Course Outline

Semester 1 2015

MTRN3200

Elements of Mechatronic Systems

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1. COURSE STAFF

Contact details and consultation times for course convener

Dr Ngai M. Kwok
Room 464F Electrical Engineering Building
Tel (02) 93856091
Fax (02) 96631222
Email nmkwok@unsw.edu.au

Consultation concerning this course is available by appointment. Direct consultation is preferred; email may also be used.

Contact details and consultation times for additional lecturers and demonstration/laboratory teaching staff

Nil.

2. COURSE DETAILS

Units of credit

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

The UNSW website states “The normal workload expectations of a student are approximately 25 hours per semester for each UoC, including class contact hours, other learning activities, preparation and time spent on all assessable work.”

For a standard 24 UoC in the semester, this means 600 hours, spread over an effective 15 weeks of the semester (thirteen weeks plus stuvac plus one effective exam week), or 40 hours per week, for an average student aiming for a credit grade. Various factors, such as your own ability, your target grade, etc., will influence the time needed in your case.

There is no parallel teaching in this course.

Summary of the course

This course focuses on the building blocks in digital logic circuitry, microprocessor architecture and programming techniques that are required for the development and construction of a mechatronic system.

Aims of the course

This course aims to give students a thorough understanding of the essential elements of mechatronic systems. Primarily, these include topics in digital electronics and their uses, microprocessors and their uses and, their integration into a working mechatronic system. The basic need is to recognize that these elements form the backbone of the hardware and is necessary for the automation of mechanical systems leading to advance machineries. The course also aims to give students an opportunity to familiarize with the handling and use of some of these elements in a laboratory set up. Ultimately, the course expects to give students a good ex

3. RATIONALE FOR INCLUSION OF CONTENT AND TEACHING APPRO ACHCONT

Our primary goal is to provide students a learning atmosphere within which knowledge dissemination by the lecturer and knowledge extraction by the student are facilitated. Within this atmosphere the student will be given a sound theoretical

5. ASSESSMENT

General

Correct referencing in accordance with the prescribed citation and style guide.

For numerical calculations:

Accuracy of numerical answers.
All working shown.
Use of diagrams, where appropriate, to support or illustrate the calculations.
Use of graphs, were appropriate, to support or illustrate the calculations.
Use of tables, where appropriate, to support or shorten the calculations.

Examination

There will one two-hour examination at the end of the semester, covering all material in the whole semester.

You will need to provide your own calculator, of a make and model approved by UNSW, for the examination. The list of approved calculators is shown at https://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 School Office or the Engineering Student Centre prior to the examination. Calculators not bearing an "Approved" sticker will 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 *Administrative Matters for All Courses*, available from the School website.

Assessment scheme

The breakdown of the assessment scheme is summarized below.

Laboratory assessment and report	50 marks
End of semester examination	50 marks
Mark required to pass the course	**50 marks**

6. ACADEMIC HONESTY AND PLAGIARISM

Plagiarism is using the words or ideas of others and presenting them as your own. Plagiarism is a type of intellectual theft. It can take many forms, from deliberate cheating to accidentally copying from a source without acknowledgement. UNSW plagiarise. They also hold workshops and can help students one-on-one. Information is available on the dedicated website Plagiarism and Academic Integrity website: http://www.lc.unsw.edu.au/plagiarism/index.html

You are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting and the proper referencing of sources in preparing all assessment tasks.

If plagiarism is found in your work when you are in first year, your lecturer will offer you assistance to improve your academic skills. They may ask you to look at some online resources, attend the Learning Centre, or sometimes resubmit your work with the problem fixed. However more serious instances in first year, such as stealing another student's work or paying someone to do your work, may be investigated under the Student Misconduct Procedures.

Repeated plagiarism (even in first year), plagiarism after first year, or serious instances, may also be investigated under the Student Misconduct Procedures. The penalties under the procedures can include a reduction in marks, failing a course or for the most serious matters (like plagiarism in an honours thesis) even suspension from the university. The Student Misconduct Procedures are available here: http://www.gs.unsw.edu.au/policy/documents/studentmisconductprocedures.pdf

Further information on School policy and procedures in the event of plagiarism is presented in a School handout, *Administrative Matters for All Courses*, available on the School website.

7. COURSE SCHEDULE

All lectures in this course are given on Tue 09:00-10:30 Blockhouse 205 (K-G6-205) and Fri 09:00-10:30 Electrical Eng 418 (K-G17-418). You have to attend the lectures as well as your enrolled laboratory classes at the scheduled date and time.

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Lecture Schedule

Additional materials provided in UNSW Moodle

This course has a website on UNSW Moodle which includes:

lecture materials;
laboratory instructions;
relevant data sheets;
sample examination papers.

A discussion forum is intended for you to use with other enrolled students. The course convenor will occasionally look at the forum, monitor the language used and take note of any frequently-asked questions, but will not respond to questions on the forum. If you want help from the convenor then direct contact is preferred.

Recommended Internet sites

Information on the digital logic and microprocessor devices can be found in the following web sites:

http://www.datasheetcatalog.com
http://category.alldatasheet.com
http://www.datasheetarchive.com

You may like to access the above web sites as entry-points to obtain data sheets, software user instructions and manuals.

Other Resources

10. ADMINISTRATIVE MATTERS

You are expected to have read and be familiar with *Administrative Matters for All Courses*, available on the School website. This document contains important information on student responsibilities and support, including special consideration, assessment, health and safety, and student equity and diversity.

N.M. Kwok
20 February 2015