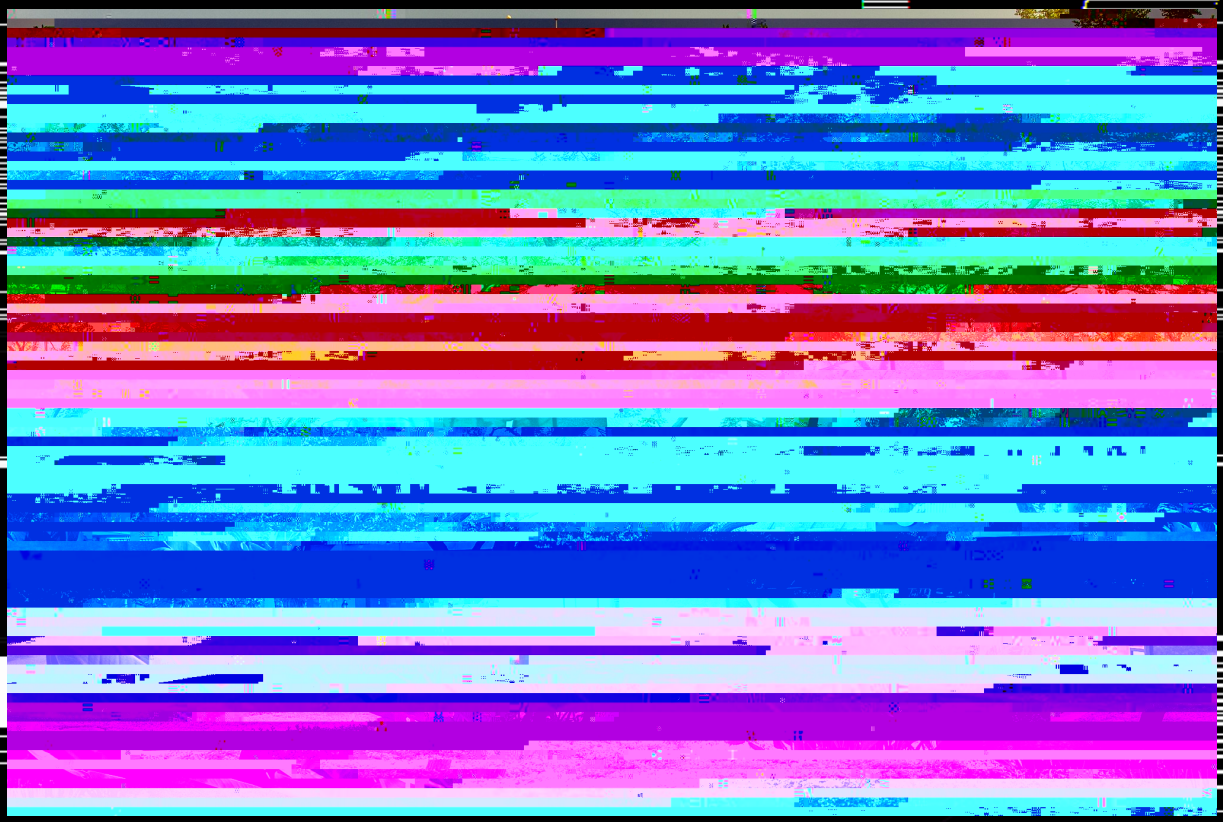
CVEN4308

Structural Dynamics

Term 3, 2022



Course Overview

Staff Contact Details

Convenors

Name	Email	Availability	Location	Phone
Mehrisadat Makki Alamdari	m.makkialamdari@unsw.edu.au	Mon 10am-1pm	Room 714, Civil Engineering Building (H20)	9385 5018

School Contact Information

Engineering Student Support Services – The Nucleus - enrolment, progression checks, clash requests, course issues or program-related queries

Engineering Industrial Training – Industrial training questions

UNSW Study Abroad – study abroad student enquiries (for inbound students)

UNSW Exchange – student exchange enquiries (for inbound students)

UNSW Future Students – potential student enquiries e.g. admissions, fees, programs, credit transfer

Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

Learning Outcome	EA Stage 1 Competencies
7. Demonstrate collaborative skills by working with other students in teams	PE3.5, PE3.6

Teaching Strategies

This subject consists of a mixture of lectures and workshops.

Assessment 2: Quiz 2

Start date: 07/11/2022
Due date: 07/11/2022

Application of taught concepts on SDOF and MDOF systems

Additional details

•Please note that both quizzes will be run during the lecture.

•Both quizzes are open-book.

•Quizzes will be published online in Moodle and detailed solutions have to be uploaded to Moodle!

