



ICT104 PROGRAM DESIGN AND DEVELOPMENT - Brief

All information contained within this Subject Outline applies to all students enrolled in the trimester as indicated.

1. General Information

1.1 Administrative Details

Associated HE Award(s)	Duration	Level	Subject Coordinator
Bachelor of Information Technology (BIT)	1 trimester	Level 1	Dr Divya Leekha divya.leekha@koi.edu.au P: 92833583 (Ext.156) L: Level 1, 545 Kent St. Consultation: via Moodle or by appointment.

1.2 Core / Elective

Core subject for BIT

1.3 Subject Weighting

Indicated below is the weighting of this subject and the total course points.

Subject Credit Points	Total Course Credit Points
4	BIT (96 Credit Points)

1.4 Student Workload

Indicated below is the expected student workload per week for this subject

No. Timetabled Hours/Week*	No. Personal Study Hours/Week**	Total Workload Hours/Week***
4 hours/week (2 hour Lecture + 2 hour Tutorial)	6 hours/week	10 hours/week

* Total time spent per week at lectures and tutorials

** Total time students are expected to spend per week in studying, completing assignments, etc.

*** Combination of timetable hours and personal study.

1.5 Mode of Delivery On-campus

1.6 Pre-requisites ICT 102 Introduction to Programming

1.7 General Study and Resource Requirements

- Dedicated computer laboratories are available for student use. Normally, tutorial classes are conducted in the computer laboratories.
- Students are expected to attend classes with the requisite textbook and must read specific chapters prior to each tutorial. This will allow them to actively take part in discussions. Students should have elementary skills in both word processing and electronic spreadsheet software, such as Office 365 or MS Word and MS Excel.
- Computers and WIFI facilities are extensively available for student use throughout KOI. Students are encouraged to make use of the campus Library for reference materials.

- Students will require access to the internet and email. Where students use their own computers, they should have internet access. KOI will provide access to required software.

Software Resource requirements specific to this subject: Sun's Java 8 JDK and NetBeans IDE, Office 365, MS Imagine.

2. Academic Details

2.1 Overview of the Subject









Programming is a vital skill that enables problem solving through the use of computers across a range of disciplines. This subject covers intermediate and advanced features of the Java programming language as a continuation of ICT102 Introduction to Programming. Topics covered include object-oriented programming concepts of inheritance, interfaces, abstract classes, abstract methods, and polymorphism. Students will learn about implementing Java's graphical FX components and Java Applets, and acquire practical knowledge of developing Java programs.

2.2 Graduate Attributes for Undergraduate Courses

Graduates of Bachelor courses from King's Own Institute (KOI) will be able to demonstrate the attributes of a successful Bachelor degree graduate as outlined in the Australian Qualifications Framework (2nd edition, January 2013). Graduates at this level will be able to apply an advanced body of knowledge across a range of contexts for the purposes of professional practice or academic scholarship, and as a pathway for further learning.

King's Own Institute's key generic graduate attributes for a Bachelor's level degree are summarised below:

Across the course, these skills are developed progressively at three levels:

	KOI Bachelor Degree Graduate Attributes	Detailed Description
	Knowledge	Current, comprehensive, and coherent and connected knowledge
	Critical Thinking	Critical thinking and creative skills to analyse and synthesise information and evaluate new problems
	Communication	Communication skills for effective reading, writing, listening and presenting in varied modes and contexts and for the transferring of knowledge and skills to others
	Information Literacy	Information and technological skills for accessing, evaluating, managing and using information professionally
	Problem Solving Skills	Skills to apply logical and creative thinking to solve problems and evaluate solutions
	Ethical and Cultural Sensitivity	Appreciation of ethical principles, cultural sensitivity and social responsibility, both personally and professionally
	Teamwork	Leadership and teamwork skills to collaborate, inspire colleagues and manage responsibly with positive results
	Professional Skills	Professional skills to exercise judgement in planning, problem solving and decision making


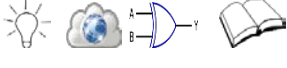
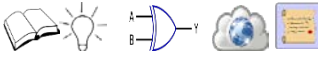
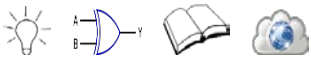
- **Level 1 Foundation** – Students learn the basic skills, theories and techniques of the subject and apply them in basic, standalone contexts
- **Level 2 Intermediate** – Students further develop the skills, theories and techniques of the subject and apply them in more complex contexts, and begin to integrate this application with other subjects.

- **Level 3 Advanced** – Students demonstrate an ability to plan, research and apply the skills, theories and techniques of the subject in complex situations, integrating the subject content with a range of other subject disciplines within the context of the course.

2.3 Subject Learning Outcomes

This is a Level 1 subject.

On successful completion of this subject, students should be able to:

Subject Learning Outcomes	Contribution to Course Graduate Attributes
a) Analyse and model object-oriented programming using Java	
b) Design object-oriented programs using object oriented features such as encapsulation, inheritance and polymorphism in Java	
c) Design and develop a well-designed event driven application using Java Applets which correctly implements a solution to a problem defined in a specification	
d) Implement and use Java programming language features to design and create Swing Components	

2.4 Subject Content and Structure

Below are details of the subject content and how it is structured, including specific topics covered in lectures and tutorials. Reading refers to the text unless otherwise indicated.

