ICT272 WEB DESIGN AND DEVELOPMENT 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)	1 trimester	Level 3	Umesh Poudel umesh.poudel@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

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 **Classes will be face-to-face or hybrid. Certain classes will be online (e.g., special arrangements).**

1.6 Pre-requisites ICT104 Program Design and Development and ICT200 Database Design and Development;

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 Office.

- 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: ASP.NET, Office 365, MS Imagine, Visual Studio - 2019, MS Azure, GitHub Desktop.

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

The subject focuses on advanced web design and development for small and large-scale applications. It gives the student a solid grounding in high-level programming language and allows them to build dynamic web applications using advanced internet technologies. The students will design, implement, and evaluate anything from small, personal websites to large-class web applications using a widely used framework in the industry. Students will apply object-oriented concepts to real-world problems, writing syntax code, creating SQL databases, developing interactive websites and composing user-friendly web applications for real-world problems.

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

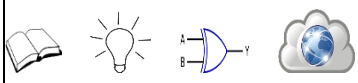
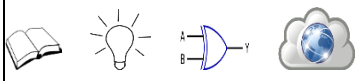
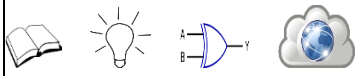
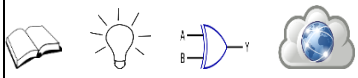
Across the course, these skills are developed progressively at three levels:

- **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 3 subject.

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

Subject Learning Outcomes	Contribution to Graduate Attributes
a) Compose advanced solutions using object-oriented programming for problem-solving	
b) Implement and evaluate dynamic web applications to meet design principles and user requirements	
c) Develop dynamic small to large-class web applications with SQL database	
d) Design and validate advanced user interfaces using creative programming packages served as the engine through data annotations	

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	Getting started with C# programming language	Ch.1 *Programming C# 12*	Install and explore visual studio. Solve C# exercises to get started with the programming language.
Week 2 03 Nov	C# Control statements, Arrays and Collections	Ch. 2 Programming C# 12	Solve C# exercises on control statements, arrays and lists. **Biweekly activity 0%**
Week 3 10 Nov	Object oriented programming (Classes)	Ch. 3 & 6 Programming C# 12	Solve C# exercises on object-oriented classes, attributes and methods.
Week 4 17 Nov	Introduction to web development and ASP.Net MVC5	Ch. 1 Modern Web Development	Solve exercises to create Asp.net MVC application. **Biweekly activity 5%** **Quiz 1-10%**
Week 5 24 Nov	Controllers Ethical web development	Ch. 4 Modern Web Development	Solve exercises to create Asp.net controllers. ACS New Code of Ethics
Week 6 01 Dec	View and Razor Programming	Ch. 5 & 6 Modern Web Development	Solve exercises to create MVC views. **Biweekly activity 5%**
Week 7 08 Dec	Creating Model Component	Ch. 6 *Modern Web Development*	Solve exercises to create SQL server database and MVC models.
Week 8 15 Dec	Advanced Forms and HTML	Ch. 7 *Modern Web Development*	Solve exercises to create MVC forms. **Biweekly activity 5%** **Quiz 2 -10%**
Week 9 05 Jan	SQL Complex Entity Relationship	Ch. 6 *Modern Web Development*	Solve exercises to create complex entity relationships.

Week (beginning)	Topic covered in each week's lecture	Reading(s)	Expected work as listed in Moodle
Week 10 12 Jan	Data Annotations Attributes in Depth	Ch. 6 *Modern Web Development*	Solve exercises to validate MVC forms using data annotation. **Biweekly activity 5%**
Week 11 19 Jan	Web Security and data privacy	Ch. 11 Modern Web Development	Solve exercises for web security.
Week 12 27Jan (Tue)	Testing	Ch. 13 *Modern Web Development*	Solve exercises based on testing. **Assignment 3A due** **Assignment 3B due**
Week 13 02 Feb	Study review week and Final Exam Week		
Week 14 09 Feb	Examinations Continuing students - enrolments for T126 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
Assignment 1 – Biweekly (2,4,6,8 and 10) Individual Progress Reports and Reflection - Individual Assignment	Week 2- 0% Week 4- 5% Week 6- 5% Week 8 - 5% Week 10 - 5%	20%	a, b, c, d
Assignment 2: Quiz 1 and Quiz 2	Week 4-10% Week 8-10%	20%	a, b, c, d
Assignment 3A: MVC web application - Group Assignment	Week 12	35%	b, c, d
Assignment 3B: MVC web application Group report and video presentation	Week 12	25%	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:

