Course Outline

Semester 1 2018

MECH9223

MACHINE CONDITION MONITORING

This means that you should aim to spend about 9 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

Lectures will run from week 1 to week 13 (with week 13 dedicated to review)
Demonstrations will run from week 2 to week 13

	Day	**Time**	**Location**
Lectures	Thursday	6pm ~7.30pm	Central Lecture Block 6 (K-E19-103)
Demonstrations	Thursday	~7.30pm 9pm	Ainsworth 203 (K-J17-203)

Summary and Aims

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

Learning Outcome		EA Stage 1 Competencies
1.	Design the architecture of an appropriate condition monitoring system for typical machines, including hardware selection and measurement system setup.	PE1.1, PE1.2, PE1.3, PE1.5, PE2.3
2.	Understand, select and apply mathematical tools for the analysis of signals (e.g. Fourier Analysis)	PE1.1, PE1.2, PE2.2
3.	Program vibration analysis code to implement signal analysis and to extract fault symptoms of typical rotating and reciprocating machines.	PE1.3, PE2.2, PE2.3
4.	Diagnose typical machine faults based on the output of signal processing tools and recommend proper actions.	PE1.3, PE1.6, PE2.1, PE2.2
5.	Produce appropriate reports to communicate analysis results at a professional engineering level, including executive summary.	PE3.1, PE3.2, PE3.4

For learning outcome 3, MATLAB® has been chosen as the software for the implementation of diagnostic signal processing techniques. This software offers the benefits of being both highly flexible and strongly oriented towards mathematical applications. Moreover, it is probably the most used in advanced condition monitoring analysis.

4. Teaching strategies

Material in this course will be presented in Led.f will

Assignments

It is your responsibility to ensure that your calculator is of an approved make and model, and

l not be allowed into the examination room.

Special consideration and supplementary assessment

For details of applying for special consideration and conditions for the award of supplementary assessment, see the School intranet
Special Consideration page

11. Administrative matters

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

Attendance, Participation and Class Etiquette
UNSW Email Address
Computing Facilities
Assessment Matters (including guidelines for assignments, exams and special consideration)