# ELEC8040

## VLSI, Algorithms, and Systems

Session 2, Special circumstances 2021

School of Engineering

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## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Information</td>
<td>2</td>
</tr>
<tr>
<td>Learning Outcomes</td>
<td>2</td>
</tr>
<tr>
<td>General Assessment Information</td>
<td>3</td>
</tr>
<tr>
<td>Assessment Tasks</td>
<td>3</td>
</tr>
<tr>
<td>Delivery and Resources</td>
<td>7</td>
</tr>
<tr>
<td>Policies and Procedures</td>
<td>7</td>
</tr>
<tr>
<td>Changes from Previous Offering</td>
<td>8</td>
</tr>
</tbody>
</table>

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**Disclaimer**

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**Notice**

Some on-campus classes have moved online for the first two weeks of Session, before returning to campus in Week 3. If you are studying a unit outside of the primary Session 2 timetable, please contact your teaching staff team for further details.

Some classes/teaching activities cannot be moved online and must be taught on campus. To find out if you are enrolled in one of these classes/teaching activities, you can check to see if your unit is on the list of units with mandatory on-campus classes/teaching activities.

Your Unit Convenor will provide more information via an iLearn announcement when your iLearn unit becomes available.
### General Information

<table>
<thead>
<tr>
<th>Unit convenor and teaching staff</th>
<th>Unit Convener and Lecturer in Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ediz Cetin</td>
<td><a href="mailto:ediz.cetin@mq.edu.au">ediz.cetin@mq.edu.au</a></td>
</tr>
<tr>
<td>Contact via Email</td>
<td>44 Waterloo Road, Room: 117</td>
</tr>
<tr>
<td></td>
<td>Monday’s 14:00 – 16:00 hrs.</td>
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<table>
<thead>
<tr>
<th>Credit points</th>
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<tbody>
<tr>
<td>10</td>
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<table>
<thead>
<tr>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission to MEngElecEng and 30cp at 3000 level or above</td>
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<table>
<thead>
<tr>
<th>Corequisites</th>
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<table>
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<tr>
<th>Co-badged status</th>
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<table>
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<tr>
<th>Unit description</th>
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</thead>
<tbody>
<tr>
<td>This unit looks at VLSI technology from the perspective of an enabling platform for digital, analog, and complete system solutions. By taking a systems approach driven by the applications and algorithms, the VLSI design is driven toward a more optimised solution by analysis at higher levels.</td>
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</tbody>
</table>

### Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at [https://students.mq.edu.au/important-dates](https://students.mq.edu.au/important-dates)

### Learning Outcomes

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

- **ULO1**: Demonstrate an understanding of foundational impact of implementation technology and develop advanced VLSI engineering skills.

- **ULO2**: Evaluate systems and algorithms in regard to their implementation as VLSI integrated circuits.

- **ULO3**: Incorporate design trade-offs involving area, power and performance as a result of algorithm and architecture selection for practical problems requiring VLSI solutions.

- **ULO4**: Demonstrate competency in the practical use of standard VLSI work products for
communication and documentation of engineering processes.

**ULO5**: Execute a project to implement an application or VLSI algorithm and produce requirements, specifications, and designs for low-power, area and/or high performance.

### General Assessment Information

**Grading and passing requirement for unit**

In order to pass this unit a student must obtain a mark of 50 or more for the unit (i.e. obtain a passing grade P/CR/D/HD).

For further details about grading, please refer below in the policies and procedures section.

**Hurdle Requirements**

There are no hurdle requirements.

**Late submissions and Resubmissions**

Late submissions will attract a penalty of 10% marks per day. Extenuating circumstances will be considered upon lodgment of a formal notice of disruption of studies.

Once an assignment submission has closed no resubmission of assignments will be permitted.

### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>10%</td>
<td>No</td>
<td>Week 4</td>
</tr>
<tr>
<td>Assignment 1 Defence</td>
<td>15%</td>
<td>No</td>
<td>Week 4</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>10%</td>
<td>No</td>
<td>Week 7</td>
</tr>
<tr>
<td>Assignment 2 Defence</td>
<td>15%</td>
<td>No</td>
<td>Week 7</td>
</tr>
<tr>
<td>Project Report</td>
<td>20%</td>
<td>No</td>
<td>Week 13</td>
</tr>
<tr>
<td>Project Defence</td>
<td>30%</td>
<td>No</td>
<td>Exam Period</td>
</tr>
</tbody>
</table>

**Assignment 1**

Assessment Type 1: Report  
Indicative Time on Task 2: 15 hours  
Due: Week 4  
Weighting: 10%

Assignment 1 Report (1000-word equivalent)
On successful completion you will be able to:

- Demonstrate an understanding of foundational impact of implementation technology and develop advanced VLSI engineering skills.
- Evaluate systems and algorithms in regard to their implementation as VLSI integrated circuits.
- Incorporate design trade-offs involving area, power and performance as a result of algorithm and architecture selection for practical problems requiring VLSI solutions.
- Demonstrate competency in the practical use of standard VLSI work products for communication and documentation of engineering processes.

Assignment 1 Defence

Assessment Type ¹: Viva/oral examination
Indicative Time on Task ²: 5 hours
Due: Week 4
Weighting: 15%

Assignment 2

Assessment Type ¹: Report
Indicative Time on Task ²: 15 hours
Due: Week 7
Weighting: 10%
On successful completion you will be able to:

- Demonstrate an understanding of foundational impact of implementation technology and develop advanced VLSI engineering skills.
- Evaluate systems and algorithms in regard to their implementation as VLSI integrated circuits.
- Incorporate design trade-offs involving area, power and performance as a result of algorithm and architecture selection for practical problems requiring VLSI solutions.
- Demonstrate competency in the practical use of standard VLSI work products for communication and documentation of engineering processes.

Assignment 2 Defence

Assessment Type 1: Viva/oral examination
Indicative Time on Task 2: 5 hours
Due: Week 7
Weighting: 15%

Project Report

Assessment Type 1: Report
Indicative Time on Task 2: 35 hours
Due: Week 13
Weighting: 20%
On successful completion you will be able to:

- Demonstrate an understanding of foundational impact of implementation technology and develop advanced VLSI engineering skills.
- Evaluate systems and algorithms in regard to their implementation as VLSI integrated circuits.
- Incorporate design trade-offs involving area, power and performance as a result of algorithm and architecture selection for practical problems requiring VLSI solutions.
- Demonstrate competency in the practical use of standard VLSI work products for communication and documentation of engineering processes.
- Execute a project to implement an application or VLSI algorithm and produce requirements, specifications, and designs for low-power, area and/or high performance.

Project Defence

Assessment Type: Viva/oral examination
Indicative Time on Task: 10 hours
Due: Exam Period
Weighting: 30%

On successful completion you will be able to:

- Demonstrate an understanding of foundational impact of implementation technology and develop advanced VLSI engineering skills.
- Evaluate systems and algorithms in regard to their implementation as VLSI integrated circuits.
- Incorporate design trade-offs involving area, power and performance as a result of algorithm and architecture selection for practical problems requiring VLSI solutions.
- Demonstrate competency in the practical use of standard VLSI work products for communication and documentation of engineering processes.
- Execute a project to implement an application or VLSI algorithm and produce requirements, specifications, and designs for low-power, area and/or high performance.
If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Learning Skills Unit for academic skills support.

Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

**Delivery and Resources**

Textbook: None required to purchase. Lecturer will provide the reading material.


**Policies and Procedures**

Macquarie University policies and procedures are accessible from Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Grade Appeal Policy
- Complaint Management Procedure for Students and Members of the Public
- Special Consideration Policy *(Note: The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.)*

Students seeking more policy resources can visit the Student Policy Gateway (https://students.mq.edu.au/support/study/student-policy-gateway). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

If you would like to see all the policies relevant to Learning and Teaching visit Policy Central (https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/admin/other-resources/student-conduct
Results
Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@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) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

• Getting help with your assignment
• Workshops
• StudyWise
• Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

• Subject and Research Guides
• Ask a Librarian

Student Enquiry Service
For all student enquiries, visit Student Connect at ask.mq.edu.au

If you are a Global MBA student contact globalmba.support@mq.edu.au

Equity 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.

IT Help
For help with University computer systems and technology, visit 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.

Changes from Previous Offering
Minor updates to the content.