Griffiths, I., 2024. *Programming C# 12: Build cloud, web, and desktop applications*. Sebastopol: O'Reilly Media, Inc.

Peres, R., 2020. *Modern web development with ASP.NET Core 3: An end-to-end guide covering the latest features of Visual Studio 2019*, Blazor and Entity Framework. 2nd ed. Birmingham: Packt Publishing.

Griffiths, I., 2022. *Programming C# 10: Build cloud, web, and desktop applications*. Sebastopol: O'Reilly Media, Inc.

Recommended Readings:

Mezei, R.A., 2023. *Introduction to the development of web applications using ASP.Net (Core) MVC*. Cham: Springer Nature.

Price, M.J., 2024. *C# 13 and .NET 9 – Modern cross-platform development fundamentals*. 8th ed. Birmingham: Packt Publishing.

Frain, B., 2022. *Responsive web design with HTML5 and CSS: Build future-proof responsive websites using the latest HTML5 and CSS techniques*. Birmingham: Packt Publishing Ltd.

Griffiths, I., 2024. *Programming C# 12*. 1st ed. Sebastopol: O'Reilly Media.

Rebah, H.B., Boukthir, H. and Chedebois, A., 2022. *Website design and development with HTML5 and CSS3*. Hoboken: John Wiley & Sons.

Journal and conference articles

Fernando, K., 2022. *Development of smart healthcare web system using PWA with AI: A review of related literature*.

Akyon, S.H., Akyon, F.C. and Yılmaz, T.E., 2023. Artificial intelligence-supported web application design and development for reducing polypharmacy side effects and supporting rational drug use in geriatric patients. *Frontiers in Medicine*, 10, p.1029198.

Khan, S. and Khanam, A.T., 2023. Study on MVC framework for web development in PHP. *International Journal of Scientific Research in Computer Science, Engineering and Information Technology*, pp.414–419.

Roth, D., 2024. What's new for ASP.NET Core & Blazor in .NET 9. Conference session, .NET Conf 2024, 12 November. Available at: https://www.dotnetconf.net/agendaa

Landgraf, G., 2021. How user-friendly is your website? Usability lessons for libraries in a remote world. *American Libraries*, 52(3/4), pp.30–33. Available at: https://search.ebscohost.com/login.aspx?direct=true&db=eue&AN=149005478&site=ehost-live

Negri-Ribalta, C., Lombard-Platet, M. and Salinesi, C., 2024. Understanding the GDPR from a requirements engineering perspective - a systematic mapping study on regulatory data protection requirements. *Requirements Engineering*, pp.1–27.

Huynh, T., 2024. Web technologies comparison between Nuxt.js and ASP.NET.

Klug, C., 2023. Advanced ASP.NET Core. *Visual Studio Magazine*, 14 September. Available at: https://visualstudiomagazine.com/articles/2023/09/14/advanced-aspnet-core.asp

The ACS New Code of Ethics Released | Member Insights | ACS. [online] Available at: https://membership.acs.org.au/member-insight/20240117-ACS-New-Code-of-Ethics-Released.html.

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.

Useful Websites:

The following industry websites are useful introductory sources covering a range of information useful for this subject.

- https://learn.microsoft.com/en-us/aspnet/mvc/overview/getting-started/introduction/getting-started
- https://www.tutorialsteacher.com/mvc
- https://www.w3schools.com/asp/webpages_intro.asp
- https://www.geeksforgeeks.org/mvc-design-pattern/