	✓	✓	✓				2 hrs Lect/wk 2 hrs Tut/wk
Projects	Students may form a small group or individually carry out a mini-project that goes through different phases of software development. Students will have chances to review the design from peers and therefore reinforce their learning. Extra readings are provided for self-study and reference. The readings are generally related to lectured topics and allow students to pursue more details as well as bridge the conceptual gap between theories and applications.	✓	✓	✓				N/A

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting*	Remarks
	1	2	3					
Continuous Assessment: <u>50%</u>								
At least 3 assignments (Mini-projects, assignments, etc)/tests	✓	✓	✓				50%	
Examination: <u>50%</u> (duration: 2hrs , if applicable)								
* The weightings should add up to 100%.							100%	

Remark:

To pass the course, students are required to achieve at least 30% in course work and 30% in the examination.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Examination	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Coursework	Achievements in CILOs	High	Significant	Moderate	Basic	Not even reaching marginal levels

6. Constructive Alignment with Major Outcomes

MILO	How the course contribute to the specific MILO(s)
1,3,5,10	This course provides essential knowledge and techniques for designing and implementing software systems. Students have ample opportunities to practice these skills with modern software development tools. A system design project will be carried out by students. They are required to identify their goals, analyze some practical problems as well as develop their own solutions.

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus:

Object-oriented principles and design

Objects and classes; information hiding; encapsulation; data abstraction; inheritance and polymorphism; discovering class relationships; unified modeling language (UML) and diagrams; design patterns; software development process

Java programming

Java technologies and platform; basic Java syntax; classes and methods; class definition and packages; method overloading and overriding; superclasses and subclasses; dynamic binding and generic programming; abstract classes and interfaces; binary and text I/O; exceptions and assertions; Java Collection Framework (JCF)

GUI programming

Graphical user interface components; frame and layout management; event-driven programming; applets

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	Lecture notes
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2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	Y. Daniel Liang, Introduction to JAVA Programming Brief Version, 9/E, Prentice Hall
2.	Java SE 8 API Specification http://docs.oracle.com/javase/8/docs/api/ Oracle Java Tutorials http://docs.oracle.com/javase/tutorial/index.html