UNSW Course Outline

ZEIT8016 Capability Development - 2024

Published on the 11 Feb 2024

General Course Information

Course Code : ZEIT8016
Year : 2024
Term : Semester 1
Teaching Period : Z1
Is a multi-term course? : No
Faculty : UNSW Canberra
Academic Unit : School of Engineering and Technology
Delivery Mode : In Person
Delivery Format : Standard
Delivery Location : UNSW Canberra at ADFA
Campus : UNSW Canberra
Study Level : Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This 6 UOC Capability and Technology Management College (CTMC) course aims to provide students with an opportunity to develop an understanding of the contemporary processes and practices associated with the development and management of capability and capability

systems in Australia.

An overview is provided of the major aspects of Australia's One Defence Capability Development System (ODCS) including defining the joint capability need, the operational concept(s) underpinning the capability definition, technology readiness, systems acquisition, project and program management, classic and model-based systems engineering approaches, requirements engineering, conceptual design, systems integration, enterprise architecture, systems safety, technical control and experimentation and test and evaluation.

Related skills are introduced including operational and business case development, cost estimation, schedule management, modelling and simulation and risk assessment.

Practical experience is provided with the definition and development of operational needs and stakeholder needs and requirements, and system requirements that are necessary for the various Defence Capability Committees and submissions to Government.

The intent is to prepare you for playing a meaningful role in delivering Australian and our Allies defence capabilities that are fit for purpose in the future Australian operating environment – one in which the nature of war may not have changed but one in which the operational tempo will challenge human decision making and cognitive abilities, intelligent and autonomous systems are endemic and lethal autonomous weapon systems are the new reality.

Course Aims
Relationship to Other Courses

Related courses are CTMCs ZBUS8912 Delivering Capabilities and ZBUS8306 Sustaining Capability.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : On successful completion of this program, students should be able to articulate the processes and management practices associated with the development of capability.
CLO2 : On successful completion of this program, students should be able to articulate the need for the development and management of capability.
CLO3 : On successful completion of this program, students should be able to assess strengths and weaknesses of accepted capability development methodologies and processes.
CLO4 : On successful completion of this program, students should be able to develop major capability development plans and artefacts.
CLO5 : On successful completion of this program, students should be able to assess the role and contribution of capability development in project and business contexts.
CLO6 : On successful completion of this program, students should be able to develop appropriate capability development artefacts for an example project.

Course Learning Outcomes	Assessment Item
CLO1 : On successful completion of this program, students should be able to articulate the processes and management practices associated with the development of capability.	• Assignment 1 • Assignment 2
CLO2 : On successful completion of this program, students should be able to articulate the need for the development and management of capability.	• Class Test • Assignment 1
CLO3 : On successful completion of this program, students should be able to assess strengths and weaknesses of accepted capability development methodologies and processes.	• Group ODCS Video Presentation • Class Test • Assignment 2
CLO4 : On successful completion of this program, students should be able to develop major capability development plans and artefacts.	• Class Test • Assignment 2
CLO5 : On successful completion of this program, students should be able to assess the role and contribution of capability development in project and business contexts.	• Group ODCS Video Presentation • Class Test • Assignment 2
CLO6 : On successful completion of this program, students should be able to develop appropriate capability development artefacts for an example project.	• Assignment 1 • Group ODCS Video Presentation • Assignment 2

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

The Learning Management System

Moodle is the Learning Management System used at UNSW Canberra. All courses have a Moodle site which will become available to students at least one week before the start of semester. Please find all help and documentation (including Blackboard Collaborate) at the [Moodle Support](#) page.

UNSW Moodle supports the following web browsers:

» Google Chrome 50+

» Safari 10+

** Internet Explorer is not recommended

** Addons and Toolbars can affect any browser's performance.

Operating systems recommended are:

Windows 7, 10, Mac OSX Sierra, iPad IOS10

For further details about system requirements click [here](#).

Log in to Moodle [here](#).

If you need further assistance with Moodle:

For enrolment and login issues please contact:

IT Service Centre

Email: itservicecentre@unsw.edu.au

Phone: (02) 9385-1333

International: +61 2 9385 1333

For all other Moodle issues please contact:

External TELT Support

Email: externalteltsupport@unsw.edu.au

Phone: (02) 9385-3331

International: +61 2 938 53331

Opening hours:

Monday – Friday 7:30am – 9:30 pm

Saturday & Sunday 8:30 am – 4:30pm

Additional Course Information

This Course provides the theoretical and practical basis for application associated with the CTMC CAPDEV Course in S1 and a proposed new CTMC Elective Mission Engineering in S2.

