Course Outline

Term 2 2020

1. [redacted]ct details

Contact details and consultation times for course convenor

Name: Dr Zoran Vulovic
Tel: (02) 9385 6261
Email: z.vulovic@unsw.edu.au
Moodle: https://moodle.telt.unsw.edu.au/login/index.php
Microsoft Teams Video Chat Hours: TBA

*The preferred mode of consultations is **MS Teams** video chat. The times will be announced during Week 1. The **Moodle** discussion forum is an equally acceptable method as you will be able to get the answer outside the consultation times. **Face-to-face** consultations are possible in* Dr Vulovic's office *(*Ainsworth Building, Room 311D), but a prior appointment is recommended. The current restrictions allow only one visitor at the time with strict social distancing. **Email and telephone** 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
Email: j.guivant@unsw.edu.au
Microsoft Teams Video Chat Hours: TBA

Consultation with Dr Guivant concerning this course will be announced later.

Please see the course Moodle.

2. Important links

Moodle
Lab Access
Health and Safety
Computing Facilities
Student Resources
Course Outlines
Engineering Student Support Services Centre
Makerspace
UNSW Timetable
UNSW Handbook
UNSW Mechanical and Manufacturing Engineering

Credit points

This is a 6 unit-of-credit (UoC) course and involves 8 hours per week (h/w) of scheduled online 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 17 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**	**Delivery Mode**
Lectures	Tuesday	9.00-12.00	Microsoft Teams

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 systems from real engineering applications will be used throughout the course to give you the practical aspects of the methods covered.

Student learning outcomes

This course is designed to address the learning outcomes below and the corresponding

concepts learnt in classes. This year the experiment will be filmed and the data collected will be provided to students to complete the analysis and submit the report.

5.

Date	Topic	Lecture Content	Demonstration/ Lab Content	Suggested Readings
Week 1	Classification of engineering systems Linearisation. Laplace transform.	Linearisation of non-linear equations and operating curves. Laplace transform and		

Date	Topic	Lecture Content	Demonstration/ Lab Content	Suggested Readings
Week 7	Mid-semester test. PID controllers.	Definitions and applications of PID controllers	PID controllers	Class readings
Week 8	Frequency based control system design	Bode diagrams; resonant frequency, resonant peak value, gain/phase margin, bandwidth; basic factors, gain, integral/derivative factors, first-order factors	Bode diagrams.	Class readings
Week 9	State space design – Part A.	State-space representation; transfer function, controllable canonical form, solution of state space equation.	State-space analysis, eigenvalues, transition matrix.	Class readings
Week 10	State space design – Part B. Contingency time	Controllability, pole placement design, substitution method, Ackermann's method. Approximated discrete time models, for non-		

Assignments

Presentation

All submissions are expected to be neat and clearly pp4 Tf1 0 a8(cl)5(ou7(lt-4(.l)5(cl)5(Y)5(ou713(ese)3)-4(

10. Administrative matters and links

All students are expected to read and be familiar with UNSW guidelines and polices. In particular, students should be familiar with the following:

Attendance
UNSW Email Address
Special Consideration
Exams
Approved Calculators
Academic Honesty and Plagiarism
Equitable Learning Services

Competencies

Stage 1 Competencies for Professional Engineers