



# ELEC310

## Electronics Project

S2 Day 2016

*Dept of Engineering*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor

Michael Heimlich

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Contact via [michael.heimlich@mq.edu.au](mailto:michael.heimlich@mq.edu.au)

E6B 145

W & Th 8:30-9:30am

Credit points

3

Prerequisites

(ELEC324(P) or ELEC342(P) or ELEC343(P) or ELEC374(P) or ELEC375(P) or ELEC376(P)) and permission of Executive Dean of Faculty

Corequisites

Co-badged status

Unit description

This unit works through the stages of completing individual projects involving the construction and testing of an electronic system. The projects include: identification of tasks and resources; design and simulation of a circuit; prototyping and debugging the design; layout and construction of a final circuit board; and planning and documentation of a project. There is some emphasis on communication skills; each student prepares a written proposal and final report, and gives a seminar on the proposal and the completed project. Strict design and verification goals and deadlines must be set out, and the work organised around them.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Demonstrate a working knowledge of the engineering process and the associated documents

Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-

learning

Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation

Design and optimise a circuit to meet functional specification

## General Assessment Information

### Student Responsibilities

Be familiar with University policy and College procedures and act in accordance with those policy and procedures.

It is the responsibility of the student to retain a copy of any work submitted. Students must produce these documents upon request. Copies should be retained until the end of the grade appeal period each term.

Student is to perform the required due diligent for their assessment grade and rectify as soon as possible upon finding any errors.

### Assignment submissions and plagiarism policies

All assignments and reports must be submitted electronically through iLearn (in pdf format). Submissions will undergo plagiarism checkers using the turnitin software and any work deemed to have 30% or higher similarity score may incur academic penalty. For more details on the policies of academic penalties relating to academic honesty, please refer to the policies and procedures section below.

Submissions are expected to be typed set in a logical layout and sequence. Markers WILL NOT grade poorly organized or illegible scans or drafts. The expected workload includes preparation of final copies and clear diagrams.

### **Late submissions**

Late submissions or absences from tutorials and laboratories will not be accepted without prior arrangement made at least one week before the submission date. Extenuating circumstances will be considered upon lodgement of a formal notice of disruption of studies.

## Assessment Tasks

Name	Weighting	Due
<a href="#">Requirements Document</a>	20%	week 3

Name	Weighting	Due
<a href="#">Project Report</a>	50%	final exam period
<a href="#">Self-management</a>	15%	final exam period
<a href="#">Oral Report</a>	15%	TBD - 2nd half of S1

## Requirements Document

Due: **week 3**

Weighting: **20%**

individual written report on background and requirements

On successful completion you will be able to:

- Demonstrate a working knowledge of the engineering process and the associated documents
- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning

## Project Report

Due: **final exam period**

Weighting: **50%**

Final project report and reflection

On successful completion you will be able to:

- Demonstrate a working knowledge of the engineering process and the associated documents
- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning
- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
- Design and optimise a circuit to meet functional specification

## Self-management

Due: **final exam period**

Weighting: **15%**

notes, thoughts, gripes, insights in your notebook. This includes all work underpinning your practicals/tutorials as well as background work for your major reports.

This mark also includes a component for your timely submission of various assessments, as this is a bit of a self-paced unit with regard to lectures and tutes/pracs.

On successful completion you will be able to:

- Demonstrate a working knowledge of the engineering process and the associated documents
- Design and optimise a circuit to meet functional specification

## Oral Report

Due: **TBD - 2nd half of S1**

Weighting: **15%**

Your team's proposal with comment on 1 "competitor". 5 minutes, 5 slides. Give a unit convener your "elevator pitch"

On successful completion you will be able to:

- Demonstrate a working knowledge of the engineering process and the associated documents
- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
- Design and optimise a circuit to meet functional specification

## Delivery and Resources

**Delivery:** This unit includes a component of a self-paced material delivered on-line. The lectures are available via iLearn and you will be responsible for scheduling meetings and activities.

## Unit Schedule

This unit is largely self-paced.

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

**New Assessment Policy in effect from Session 2 2016** [http://mq.edu.au/policy/docs/assessment/policy\\_2016.html](http://mq.edu.au/policy/docs/assessment/policy_2016.html). For more information visit [http://students.mq.edu.au/events/2016/07/19/new\\_assessment\\_policy\\_in\\_place\\_from\\_session\\_2/](http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/)

Assessment Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Complaint Management Procedure for Students and Members of the Public [http://www.mq.edu.au/policy/docs/complaint\\_management/procedure.html](http://www.mq.edu.au/policy/docs/complaint_management/procedure.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)

- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/).

When using the University's IT, you must adhere to the [Acceptable Use of IT Resources Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

### Learning outcomes

- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
- Design and optimise a circuit to meet functional specification

### Assessment tasks

- Project Report
- Self-management
- Oral Report

### Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

## **Learning outcome**

- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning

## **Assessment tasks**

- Requirements Document
- Project Report

## **Commitment to Continuous Learning**

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

## **Learning outcome**

- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning

## **Assessment tasks**

- Requirements Document
- Project Report

## **Discipline Specific Knowledge and Skills**

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

## **Learning outcomes**

- Demonstrate a working knowledge of the engineering process and the associated documents



- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning
- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
- Design and optimise a circuit to meet functional specification

## **Assessment tasks**

- Requirements Document
- Project Report
- Self-management
- Oral Report

## **Critical, Analytical and Integrative Thinking**

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

## **Learning outcomes**

- Demonstrate a working knowledge of the engineering process and the associated documents
- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
- Design and optimise a circuit to meet functional specification

## **Assessment tasks**

- Requirements Document
- Project Report
- Self-management
- Oral Report

## Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

### Learning outcomes

- Demonstrate a working knowledge of the engineering process and the associated documents
- Use basic, standard engineering practices of problem decomposition, system-level modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation
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### Assessment tasks

- Requirements Document
- Project Report
- Self-management
- Oral Report

## Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

### Learning outcomes

- Demonstrate a working knowledge of the engineering process and the associated documents
- Understand the role and produce the standard engineering documentation work products as part of the execution of a multi-disciplinary project of some significance involving self-learning
- Use basic, standard engineering practices of problem decomposition, system-level

modelling, model refinement, manufacturing costing, and background research to properly develop and execute the engineering process and produce the associated documentation

- Design and optimise a circuit to meet functional specification

## **Assessment tasks**

- Requirements Document
- Project Report
- Self-management
- Oral Report