

**City University of Hong Kong  
Course Syllabus**

**offered by Department of Information Systems  
with effect from Semester B 2017 / 2018**

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**Part I Course Overview**

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| <b>Course Title:</b>                                  | <u>Advanced Business Software Construction</u> |
| <b>Course Code:</b>                                   | <u>IS5312</u>                                  |
| <b>Course Duration:</b>                               | <u>One Semester (13 weeks)</u>                 |
| <b>Credit Units:</b>                                  | <u>3</u>                                       |
| <b>Level:</b>   | <u>P5</u>                                      |
| <b>Medium of Instruction:</b>                         | <u>English</u>                                 |
| <b>Medium of Assessment:</b>                          | <u>English</u>                                 |
| <b>Prerequisites:</b><br>(Course Code and Title)      | <u>IS5311 Business Software Construction</u>   |
| <b>Precursors:</b><br>(Course Code and Title)         | <u>Nil</u>                                     |
| <b>Equivalent Courses:</b><br>(Course Code and Title) | <u>Nil</u>                                     |
| <b>Exclusive Courses:</b><br>(Course Code and Title)  | <u>Nil</u>                                     |

## Part II Course Details

### 1. Abstract

*This course aims to:*

The aim of this course is to introduce the students to advanced business programming concepts and skill, with emphasis on business information systems construction. On completion of this course, student should be able to: a) understand object-oriented programming; b) understanding basic algorithms; c) construct simple business software application to solve a particular business problem by integrating OO, multimedia, files and database technologies.

### 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<br>(if applicable) | Discovery-enriched curriculum related learning outcomes (please tick where appropriate) |    |    |
|-----|--|------------------------------|---|----|----|
|     |  |                              | A1  | A2 | A3 |
| 1.  | Design and develop appropriate object oriented programming skill for business software construction.               | 30%                          |   |    |    |
| 2.  | Design and develop appropriate multimedia for business software construction.                                      | 20%                          | ✓   | ✓  | ✓  |
| 3.  | Design and develop appropriate persistent storage, such as files and databases for business software construction. | 25%                          | ✓   | ✓  | ✓  |
| 4.  | Develop basic data structures and algorithms for business software construction.                                   | 25%                          |   |    |    |
|     |  | 100%                         |   |    |    |

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.)

Lecture : 13 hours

Laboratory : 26 hours

| TLA                 | Brief Description   | CILO No. |   |   |   | Hours/week<br>(if applicable) |
|---------------------|---|----------|---|---|---|-------------------------------|
|                     |   | 1        | 2 | 3 | 4 |                               |
| TLA1:<br>Lecture    | Concepts and general knowledge of advanced business information systems construction are explained. Furthermore, advanced business software construction knowledge and skills, such as object oriented programming, multimedia, files and databases, and basic data structures and algorithms are explained and illustrated using examples to enable students understanding on constructing business information system construction and practical characteristics. | ✓        | ✓ | ✓ | ✓ |                               |
| TLA2:<br>Laboratory | During laboratory sessions, the following activities are used to reinforce and practice of various business software construction techniques learnt in lectures.<br><br><i>Exercises:</i> Hands-on activities using a programming tool (e.g., Microsoft Visual Basic) as part of systems development exercises.   | ✓        | ✓ | ✓ | ✓ |                               |
| TLA3:<br>Project    | Students would have to complete a group project requiring them to perform systems development activities, aimed at constructing a practical application prototype for business information system construction.   | ✓        | ✓ | ✓ | ✓ |                               |

### 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 | 4 |           |         |
| Continuous Assessment: 100%  |          |   |   |   |           |         |
| <b><u>AT1: Continuous Assessment</u></b><br>Participation in class and lab sessions in activities such as:<br>- a number of take-home exercises<br>- class performance | ✓        | ✓ | ✓ | ✓ | 20%       |         |
| <b><u>AT2: Project</u></b><br>Each team of 2 or 3 students will design and develop a proposed business information system, by using appropriate techniques             | ✓        | ✓ | ✓ | ✓ | 40%       |         |
| <b><u>AT3: Individual Lab Test</u></b><br>The individual lab test is to assess students' overall competence level in the domain areas.                                 | ✓        | ✓ | ✓ | ✓ | 40%       |         |
|  |          |   |   |   | 100%      |         |

## 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)                       |
|----------------------------|--|-----------------------|------------------|------------------|--------------|-----------------------------------|
| AT1: Continuous Assessment | Capability to design and develop appropriate object oriented programming skill for business software construction.               | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate multimedia for business software construction.                                      | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate persistent storage, such as files and databases for business software construction. | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to develop basic data structures and algorithms for business software construction.                                   | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
| AT2: Project               | Capability to design and develop appropriate object oriented programming skill for business software construction.               | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate multimedia for business software construction.                                      | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate persistent storage, such as files and databases for business software construction. | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to develop basic data structures and algorithms for business software construction.                                   | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
| AT3: Individual Lab Test   | Capability to design and develop appropriate object oriented programming skill for business software construction.               | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate multimedia for business software construction.                                      | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to design and develop appropriate persistent storage, such as files and databases for business software construction. | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |
|                            | Capability to develop basic data structures and algorithms for business software construction.                                   | High                  | Significant      | Moderate         | Basic        | Not even reaching marginal levels |

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

**1. Keyword Syllabus**

*(An indication of the key topics of the course.)*

Object oriented programming, Multimedia, Files, Data structure and algorithms.

Detailed Syllabus:

- Classes and objects
- Inheritance and Polymorphism
- Multimedia applications
- Files and Database connections
- Basic data structures and algorithms for business software solutions
- Business software application examples

**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.)*

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|----|---|
| 1. | Tony Gaddis, <u>Starting Out with Java</u> , From Control Structures through Objects, 6 <sup>th</sup> Edition, Pearson, 2015. |
|----|---|

**2.2 Additional Readings**

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

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|----|---|
| 1. | Bradley & Millspaugh, <u>Programming in Visual C# 2008</u> , McGraw-Hill, 2009.                           |
| 2. | Deitel & Deitel, <u>Java - How to Program</u> , 8 <sup>th</sup> edition, Prentice Hall, 2009.             |
| 3. | <a href="https://docs.python.org/3/tutorial/index.html">https://docs.python.org/3/tutorial/index.html</a> |