**ELEC441 – Linear systems and noise**

*Course Outline & Important Information, 2020*

A detailed list of Paper Contents and Learning outcomes for the paper can be found at <http://www.otago.ac.nz/physics/study/undergraduate/index.html?papercode=ELEC441>

**Course Coordinator and Lecturer**

Dr Ashton Bradley

**Website:**

All the teaching information, documents, and administrative information for the course webpage can be found at <https://amoqt.otago.ac.nz/people/asbradley/elec441> I use the website for course support so it is kept up to date. I don’t use blackboard for this course.

**Textbooks:**

We will closely follow a set of unpublished notes written by Sze Tan and Colin Fox. A copy of these will be provided. Some books that cover similar material to the course are:

* *The Fourier transform and its applications*, R. N. Bracewell.
* *The Fourier integral and its applications*, A. Papoulis.
* *Probability, random variables, and stochastic processes*, A. Papoulis. (The older edition is better)
* *Noise*, F. R. Connor.
* *Signals and Systems*, A. V. Oppenheim and A. S. Willsky.

**Timetable:**

The lectures and tutorials will occur in the slots below. Not all slots will be needed as the course is required to have only 15 lectures. For fourth year there are also weeks set aside for research where no lectures will be running. For a detailed schedule please see the website <https://amoqt.otago.ac.nz/people/asbradley/elec441>

Lectures Monday 1.00pm and Thursday at 9.00am

Tutorials Thursday 10.00am

Lectures and tutorials are in room 312 (AV room).

**Organisation and Learning Components of ELEC441**

This will be taught as a traditional lecture course unless there is a clear student preference. The notes by Tan and Fox are very good and we follow them closely so an approach that heavily relies on students pre-reading followed by doing problems in class is and option. We will discuss this in the first lecture slot.

**Assignments:** I will give out seven assignments for this course, one for each week when we are using the lecture slots. A schedule for the assignments as well as pdf’s for the questions can be found on the course webpage <https://amoqt.otago.ac.nz/people/asbradley/elec441>

**Workload:** The workload for this course has been designed to fit within the University guidelines of 120 hours for the course.

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| --- | --- |
| Lectures | 15 hrs |
| Tutorials | 7 hrs |
| Assignments | 21 hrs |
| Private study/pre reading | 45 hrs |
| Exam prep and final exam | 32 hrs |
| **Total:** | **120 hrs** |

If you have any special learning needs or requirements you are encouraged to discuss this with the Course Coordinator.

**Important information about Assessment for ELEC441:**

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| **Course** | **ELEC441 Linear systems and noise** |
| **Period** | Semester 1, 2020 |
| **Assessment** |

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| Final Exam | 70% |
| Assignments | 30% |
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| **Exam**  |

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| Duration | 2 hour |
| Format | Answer 2 out of 3 long answer questions. All questions carry equal weight.Closed book exam.  |
| Special conditions | None |

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| **Minimum Exam score** | None |

**Academic Integrity**

*The University of Otago is committed to the principles of Academic Integrity, and instilling academic integrity as an integral part of a university education.*

Some useful links are: <http://www.otago.ac.nz/administration/policies/otago116838.html>

***Academic integrity means being honest in your studying and assessments. It is the basis for ethical decision-making and behaviour in an academic context. Academic integrity is informed by the values of honesty, trust, responsibility, fairness, respect and courage. Students are expected to be aware of, and act in accordance with, the University’s Academic Integrity Policy.***

***Academic Misconduct, such as plagiarism or cheating, is a breach of Academic Integrity and is taken very seriously by the University. Types of misconduct include plagiarism, copying, unauthorised collaboration, taking unauthorised material into a test or exam, impersonation, and assisting someone else’s misconduct. A more extensive list of the types of academic misconduct and associated processes and penalties is available in the University’s Student Academic Misconduct Procedures.***

***It is your responsibility to be aware of and use acceptable academic practices when completing your assessments. To access the information in the Academic Integrity Policy and learn more, please visit the University’s Academic Integrity website at*** [***www.otago.ac.nz/study/academicintegrity***](http://www.otago.ac.nz/study/academicintegrity) ***or ask at the Student Learning Centre or Library. If you have any questions, ask your lecturer.***

 <http://www.otago.ac.nz/administration/policies/otago116850.html>

 [www.otago.ac.nz/study/academicintegrity](http://www.otago.ac.nz/study/academicintegrity)

**Related Physics Department Policy**

For problem based assignments, students are permitted to work together to seek solutions to the problems, but each student is required to write up their own presentation of the solutions. Copying work from other students is NOT permitted.