Unit of Study: BIS2004 Object Oriented programming

Overview

The goal of this unit is to provide an extensive theoretical and practice foundation for understanding the basic concepts in object-oriented programming (OOP) techniques, focusing on object-oriented terminology using clear, familiar language. It combines the principles of programming, and in particular, OOP principles and constructs, such as data types, common control flow structures, basic data structures, console input/output, and file input/output. In addition, this unit offers the students an opportunity to use java language to learn and implement the basic programming and OOP. It also stresses the value of the object-oriented programming paradigm in IS discipline as an appealing field of study and the IS graduate as an integral part of today's organisations.

Course(s)	Bachelor of Business Information Systems Bachelor of Information Technology
Credit Points	6 credit points
Duration	12 weeks (10 teaching weeks; 1 revision week; 1 final assessment week)
Level	Undergraduate - Intermediate
Student Workload	Students should expect to spend approximately 10 hours per week over 12 weeks (totalling approximately 120 hours) on learning activities for this unit.
Mode(s) of Delivery	On campus
Pre-Requisites	None
Unit Coordinator	As per current timetable
Contact Information	Consultation: 1 hour scheduled session

Unit Learning Outcomes

On successful completion of this unit, students will be able to:

ULO-1: Demonstrate an understanding of the basic principles of the object-oriented programming paradigm including abstract classes and interfaces, encapsulation, composition, inheritance and polymorphism.
ULO-2: Use an object-oriented programming language, and associated class libraries, to develop object-oriented programs.
ULO-3: Create, build and deploy Java applications that use user-define classes in conjuncture with a real-world programming environment.
ULO-4: Design, develop, test, and debug programs using object-oriented principles including standard conditional and iterative control structures in conjuncture with modern integrated development environment.
ULO-5: Create appropriate textual descriptions to communicate the built-in static data structure and desired attributes and dynamic behaviour of an object-oriented solution.
ULO-6: Develop accurate documentation so that coding can be re-used.

Weekly Schedule

Detailed information for each week's activities can be found on Unit's Weekly Modules in Canvas.

Week	Topic
Week 1	Introduction to Java language and programming environment
Week 2	Understanding Java statements, data types and Operators
Week 3	Making decisions in code
Week 4	Statement repetitions using loops
Week 5	Array and Strings
Week 6	Methods
Week 7	Debugging, Classes and Object, constructor, and destructor
Week 8	Inheritance
Week 9	Polymorphism
Week 10	Java and GUI Programming
Week 11	Revision
Week 12	FINAL ASSESSMENT

Assessments

1. All assessments are compulsory.
2. To pass the unit students must:
   - achieve a total of 50% or more of marks offered; and
   - pass all individual invigilated assessments; and
   - have attempted all assessments.

   Where one or more of these requirements are not met, the Board of Examiners will consider a student's overall progress towards meeting the unit learning outcomes and any special circumstances before reaching a decision.
3. The Board of Examiners may grant a supplementary assessment where a student:
   - achieves a total of 45% or more; and
   - has passed all individual invigilated assessments in the unit; and
   - has attempted all assessments; and
   - has a recommendation for supplementary assessment by the Unit Coordinator and the Head of Discipline.

   Where one or more of these requirements are not met, the Board of Examiners will consider a student's overall progress towards meeting the unit learning outcomes and any special circumstances before reaching a decision. Attendance and engagement in class will be considered.
4. APIC awards common result grades as set out in the Award of Grade Policy.

Detailed information for each assessment can be found on the Unit's Home Page and in the Assessment Brief

Assessment Task	Type	Weighting	Due	Length	ULO
Assessment 1: Applied Project- 1 Design an algorithm to solve a given problem and implement the designed solution using functional programming	Individual 	30%	Week 6	2000	ULO-2 ULO-3 ULO-4
Assessment 2: Laboratory Practicum Assess student understanding of weekly content through problem solving	Individual  Invigilated 	45%	Week 2, 4, 6, 8, 10	3000	ULO-1 ULO-2 ULO-3 ULO-4 ULO-5 ULO-6
Assessment 3: Applied Project- 2 Design an algorithm to solve a given problem and implement the designed solution using object-oriented programming	Group 	25%	Week 12	2500	ULO-1 ULO-2 ULO-3 ULO-4 ULO-5 ULO-6

equiv. – equivalent word count based on the Assessment Load Equivalence Guide. It means this assessment is equivalent to the normally expected time requirement for a written submission containing the specified number of words.

Course Reserve

Course Reserve includes all required resources and reading material for the unit of study. You can access Course Reserve via APIC Library or via the Course Reserve link on the unit's homepage.

Prescribed text(s):

Gaddis, T 2019, *Starting out with Java: From control structures through objects*, 7th edn, Pearson, New York.

Other Recommended Resources:

Java Tutorials 2015, *Learning Java*, online video, YouTube, viewed 1 June 2021, <https://www.youtube.com/playlist?list=PL_c9BZzLwBRKIMP_xNTJxi9lIgQhE51rF>.

Java Tutorials 2019, *Java Programming*, online video, YouTube, viewed 1 June 2021, <https://www.youtube.com/playlist?list=PLdE6x7w0cBLOIdbbfGoXust7aKatLnSm3>.

ProgrammingKnowledge 2014, *Java Tutorial For Beginners 1 - Introduction and Installing the java (JDK) Step by Step Tutorial*, online video, YouTube, viewed 1 June 2021, <https://www.youtube.com/watch?v=r59xYe3Vyks&list=PLS1QulWo1RIbfTjQvTdj8Y6yyq4R7g-Al>

Academic integrity

Ethical conduct and academic integrity and honesty are fundamental to the mission of APIC and academic misconduct will not be tolerated by the College. It is the responsibility of every student to make sure that they understand what constitutes academic misconduct and to refrain from engaging in it. Please refer to APIC's Academic Integrity Policy for further details.

Other Important Information and Links

Special consideration If your academic work is impacted by significant documented illness, hardship, or other adverse circumstances beyond your control, you may make an application for Special Consideration. Please refer to the Assessment Policy for further details.	**Late submission** Penalties apply when work is submitted after the due date without approval. Please refer to the Assessment Policy for information about late submission.
Assessment appeals If you are concerned about a mark you have received for an assessment or final grade, you may apply to formally appeal the grade. Please see the Assessment Policy for further details.	**Award of grades** APIC awards common result grades, set out in the Award of Grade Policy.
Expectations of student conduct Students are expected to conduct themselves in a manner that is consistent with a safe and respectful study environment. More information can be found in the Student Code of Conduct.	**Study resources** APIC Library and Student Learning Support resources and services can be accessed via the Student Lounge or your Dashboard on the OLS (Canvas).
Student Services The Student Services team provides administrative support for students and handles enquiries about enrolment, timetables, important dates and submitting forms. More information can be found on the Student Services page on the OLS (Canvas).	**Key dates** Key dates through the academic year, including teaching periods, census, payment deadlines and exams can be found on the Academic Calendar section of the APIC website.

Changes and Updates to the Unit of Study Guide

This Unit of Study Guide may be updated and amended from time to time. Students will be notified of any changes to the unit via the Online Learning System (Canvas) space for the unit.

This Unit of study Guide was last modified on 21st May 2023.