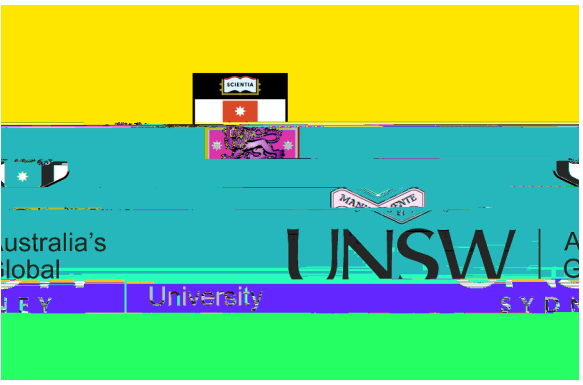

M cha ca a d Ma fac Or E r

C r O Ð

T r 2 2019

MMAN3200

LINEAR SYSTEMS AND CONTROL

C O O

1. Staff Contact Details

Contact details and consultation times for course convenor

Name: Dr Zoran Vulovic
Office location: Ainsworth Building, Room 311D
Tel: (02) 9385 6261
Email: z.vulovic@unsw.edu.au
Moodle: https://moodle.telt.unsw.edu.au/login/index.php

Consultations will take place in Dr Vulovic's office. The consultation timeslots will be announced later.

Consultations are possible outside the set times, but a prior appointment is preferred. Email, telephone and Moodle discussions can also be used for solving more general issues.

Contact details and consultation times for additional lecturers/demonstrators/lab staff

Name: Dr Jose Guivant (lecturing the Control component)
Office: Room 510D, Building J17
Tel: (02) 9385 5693
Fax: (02) 9663 1222
Email: j.guivant@unsw.edu.au

Consultation with Dr Guivant, concerning this course will by appointment. Direct consultation is preferred; email may also be used.

Please see the course Moodle.

2. Learning Resources

- Moodle
- Lab Access
- Computing Facilities
- Student Resources
- Course Outlines
- Engineering Student Support Services Centre
- Makerspace
- UNSW Timetable
- UNSW Handbook
- UNSW Mechanical and Manufacturi

3. C r d

Credit points

This is a 6 unit-of-credit (UoC) course and involves seven hours per week (h/w) of face-to-face contact.

The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class contact hours, other learning activities, preparation and time spent on all assessable work.

You should aim to spend about 12 h/w on this course. The additional time should be spent in making sure that you understand the lecture material, completing the set assignments, further reading, and revising for any examinations.

Contact hours

	Day	**Time**	**Location**
Lectures	Monday	12noon - 2pm	Clancy Auditorium
	Wednesday	11am - 1pm	Clancy Auditorium
Interactive tutorials	Wednesday	1pm – 2pm	Clancy Auditorium
Standard tutorials	Please check your timetable	Please check your timetable	Please check your timetable

courses dealing with Mechanics, Design, Fluids, Thermodynamics, Solids and Electrical Engineering. Linearisation provides a useful tool for simplification of complex systems while at the same time points out possible problems that could arise from oversimplification. In the latter part of the course, you will learn state space analysis, a powerful and general technique for studying dynamic systems.

The aim of MMAN3200, as an important part of control engineering, is to offer the knowledge of methodologies specifically designed for Laplace domain, which in turn enables easier and more efficient analysis of complex engineering systems. Numerous types of system s5-.6 (m)-6 (e)10.6 (25)

Date	Topic	Location	Lecture Content	Demonstration/ Lab Content	Suggested Readings
Week 5	Time response of first and second order systems. Performance criteria. Analysis in the s-plane.	Clancy Auditorium	Impulse, step, ramp and sinusoidal inputs. Transient process and the steady state. The time constant, percentage overshoot, rise time, settling time. The pole position and its relation to stability and other performance characteristics.		

Date	Topic	Location	Lecture Content	Demonstration/ Lab Content	Suggested Readings
Week 10	State space design – Part B.	Clancy Auditorium	Controllability, pole placement design, substitution method, Ackermann's method. Approximated discrete time models, for non-linear cases. Example (o)10.5 (r) (am)-6 -1.321 (A)-.7 (e t)4 Tc 0.007 0.00288	E a m u b s	

6.

