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General Information

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<th>Unit convenor and teaching staff</th>
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<td>Credit points</td>
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<tr>
<td>10</td>
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<tr>
<td>Prerequisites</td>
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<td>Admission to MRes</td>
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<td>Corequisites</td>
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<td>Co-badged status</td>
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Unit description
This unit concerns itself with the design and implementation of real-world computer networks. We consider the various layers of modern network systems design, from the physical medium, through software protocol layers to the application protocols. Technical issues inherent to each layer are examined including routing, error detection and correction, flow control, connection management, data representation and network security management. The unit requires some background in data communications or networking, so the Computing MRes advisor should be consulted before selecting this unit.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at https://students.mq.edu.au/important-dates

Learning Outcomes

**ULO1**: Demonstrate working knowledge of the key networking technologies and their interaction.

**ULO2**: Analyse and Design Internet Routing Architectures and demonstrate working knowledge of emerging routing paradigms through peering for large loosely connected networks.

**ULO3**: Design simulation and experiments to demonstrate the working of network technologies and algorithms.

**ULO4**: Collaborate and communicate with others in a professional setting in both written and oral form.

**ULO5**: Conduct professional work ethically with a high level of integrity, autonomy, and accountability.
### Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Hurdle</th>
<th>Due</th>
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</thead>
<tbody>
<tr>
<td>Quiz 1</td>
<td>10%</td>
<td>No</td>
<td>TBC</td>
</tr>
<tr>
<td>Quiz 2</td>
<td>10%</td>
<td>No</td>
<td>TBC</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>20%</td>
<td>No</td>
<td>TBC</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>10%</td>
<td>No</td>
<td>TBC</td>
</tr>
<tr>
<td>Final Examination</td>
<td>50%</td>
<td>Yes</td>
<td>TBC</td>
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</tbody>
</table>

#### Quiz 1

**Assessment Type:** Quiz/Test  
**Indicative Time on Task:** 5 hours  
**Due:** TBC  
**Weighting:** 10%

Quiz 1 is a short test (close book) that will be based on your previously covered lecture material. Quiz 1 serves as a feedback mechanism to monitor your progress in the unit.

On successful completion you will be able to:
- Demonstrate working knowledge of the key networking technologies and their interaction.
- Analyse and Design Internet Routing Architectures and demonstrate working knowledge of emerging routing paradigms through peering for large loosely connected networks.

#### Quiz 2

**Assessment Type:** Quiz/Test  
**Indicative Time on Task:** 5 hours  
**Due:** TBC  
**Weighting:** 10%

Quiz 2 is a short test (close book) that will be based on your previously covered lecture material. Quiz 2 serves as a feedback mechanism to monitor your progress in the unit.

On successful completion you will be able to:
- Demonstrate working knowledge of the key networking technologies and their interaction.
- Analyse and Design Internet Routing Architectures and demonstrate working knowledge
of emerging routing paradigms through peering for large loosely connected networks.

Assignment 2

Assessment Type: Project
Indicative Time on Task: 20 hours
Due: TBC
Weighting: 20%

Assignment 2 - Group Project will apply to all material taught in this course.

Students will leverage their knowledge of mobile networks to research and critically analyse relevant literature in the discipline and present conclusions. The assessment also allows students to further develop their team working and professional communication skills.

On successful completion you will be able to:

- Demonstrate working knowledge of the key networking technologies and their interaction.
- Analyse and Design Internet Routing Architectures and demonstrate working knowledge of emerging routing paradigms through peering for large loosely connected networks.
- Collaborate and communicate with others in a professional setting in both written and oral form.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

Assignment 1

Assessment Type: Problem set
Indicative Time on Task: 15 hours
Due: TBC
Weighting: 10%

The purpose of the problem solving assignment is to help the students to get accustomed to dealing with real world problem situations/issues. It is designed to help students analyse a particular problem and find its best solution. Some questions may require an in depth research and will be a process to come up with an acceptable and reasonable answer.

On successful completion you will be able to:

- Demonstrate working knowledge of the key networking technologies and their interaction.
- Analyse and Design Internet Routing Architectures and demonstrate working knowledge of emerging routing paradigms through peering for large loosely connected networks.
- Conduct professional work ethically with a high level of integrity, autonomy, and
accountability.

Final Examination

Assessment Type 1: Examination
Indicative Time on Task 2: 70 hours
Due: TBC
Weighting: 50%
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

Written closed book hurdle examination

On successful completion you will be able to:

- Demonstrate working knowledge of the key networking technologies and their interaction.
- Analyse and Design Internet Routing Architectures and demonstrate working knowledge of emerging routing paradigms through peering for large loosely connected networks.
- Design simulation and experiments to demonstrate the working of network technologies and algorithms.
- Collaborate and communicate with others in a professional setting in both written and oral form.
- Conduct professional work ethically with a high level of integrity, autonomy, and accountability.

1 If you need guidance or support to understand or complete this type of assessment, please contact the Learning Skills Team

2 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

TBC

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
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/study/getting-started/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 improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

**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.