Weekly Planner:

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work
1 05 Nov	Object oriented design concepts	Chapter 6	Complete end-of-chapter exercises and run Java programs in the tutorial. Formative not graded.
2 12 Nov	Classes, objects and methods	Chapter 6, 8	Complete end-of-chapter exercise and execute Java programs on classes and objects. Formative not graded.
3 19 Nov	Inheritance, polymorphism and UML diagram	Chapter 8	Complete end-of-chapter exercises and draw UML diagrams. Formative not graded.
4 26 Nov	Encapsulation	Chapter 8	Complete end-of-chapter exercises. Assessment 1: Quiz A(1 hour) Summative assessed 10%
5 03 Dec	Method overloading and method overriding	Chapter 10	Complete end-of-chapter exercises on overloading and overriding. Formative not graded.
6 10 Dec	Interfaces and abstract classes	Chapter 10	Complete end-of-chapter exercises and design abstract classes. Formative not graded.

7 17 Dec	Swing components- introduction	Chapter 12	Complete end-of-chapter exercises on Swing components. Formative not graded.
23 Dec 2018 – 06 Jan 2019	Mid-trimester break		
8 07 Jan	Swing components- design	Chapters 12 & 15	Complete end-of-chapter exercises and design Swing components. Assessment 2: Quiz B(1 hour) Summative assessed 10%
9 19 Jan	Collections- lists, searching and sorting	Chapter 7 and additional material provided in Moodle	Complete end-of-chapter exercises and execute Java codes on searching and sorting. Formative not graded.
10 21 Jan	Java applets- introduction	Chapter 14	Complete end-of-chapter exercises and design Java Applets. Formative not graded.
11 28 Jan	Java applets- design	Chapter 14	Complete end-of-chapter exercises and design Java Applets. Assessment 3: Programming assignment due summative worth 30%
12 04 Feb	Revision & preparation for final exam	All subject material	Revise all tutorial questions and exercises. Formative not graded.
13 11 Feb	Study review week		
14 18 Feb	Examination		Please see exam timetable for exam date, time and location
15 25 Feb	Student Vacation begins Enrolments for T119 open		
16 04 Mar	Results Released 05 Mar 2019 Certification of Grades 08 Mar 2019		
T119 begins 11 Mar 2019			
1 11 Mar	Week 1 of classes for T119 Friday 08 Mar 2019 – Review of Grade Day for T318 – see Sections 2.6 and 3.6 below for more information.		

2.7 Teaching Methods/Strategies

Briefly described below are the teaching methods/strategies used in this subject:

- *On-campus lectures* (2 hours/week) are conducted in seminar style and address the subject content, provide motivation and context and draw on the students' experience and preparatory reading.
- *Tutorials* (2 hours/week) include class discussion of case studies and research papers, practice sets and problem-solving and syndicate work on group projects. Tutorial participation is an essential component of the subject and contributes to the development of graduate attributes (see section 2.2 above). It is intended that specific tutorial material such as case studies, recommended readings, review questions etc. will be made available each week in Moodle.
- *Online* teaching resources include class materials, readings, model answers to assignments and exercises and discussion boards. All online materials for this subject as provided by KOI will be found in the Moodle page for this subject. Students should access Moodle regularly as material may be updated at any time during the trimester
- *Other contact* - academic staff may also contact students either via Moodle messaging, or via email to the email address provided to KOI on enrolment.

2.8 Student Assessment

Assessment is designed to encourage effective student learning and enable students to develop and demonstrate the skills and knowledge identified in the subject learning outcomes. Assessment tasks during the first half of the study period are usually intended to maximise the developmental function of assessment (formative assessment). These assessment tasks include weekly tutorial exercises (as indicated in the weekly planner) and low stakes graded assessment (as shown in the graded assessment table). The major assessment tasks where students demonstrate their knowledge and skills (summative assessment) generally occur later in the study period. These are the major graded assessment items shown in the graded assessment table.

Final grades are awarded by the Board of Examiners in accordance with KOI's Assessment and Assessment Appeals Policy. The definitions and guidelines for the awarding of final grades within the BIT degree are:

- HD High distinction (85-100%) an outstanding level of achievement in relation to the assessment process.
- DI Distinction (75-84%) a high level of achievement in relation to the assessment process.
- CR Credit (65-74%) a better than satisfactory level of achievement in relation to the assessment process.
- P Pass (50-64%) a satisfactory level of achievement in relation to the assessment process.
- F Fail (0-49%) an unsatisfactory level of achievement in relation to the assessment process.
- FW This grade will be assigned when a student did not submit any of the compulsory assessment items.

Provided below is a schedule of formal assessment tasks and major examinations for the subject.

Assessment Type	When assessed	Weighting	Learning Outcomes Assessed
Assessment 1: MCQ Quiz A	Week 4	10%	a
Assessment 2: MCQ Quiz B	Week 8	10%	b
Assessment 3: Programming assignment	Week 11	30%	c, d
Assessment 4: Final exam (Multiple and Short answer Questions) (3 hours)	Final exam period	50%	a, b, c, d

Requirements to Pass the Subject:

To gain a pass or better in this subject, students must gain a *minimum of 50%* of the total available subject marks.

2.9 Prescribed and Recommended Readings

Prescribed Texts:

Gaddis, T., 2015, *Starting Out with Java: From Control Structures through Objects*, 6th ed.,
Pearson Publications: Australia