Assignments

Presentation

All submissions are expected to be neat and clearly set out. Your results are the pinnacle of all your hard work and should be treated with due respect. Presenting results clearly gives the marker the best chance of understanding your method; even if the numerical results are incorrect.

Submission

Work submitted late without an approved extension by the course coordinator or delegated authority is subject to a late penalty of 20 percent (20%) of the maximum mark possible for that assessment item, per calendar day.

The late penalty is applied per calendar day (including weekends and public holidays) that the assessment is overdue. There is no pro-rata of the late penalty for submissions made part way through a day.

Work submitted after the 'deadline for absolute fail' is not accepted and a mark of zero will be awarded for that assessment item.

For some assessment items, a late penalty may not be appropriate. These are clearly indicated in the course outline, and such assessments receive a mark of zero if not completed by the specified date. Examples include:

a. Weekly online tests or laboratory work worth a small proportion of the subject mark, or
b. Online quizzes where answers are released to students on completion, or
c. Professional assessment tasks, where the intention is to create an authentic assessment that has an absolute submission date, or
d. Pass/Fail assessment tasks.

Marking

Marking guidelines for assignment submissions will be provided at the same time as assignment details to assist with meeting assessable requirements. Submissions will be marked according to the marking guidelines provided.

Examinations

You must be available for all tests and examinations. Final examinations for each course are held during the University examination periods: February for Summer Term, May for T1, August for T2, and November/December for T3.

Please visit myUNSW for Provisional Examination timetable publish dates.

For further information on exams, please see the Exams webpage.

Calculators

You will need to provide your own calculator of a make and model approved by UNSW for the examinations. The list of approved calculators is available at student.unsw.edu.au/exam-approved-calculators-and-computers

It is your responsibility to ensure that your calculator is of an approved make and model, and to obtain an "Approved" sticker for it from the Engineering Student Supper Services Centre prior to the examination. Calculators not bearing an "Approved" sticker will not be allowed into the examination room.

Special consideration and supplementary assessment

If you have experienced an illness or misadventure beyond your control that will interfere with your assessment performance, you are eligible to apply for Special Consideration prior to submitting an assessment or sitting an exam.
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Other Resources

Although most of the material taught in the course is covered in the textbook, some deviations are inevitable. If you wish to explore any of the lecture topics in more depth, then other resources are available and assistance may be obtained from the UNSW Library.

UNSW Library website: https://www.library.unsw.edu.au/
Moodle: https://moodle.telt.unsw.edu.au/login/index.php

8. C r v a aO a dd v O

Feedback on the course is gathered periodically using various means, including the UNSW myExperience process, informal discussion in the final class for the course, and the School's Student/Staff meetings. Your feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

In this course, recent improvements resulting from student feedback include:

- Interactive tutorials will run every week instead of every other week as in 2018;
- The weight of the test will decrease from 12% and 30% last year to 10% and 25% respectively;
- The scope of the lab report will be broadened to include the later parts of the course; subsequently the weight of the report will be 20% instead of 16% as last year;
- The weight of the final exam will increase from 32% in 2018 to 45% to include more marks for the control part of the course.

9. Acad ch O a d a ar

A d A: E r A Ta a (EA) C O c

Stage 1 Competencies for Professional Engineers

	Program Intended Learning Outcomes
PE1: Knowledge and Skill Base	PE1.1 Comprehensive, theory-based understanding of underpinning fundamentals
	PE1.2 Conceptual understanding of underpinning maths, analysis, statistics, computing
	PE1.3 In-depth understanding of specialist bodies of knowledge
	PE1.4 Discernment of knowledge development and research directions
	PE1.5 Knowledge of engineering design practice
	PE1.6 Understanding of scope, principles, norms, accountabilities of sustainable engineering practice
PE2: Engineering Application Ability	PE2.1 Application of established engineering methods to complex problem solving
	PE2.2 Fluent application of engineering techniques, tools and resources
	PE2.3 Application of systematic engineering synthesis and design processes
	PE2.4 Application of systematic approaches to the conduct and management of engineering projects
PE3: Professional and Personal Attributes	PE3.1 Ethical conduct and professional accountability
	PE3.2 Effective oral and written communication (professional and lay domains)
	PE3.3 Creative, innovative and pro-active demeanour
	PE3.4 Professional use and management of information
	PE3.5 Orderly management of self, and professional conduct
	PE3.6 Effective team membership and team leadership