ICT103 SYSTEMS ANALYSIS AND DESIGN T325 BRIEF

All information in the Subject Outline is correct at the time of approval. KOI reserves the right to make changes to the Subject Outline if they become necessary. Any changes require the approval of the KOI Academic Board and will be formally advised to those students who may be affected by email and via Moodle.
Information contained within this Subject Outline applies to 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) Diploma in Information Technology (DIT)	2 trimester	Level 1	Dr Nasim Ahmed nasim.ahmed@koi.edu.au P: +61 (2) 9283 3583 L: 7-11, 11 York St. Consultation: via Moodle or by appointment.

1.2 Core / Elective

Core subject for BIT
Core subject for DIT

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 Credit Points	BIT (96 Credit Points) DIT (32 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 and completing assignments.
*** That is, * + ** = workload hours.

1.5 Mode of Delivery — Classes will be face-to-face or hybrid. Certain classes will be online (e.g., special arrangements).

1.6 Pre-requisites — ICT100 Foundations of Information Systems.

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.

Resource requirements specific to this subject: Office 365, MS Imagine.

1.8 Academic Advising

Academic advising is available to students throughout teaching periods including the exam weeks. As well as requesting help during scheduled class times, students have the following options:

- Consultation times: A list of consultation hours is provided on the homepage of Moodle where appointments can be booked.
- Subject coordinator: Subject coordinators are available for contact via email. The email address of the subject coordinator is provided at the top of this subject outline.
- Academic staff: Lecturers and Tutors provide their contact details in Moodle for the specific subject. In most cases, this will be via email. Some subjects may also provide a discussion forum where questions can be raised.
- Head of Program: The Head of Program is available to all students in the program if they need advice about their studies and KOI procedures.
- Vice President (Academic): The Vice President (Academic) will assist students to resolve complex issues (but may refer students to the relevant lecturers for detailed academic advice).

2 Academic Details

2.1 Overview of the Subject

Businesses and organisations use various types of information systems to support the many processes needed to carry out their business functions. Each information system has a particular purpose or focus, and each has a life of its own. This "life of its own" concept is called the systems development life cycle (SDLC), and it includes the entire process of planning, building, deploying, using, updating, and maintaining an information system. This subject provides a broad understanding of systems analysis and design (SAD), and mainly deals with software development activities. It focuses on functional and non-functional requirements gathering, planning and designing of software systems.

2.2 Graduate Attributes for Undergraduate Courses

Graduates of Bachelor courses from King's Own Institute (KOI) will achieve the graduate attributes expected under the Australian Qualifications Framework (2nd edition, January 2013). Graduates at this level will be able to apply a broad and coherent body of knowledge from their major area of study in a range of contexts for professional practice or scholarship and as a pathway for further learning.

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

	KOI Bachelor Degree Graduate Attributes	**Detailed Description**

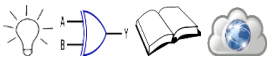
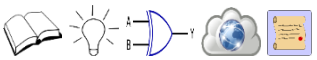
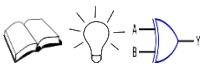
	Knowledge	Current, comprehensive, and coherent and connected knowledge
	Critical Thinking	Critical thinking and creative skills to analyse and synthesise information and evaluate new problems
	Communication	Communication skills for effective reading, writing, listening and presenting in varied modes and contexts and for transferring knowledge and skills to a variety of audiences
	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

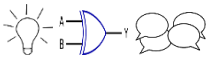
Across the course, these skills are developed progressively at three levels:

- **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 Graduate Attributes**
a) Explain different phases of the systems development life cycle	
b) Analyse a business situation and specify the requirements for a system solution	
c) Describe and design user and systems interfaces	

d) Select and apply modelling tools to model the stages of systems analysis and design.	

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 as listed in Moodle
Week 1 27 Oct	From beginning to end: an overview of systems analysis and design	Chapter 1	Purpose of System analysis and Design, SDLC. Answer review questions in tutorials. Formative not graded
Week 2 03 Nov	Approaches to system development	Chapter 10	Answer review questions in tutorials on different approaches to system development. Agile development, models, tools, and techniques Graded.
Week 3 10 Nov	Investigating system requirements	Chapter 2	Answer review questions in tutorials on investigating and collecting requirements. Functional and nonfunctional requirements. UML activity diagrams. Graded.
Week 4 17 Nov	Modelling: use cases	Chapter 3	Answer review questions in tutorials and draw use cases. User stories, techniques for identifying use cases. User goal technique, event decomposition technique. Graded.
Week 5 24 Nov	Domain modelling	Chapter 4	Answer review questions in tutorials. Data entities, entity-relationship diagram and domain classes. To draw class diagrams for a given scenario. Graded. **Assessment 2 due** Summative assessment worth 15%.
Week 6 01 Dec	Domain modelling	Chapter 4	Answer review questions in tutorials. Data entities, entity-relationship diagram and domain classes. To draw class diagrams for a given scenario. Graded.