•Familiarise yourself with scanf

Attendance Requirements

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

Course Schedule

Lecture

Monday 10am ৷ 1pm (In person, K-H20-101)

Workshop

Tuesday, 4pm ৷ 6pm (In person, K-H20-102)

Wednesday, 10am৷ 12pm (Online)

Public holiday: no lecture in week 4 (3rd of October Labour Day)

Flexibility week: no lecture/workshop in week 6

View class timetable

Timetable

Date	Type	Content
O-Week: 5 September - 9 September		
Week 1: 12 September - 16 September	Lecture	Introduction Single-Degree-of-Freedom (SDOF) Systems Free Vibration of SDOF Systems
Week 2: 19 September - 23 September	Lecture	Harmonic Vibration of SDOF Systems
Week 3: 26 September - 30 September	Assessment	Quiz 1
	Lecture	Response to Periodic, Arbitrary, Step & Pulse Excitations of SDOF Systems Numerical Methods for Dynamic Response Evaluation
Week 4: 3 October - 7 October		Public Holiday Labour Day Monday 3 October
Week 5: 10 October - 14 October	Lecture	Multi-Degree-of-Freedom (MDOF) Systems

		Free Vibration Analysis of MDOF Systems
Week 6: 17 October - 21 October		Flexibility week for all courses (non-teaching)
Week 7: 24 October - 28 October	Lecture	Multi-Degree-of-Freedom (MDOF) Systems (continued) Harmonic Vibration of MDOF Systems Inverse Vector Iteration & Rayleigh's Method
Week 8: 31 October - 4 November	Lecture	Earthquake Response of Linear Systems (SDOF) Earthquake Response of Linear Systems (MDOF)
Week 9: 7 November - 11 November	Assessment	Quiz 2
	Lecture	Introduction to Wind Loading
Week 10: 14 November - 18 November	Lecture	Systems with Distributed Mass and Elasticity Structural Dynamics in the Finite Element Method
	Assessment	Assignment

Resources

Prescribed Resources

Textbook (recommended):

Chopra, A. K. Dynamics of Structures, 4th ed.: Prentice-Hall 2015.

Available online from UNSW Library and in print at Main Library Level 7 (624.1762/92) and other locations.

Recommended Resources

1. Clough, R. W. and Penzien, J. Dynamics of Structures, 2nd ed.: McGraw-Hill 1993.

Available at Main Library Level 7 (P 624.171/112 A)

1. Bolton, A. *Qrpsarsp_j Bwl_kgaqgl Np_argac8_ Esgbc dmp Npmdcqqgml_j Cleglccpq*, McGraw-Hill 1994.

Available at Main Library Level 7 (P 624.171/212)

1. Rao, S. S. Mechanical Vibration, SI ed: Prentice-Hall 2011.

Available at Main Library Level 7 (620.3/143 AC)

1. Bachmann H., Amman W.J., *Tg`p_rgmlqgl qrpsarspcq8glbsacb `wk_l_lbk_afglcq** Zurich, Switzerland : IABSE-AIPC-IVBH, 1987

Available at Main Library Level 7 (P 624.176/55)

1. Humar, J. L. *Bwl_kgaq md Qrpsarspcq*, 3rd edition.: CRC Press/Balkema 2012

Available at Main Library Level 7 (624.171/194 A)

Submission of Assessment Tasks

Please refer to the Moodle page of the course for further guidance on assessment submission.

UNSW has a standard late submission penalty of:

- 5% per day, for all assessments where a penalty applies, capped at five days (120 hours), after which a student cannot submit an assessment, and no permitted variation.

Academic Honesty and Plagiarism

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person’s work or ideas as if they were your own. When it is necessary or desirable to use other people’s material you should adequately acknowledge whose words or ideas they

Academic Information

Final Examinations:

Final exams in T3 2022 will be held online between 25th November - 8th December 2022 inclusive, and supplementary exams between 9th - 13th January 2023 inclusive. You are required to be available on these dates. Please do not to make any personal or travel arrangements during this period.

ACADEMIC ADVICE

- Key Staff to Contact for Academic Advice (log in with your zID and password): https://intranet.civeng.unsw.edu.au/key-staff-to-contact-during-your-studies-at-unsw
- Key UNSW Dates - eg. Census Date, exam dates, last day to drop a course without academic/financial liability etc.
- CVEN Student Intranet (log in with your zID and password): https://intranet.civeng.unsw.edu.au/student-intranet
- Student Life at CVEN, including Student Societies: https://www.unsw.edu.au/engineering/civil-and-environmental-engineering/student-life
- Special Consideration: https://student.unsw.edu.au/special-consideration

Appendix: Engineers Australia (EA) Professional Engineer Competency Standard

Program Intended Learning Outcomes	
Knowledge and skill base	