Referencing

In this course, students are required to reference following the APA 7 / Chicago NB referencing style. Information about referencing styles is available at: https://guides.lib.unsw.adfa.edu.au/c.php?g=472948&p=3246720

Study at UNSW Canberra

https://www.unsw.adfa.edu.au/study

Study at UNSW Canberra has lots of useful information regarding:

- Where to get help
- Administrative matters
- Getting your passwords set up
- How to log on to Moodle
- Accessing the Library and other areas.

Additional Information as required

CRICOS Provider no. 00098G

The University of New South Wales Canberra.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Class Test Assessment Format: Individual	20%	Start Date: Not Applicable Due Date: 16/05/2024 12:00 AM
Assignment 1 Assessment Format: Group	20%	Due Date: 17/05/2024 12:00 AM
Assignment 2 Assessment Format: Individual	50%	Start Date: Not Applicable Due Date: 06/06/2024 12:00 AM
Group ODCS Video Presentation Assessment Format: Group	10%	Start Date: 21/03/2024 12:00 AM

Assessment Details
Class Test

Assessment Overview

A 90-minute class test is to be completed at the end of the Course. Test questions are drawn from the revision questions at the end of each chapter of the course notes. The class test is marked out of 20% of the final course result.

Course Learning Outcomes

- CLO2 : On successful completion of this program, students should be able to articulate the need for the development and management of capability.
- CLO3 : On successful completion of this program, students should be able to assess strengths and weaknesses of accepted capability development methodologies and processes.
- CLO4 : On successful completion of this program, students should be able to develop major capability development plans and artefacts.
- CLO5 : On successful completion of this program, students should be able to assess the role and contribution of capability development in project and business contexts.

Detailed Assessment Description

You are required to submit to pass.

Assignment 1

Assessment Overview

Assignments provide you with an opportunity to demonstrate your ability to apply the knowledge and understanding you have gained throughout the course, by conducting a major design activity to refine your skills. The assignments require higher-order independent thinking beyond the

ability to read, comprehend, and remember the information provided in the course notes. They will help you draw together all of the discrete areas studied in each chapter. Assignment 1 provides feedback for reflection and reflect upon your learning prior to submitting Assignment 2.

You are expected to undertake significant effort to complete your assignments (approximately 80 hours of effort across two assignments). Marks for the assignments are be allocated based on the effort you apply and the depth of understanding demonstrated.

<u>Course Learning Outcomes</u>

- CLO1 : On successful completion of this program, students should be able to articulate the processes and management practices associated with the development of capability.
- CLO2 : On successful completion of this program, students should be able to articulate the need for the development and management of capability.
- CLO6 : On successful completion of this program, students should be able to develop appropriate capability development artefacts for an example project.

<u>Detailed Assessment Description</u>

Assignment 1 is a group exercise to answer three questions exploring the operational scenarios, goals and missions and Contraints with the Operational Scenario during the Conceptual Design Phase.

<u>Assessment information</u>

You are required to submit to pass.

<u>Assignment submission Turnitin type</u>

Not Applicable

Assignment 2

<u>Assessment Overview</u>

Assignments provide you with an opportunity to demonstrate your ability to apply the knowledge and understanding you have gained throughout the course, by conducting a major design activity to refine your skills. The assignments require higher-order independent thinking beyond the ability to read, comprehend, and remember the information provided in the course notes. They will help you draw together all of the discrete areas studied in each chapter. Individual Assignment 2 allows you to reflect upon Assignment 1 and apply your feedback to Assignment 2.

You are expected to undertake significant effort to complete your assignments (approximately 80 hours of effort across two assignments). Marks for the assignments are be allocated based

on the effort you apply and the depth of understanding demonstrated.

One question will be optional for those seeking HD.

Throughout the intensive delivery component of the course, you will undertake a number of workshops (Lethal Autonomy etal) and exercises as part of a small group. The purpose of these exercises is to give you an opportunity to reinforce the knowledge and understanding you have gained throughout the course, which will also prepare you for the completion of the assignments.

<u>Course Learning Outcomes</u>

- CLO1 : On successful completion of this program, students should be able to articulate the processes and management practices associated with the development of capability.
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- CLO4 : On successful completion of this program, students should be able to develop major capability development plans and artefacts.
- CLO5 : On successful completion of this program, students should be able to assess the role and contribution of capability development in project and business contexts.
- CLO6 : On successful completion of this program, students should be able to develop appropriate capability development artefacts for an example project.

<u>Detailed Assessment Description</u>

Assignment 2 is an individual assessment exploring the support needed for the capability system, identify the system-level context diagram and to list and define the systems external interfaces. A seventh question will enable those wishing a HD to undertake an RBS for the system down to level 3 or provide a Critique of Australia's public position with Lethal Autonomous Weapon Systems – approximately 5 – 10 pages with key arguments addressing usefulness and feasibility of the Kill Web/Chain Cycle F2T2E2A2 with Fully Lethal AWS versus Human command and controlled Lethal AWS. .