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
Week 7 08 Dec	Use Case modelling	Chapter 5	Answer review questions in tutorials on fully developed use case descriptions, Activity diagrams, CRUD technique, System sequence diagrams Graded.
Week 8 15 Dec	Foundation of system design. Defining the system architecture	Chapters 6, 7	Tutorial exercises on creating and using functions considering effective code writing practices, models used as inputs/output in systems design, major design activities, technology and architectural concepts: Graded.
Week 9 05 Jan	User Interface Design	Chapter 9 Alan Dennis et. al. **Systems Analysis and Design**, 8th 2021 Edition, Wiley	Answer review questions in tutorials and work on designing user interface, user experience, usability, storyboard use in user-interface design, UX. Graded. **Assessment 3 Due Summative Assessment worth 30%**
Week 10 12 Jan	Architecture Design	Chapter 8 Alan Dennis et. al. **Systems Analysis and Design**, 8th 2021 Edition, Wiley	Tutorial exercises on principles of object-oriented design, design classes and the design class diagram. Graded.
Week 11 19 Jan	Making the system operational	Chapter 14	Answer review questions in tutorials on making the system operational. Implementation and deployment activities, software tests, data conversion, system deployment. Graded. **Assessment 4 due** Summative assessment worth 35%

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
Week 12 27Jan (Tue)	ACS Code of Conduct and Ethics, Security and Privacy Discussion and Revision	All Chapters	Revision
Week 13 02 Feb	Study Review Week and Final Exam Week		
Week 14 09 Feb	Examinations Continuing students - enrolments for T325 open		Please see exam timetable for exam date, time and location
Week 15 16 Feb	Student Vacation begins New students - enrolments for T126 open		
Week 16 23 Feb	• Results Released • Review of Grade Day for T325 – see Sections 2.6 and 3.2 below for relevant information. • Certification of Grades NOTE: More information about the dates will be provided at a later date through Moodle/KOI email.		
T126 2 Mar 2026			
Week 1 02 Mar	Week 1 of classes for T126		

2.5 Teaching Methods/Strategies

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

- *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. Tutorials often include group exercises and so contribute to the development of teamwork skills and cultural understanding. Tutorial participation is an essential component of the subject and contributes to the development of many of the graduate attributes (see section 2.2 above). Tutorial participation contributes towards the assessment in many subjects (see details in Section 3.1 for this subject). Supplementary 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.

2.6 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.

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: Weekly Tutorial Exercises	Weeks 2 - 11	20%	a, b, c, d
Assessment 2: MCQ Quiz	Week 5	15%	a, b
Assessment 3: Individual Assignment and Recorded Presentation	Week 9	25% 5% (Recorded presentation)	a, b, c
Assessment 4: Individual Prototype development and Presentation	Weeks 11 - 12	Prototype: 25% Individual presentation: 10%	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.

2.7 Prescribed and Recommended Readings

Provided below, in formal reference format, is a list of the prescribed and recommended readings.

Prescribed Texts:

Satzinger, J., Jackson, R., and Burd, S., 2016, *Systems Analysis and Design in a Changing World*, 7th ed., Cengage Learning.

Alan Dennis, Barbara Haley Wixom, Roberta M. Roth, 2021, Systems Analysis and Design, 8th ed., Wiley

Recommended Readings:

Liu, K. E. C. H. E. N. G., Ades, Y., & Stamper, R., 2024, Simplicity, Uniformity and Quality-the role of Semantic Analysis in systems development. *WIT Transactions on Information and Communication Technologies*, vol. 9.

Rahmawati, D., Rahayu, M. and Safitrah, E., 2022, Relevance Analysis of Systems Analysis and Design Courses With System Analyst Skill Needs. *Sistemasi: Jurnal Sistem Informasi*, 11(2), pp.352-363.

Liu, J., Wang, C. and Xiao, X., 2021, Design and Application of Science and Technology Project Management Information System for Educational Institutes. *Mobile Information Systems*.

Recommended Journals:

Yoshikuni, A.C., Dwivedi, R., Dultra-de-Lima, R.G., Parisi, C. and Oyadomari, J.C.T., 2023, Role of emerging technologies in accounting information systems for achieving strategic flexibility through decision-making performance: An exploratory study based on North American and South American firms. *Global Journal of Flexible Systems Management*, 24(2), pp.199-218.

Christanto, H.J. and Singgalen, Y.A., 2023, Analysis and design of student guidance information system through software development life cycle (SDLC) and waterfall model. J*ournal of Information Systems and Informatics*, 5(1), pp.259-270.

Yumhi, Y., Dharmawan, D., Febrian, W. D., & Sutisna, A. J., 2024, Application of Rapid Application Development Method in Designing a Knowledge Management System to Improve Employee Performance in National Construction Company. *Jurnal Informasi Dan Teknologi*, 155-160.

Weber, P., Carl, K. V., & Hinz, O., 2024, Applications of explainable artificial intelligence in finance—a systematic review of finance, information systems, and computer science literature. *Management Review Quarterly*, 74(2), 867-907.

Useful Websites:

System Analysis Web Sites - https://www.umsl.edu/~sauterv/analysis/analysis_links.html

System Analysis and Design Resources - https://www.tutorialspoint.com/system_analysis_and_design/system_analysis_and_design_useful_resources.htm

Recommended References:

1. ACM Transactions on Computer Systems
2. ACM Transactions On Database Systems
3. Journal of Computing Systems Analysis and Design
4. Transactions on Software Engineering and Methodology

ACS recommended links

1. https://www.acs.org.au/memberships/professional-ethics-conduct-and-complaints.html
2. https://ia.acs.org.au/article/2024/new-acs-code-of-professional-ethics-.html
3. https://www.acs.org.au/governance/rules-and-regulations.html

Security and Privacy recommended links

1. https://www.ibm.com/au-en
2. https://cpl.thalesgroup.com/
3. https://www.checkpoint.com/

Conference / Journal Articles:

Students are encouraged to read peer reviewed journal articles and conference papers. Google Scholar provides a simple way to broadly search for scholarly literature. From one place, you can search across many disciplines and sources: articles, theses, books, abstracts and court opinions, from academic publishers, professional societies, online repositories, universities and other web sites.