Course Outline

Term 3 2019

MECH4305

1. Staff contact details

Student learning outcomes

This course is designed to address the learning outcomes below and the corresponding Engineers Australia Stage 1 Competency Standards for Professional Engineers as shown. The full list of Stage 1 Competency Standards may be found in Appendix A.

After successfully completing this course, you should be able to:

Learning Outcome		**EA Stage 1 Competencies**
1.	Model, approximate, analyse and design vibratory systems and their responses.	1.1, 1.2, 1.3, 1.5, 2.1, 2.2, 2.3
2.	Discern the relevant principles that must be applied to describe or measure the equilibrium or motion of vibratory systems and discriminate between relevant and irrelevant information in the context.	1.1, 1.2, 1.3
3.	Program vibration analysis code to implement vibration signal analysis and extract fault symptoms in rotating machines.	1.3 2.2, 2.3
4.	Diagnose typical machine faults based on the output of signal processing tools and recommend proper actions.	1.3, 1.6 2.1, 2.2
5.	Produce appropriate reports to communicate about technical matters relating to vibration and machine condition monitoring at a professional engineering level.	3.1, 3.2, 3.4

4. Teaching strategies

This course will be delivered both in the classroom and online. Full participation in the class means that you will participate fully in both arenas. That is, you will be held accountable for all content, instructions, information, etc. that is delivered either in class or online.

Online: The online forum for participation in this class is the Moodle Platform, specifically the MECH4305 course at http://moodle.telt.unsw.edu.au/. All official online interactions will take place or be linked clearly and appropriately from this site.

In class: There are two in-class activities in a typical week which we refer to as the Lecture and Demonstration class based on the timetable in Section 3. Both the online and in-class segments of this course are organised on the following principles:

1. **Learning:** Student learning is the first priority - teaching and assessment are secondary concerns. Learning here is defined as gaining new ways of understanding the field of vibration analysis; not as simply memorising information. We are trying to transform you into engineers and critical thinkers in the discipline.
2. **Authenticity:** We will have as much authenticity of engineering practice as is

5. **Process:** The focus of the course will be on processes, not outcomes. The right outcomes will be a by-product of following the correct processes.

The lectures in this course will cover core concepts and background theory in Vibration Analysis and Machine Condition Monitoring. The lecture material is available to students electronically before each class via Moodle.

The Demonstration classes

Assignments

The assessment tasks will be placed on the course Moodle homepage, as well as all information regarding assessment. It is your responsibility to read all course requirements on Moodle, attend lectures (in person or via webcast) and understand the assessment requirements.

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.

Please note that UNSW now has a Fit to Sit / Submit rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit enough to do so and cannot later apply for Special Consideration.

For details of applying for Special Consideration and conditions for the award of supplementary assessment, please see the information on UNSW's Special Consideration page.

7. Expected resources for students

R1 0 0 1 72.04 0 0 1 72.04 MCID 1 96 Tf1 0 0 1 102.62 317.93 Tm0 g0 G]TJETQ EMC /Span MCID 31/L

8. [illegible]

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
Computing Facilities
Special Consideration
Exams
Approved Calculators
Academic Honesty and Plagiarism
Dis

Competencies

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