Individuals will also be assessed for engagement during the workshops and learning activities (10%) and the Lethal Autonomous Weapon Systems workshop (10%)

<u>Assessment information</u>

You are required to submit to pass.

<u>Assignment submission Turnitin type</u>

Not Applicable

Group ODCS Video Presentation

Assessment Overview

Students are to work in their syndicates to produce a 5 minute presenation and/or video on one aspect of the One Defence Capability System.

Course Learning Outcomes

- CLO3 : On successful completion of this program, students should be able to assess strengths and weaknesses of accepted capability development methodologies and processes.
- CLO5 : On successful completion of this program, students should be able to assess the role and contribution of capability development in project and business contexts.
- CLO6 : On successful completion of this program, students should be able to develop appropriate capability development artefacts for an example project.

Assessment Length

5-10 Minutes

Assessment information

You are required to submit to pass.

Assignment submission Turnitin type

Not Applicable

General Assessment Information

Group ODCS Video Presentation will be held in week 4, feedback and grades will be given to students by the census date (24th of March).

Late Submission of Assessment

Unless prior arrangement is made with the lecturer or a formal application for special consideration is submitted, a penalty of 5% of the total available mark for the assessment will apply for each day that an assessment item is late up to a maximum of 5 days (120 hours) after which an assessment can no longer be submitted and a grade of 0 will be applied.

Academic Integrity and Plagiarism

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity.

All UNSW staff and students have a responsibility to adhere to this principle

of academic integrity. All students are expected to adhere to
UNSW's Student Code of Conduct [https://www.gs.unsw.edu.au/policy/documents/stu dentcodepolicy.pdf](https://www.gs.unsw.edu.au/policy/documents/stu%20dentcodepolicy.pdf)

Plagiarism undermines academic integrity and is not tolerated at UNSW. It is defined as using the words or ideas of others and passing them off as your own, and can take many forms, from deliberate cheating to accidental copying from a source without acknowledgement.

For more information, please refer to the following: https://student.unsw.edu.au/plagiarism"

Use of Generative AI

Planning Assistance - Students are permitted to use software to generate initial ideas. However, they must develop or edit those ideas to such a significant extent that what is submitted is their own work. Students using Generative AI as part of their Assignments Literature Search may do so to scope Large Language Model usage and must declare it's use and also quote the tool used such as CHATGPT, Poe, OpenAI, Google or Microsoft Bing as with normal APA citations of internet sourced material.

<u>Grading Basis</u>

Standard

<u>Requirements to pass course</u>

You are not required to pass any one particular piece of assessment; you simply need to achieve at least 50 marks out of a total 100 marks to pass this course. You must attempt all assessment items except for the optional High Distinction Assignment 2 Question 7. Final marks may be moderated.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 26 February - 1 March	Lecture	Thurs 29 Feb 1. Capability Development Introduction 2. Capability System Acquisition 2B. Pre and Course Readings, Course Notes and Writing Assistance
Week 2 : 4 March - 8 March	Blended	Tues 5 March 3. ODCS Overview - on DPN 4 Operational focus - Lethal Autonomous Weapon Systems Workshop
Week 3 : 11 March - 15 March	Group Activity	14 Mar Thurs ODCS Workshop and 5-10 minutes Presentation/Video Assessment 1 with Matt McCormack
Week 4 : 18 March - 22 March	Presentation	Thurs 21 March ODCS Workshop 10 Min Syndicate Assessment Presentations: Note that their is no float for late submissions - Assessment must be in by 22 March. 5. Introduction to Systems Engineering
Week 5 : 25 March - 29 March	Lecture	Thurs 28 March 6. Requirements Engineering 7. Systems Safety
Week 6 : 1 April - 5 April	Lecture	Thurs 4 April 1C. Threats & Needs - JNCS and OCD Development Tutorial 8. Conceptual Design 9. CD and SE Management Thurs 11 April 10. Preliminary Design 11. Contestability: Experimenting, Preview, Development, and Operational T&Eing Capabilities into existence Thurs 18 April 12. Detailed Design 13 Related Disciplines – Project Management / Failure, Risk, Utilisation and Retirement Course Notes Check
Week 7 : 22 April - 26 April	Other	Thurs 25 April No Classes due ANZAC Day Note 11 and 18 April classes are in previous week thanks to the tool.
Week 8 : 29 April - 3 May	Lecture	Thurs 2 May Group Assignment 1 Q1 Operational Scenarios Assignment 1 Q1 Operational Scenarios - Group Presentations. Provide UNSW guidnace on Use of Generative AI
Week 9 : 6 May - 10 May	Group Work	Thurs 9 May Assignment 1 Q2 and Q3 Mission Statement and Goals / Constraints Workshop
Week 10 : 13 May - 17 May	Assessment	Thurs 16 May WARNING: Class Test Assignments and Tasks Review / Option to do MyExperience / Recommend engagement on anything to do with Group Assignment 1 and Group/Individual Assignment 2 Friday 17 May WARNING: Group Assignment 1 is Due For future Planning purposes: CAUTION: Individual Engagement and LAWS Engagement is Assignment is effectively due NLT 4 April CAUTION: Group and Individual Assigment 2 and Optional HD Question 7 are due NLT 7 June.

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The course will be held over Semester 1, mostly on Thursdays in the ADFA CTMC building. A provisional timetable is available and includes detail of planned sessions and activities.

Course Resources

Course Evaluation and Development

One of the key priorities in the 2025 Strategy for UNSW is a drive for academic excellence in education. One of the ways of determining how well UNSW is progressing towards this goal is by listening to our own students. Students will be asked to complete the myExperience survey towards the end of this course.

Students can also provide feedback during the semester via: direct contact with the lecturer, the "On-going Student Feedback" link in Moodle, Student-Staff Liaison Committee meetings in schools, informal feedback conducted by staff, and focus groups. Student opinions really do make a difference. Refer to the Moodle site for this course to see how the feedback from previous students has contributed to the course development.

Important note: Students are reminded that any feedback provided should be constructive and professional and that they are bound by the Student Code of Conduct Policy

https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Malcolm Tutty		BLD 17 Room 220	0422549202	Two days a week	No	Yes

Other Useful Information

Academic Information

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Students can also provide feedback during the semester via: direct contact with the lecturer, the "On-going Student Feedback" link in Moodle, Student-Staff Liaison Committee meetings in schools, informal feedback conducted by staff, and focus groups (where applicable). Student opinions really do make a difference. Refer to the Moodle site for your course to see how the feedback from previous students has contributed to the course development.

Important note: Students are reminded that any feedback provided should be constructive and professional and that they are bound by the Student Code of Conduct.

https://www.gs.unsw.edu.au/policy/documents/studentcodepolicy.pdf

Equitable Learning Services (ELS)

Students living with neurodivergent, physical and/or mental health conditions or caring for someone with these conditions may be eligible for support through the Equitible Learning Services team. Equitable Learning Services is a free and confidential service that provides practical support to ensure your mental or physical health conditions do not adversely affect your studies.

Our team of dedicated **Equitable Learning Facilitators** (ELFs) are here to assist you through this process. We offer a number of services to make your education at UNSW easier and more equitable.

Further information about ELS for currently enrolled students can be found at: https://www.student.unsw.edu.au/equitable-learning

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Plagiarism undermines academic integrity and is not tolerated at UNSW. Its defined as using the words or ideas of others and passing them off as your own, and can take many forms, from deliberate cheating to accidental copying from a source without acknowledgement.

For more information, please refer to the following:

https://student.unsw.edu.au/plagiarism

Submission of Assessment Tasks

Special Consideration

Special Consideration is the process for assessing and addressing the impact on students of short-term events, that are beyond the control of the student, and that affect performance in a specific assessment task or tasks.

Applications for Special Consideration will be accepted in the following circumstances only:

- Where academic work has been hampered to a substantial degree by illness or other cause;
- The circumstances are unexpected and beyond the student's control;
- The circumstances could not have reasonably been anticipated, avoided or guarded against by the student; and either:

    (i) they occurred during a critical study period and was 3 consecutive days or more duration, or a total of 5 days within the critical study period; or

    (ii) they prevented the ability to complete, attend or submit an assessment task for a specific date (e.g. final exam, in class test/quiz, in class presentation)

Applications for Special Consideration must be made as soon as practicable after the problem occurs and at the latest within three working days of the assessment or the period covered by the supporting documentation.

By sitting or submitting the assessment task the student is declaring that they are fit to do so and cannot later apply for Special Consideration (UNSW 'fit to sit or submit' requirement).

Sitting, accessing or submitting an assessment task on the scheduled assessment date, after applying for special consideration, renders the special consideration application void.

Find more information about special consideration at: https://www.student.unsw.edu.au/special/

consideration/guide

Or apply for special consideration through your MyUNSW portal.

Late Submission of assessment tasks (other than examinations)

UNSW has a standard late submission penalty of:

- 5% per day,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and
- no permitted variation.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Electronic submission of assessment

Except where the nature of an assessment task precludes its electronic submission, all assessments must be submitted to an electronic repository, approved by UNSW or the Faculty, for archiving and subsequent marking and analysis.

Release of final mark

All marks obtained for assessment items during the session are provisional. The final mark as published by the university following the assessment review group meeting is the only official mark.