



# TELE4028

## Software Defined Networking

Session 2, Special circumstance 2020

*School of Engineering*

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#### Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

#### Notice

As part of [Phase 3 of our return to campus plan](#), most units will now run tutorials, seminars and other small group learning activities on campus for the second half-year, while keeping an online version available for those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face and online activities for your unit, please go to [timetable viewer](#). To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

## General Information

Unit convenor and teaching staff

Unit Convener/ Lecturer

Robert Abbas

[robert.abbas@mq.edu.au](mailto:robert.abbas@mq.edu.au)

Contact via 98501558

44 Waterloo RD Room 124

Fridays 1-2PM

Tutor

Roshan Pokharel

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Credit points

10

Prerequisites

Admission to MEngElecEng or MEngNetTeleEng

Corequisites

Co-badged status

Unit description

Software Defined Networking (SDN) will develop Knowledge and Skills on most advanced concepts and technologies to automate network configuration and management on big scale which will improve Network efficiency and reduce the cost of implementation and operation that can be achieved by utilizing SDN concept of network control, virtualization, Network Function Virtualization (NFV) and cloud computing. This unit introduces Network programmability, Virtual Machine, Virtualization, Network Function Virtualization (NFV) and cloud computing the basic concepts and techniques of SDN and SDN architectures, data and control planes, SDN switches, virtualization, controller platforms, open flow Protocol, open stack, self-optimized networks (SON) , SDN 5G mobile applications and Data centers, the unit includes practical Networking work.

## 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:

**ULO1:** Describe SDN enabling technologies such as network programmability and applications

**ULO2:** Model network virtualization and network function virtualization, concept and applications

**ULO3:** Analyse SDN fundamentals, open flow protocol, open stack and SDN potential.

**ULO4:** Describe and model NFV -SDN application in Data Centres- Cloud computing architecture.

**ULO5:** Apply SDN technology for mobile communication networks and SDN Security

## General Assessment Information

Weekly MiNINET Lab Report W1-W5 will be marked for 20%

Group based learning Project Progress, W9: Project progress report 10%

Group based learning Project W13: final Presentation 20%

Unit Final Exam will be marked 50%

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).

## Assessment Tasks

Name	Weighting	Hurdle	Due
<u>Lab Report</u>	20%	No	Weekly-W5
<u>Final Exam</u>	50%	No	W14
<u>Group based learning Project utilization</u>	30%	No	Week 6 Project proposal +W13 Presentation

### Lab Report

Assessment Type <sup>1</sup>: Lab report

Indicative Time on Task <sup>2</sup>: 16 hours

Due: **Weekly-W5**

Weighting: **20%**

Progress Report W7 & W13

On successful completion you will be able to:

- Describe SDN enabling technologies such as network programability and applications
- Model network virtualization and network function virtualization, concept and applications
- Analyse SDN fundamentals, open flow protocol, open stack and SDN potential.
- Describe and model NFV -SDN application in Data Centres- Cloud computing architecture.
- Apply SDN technology for mobile communication networks and SDN Security

## Final Exam

Assessment Type **1**: Examination

Indicative Time on Task **2**: 26 hours

Due: **W14**

Weighting: **50%**

A 2-hour examination held in the final examination period.

On successful completion you will be able to:

- Describe SDN enabling technologies such as network programability and applications
- Model network virtualization and network function virtualization, concept and applications
- Analyse SDN fundamentals, open flow protocol, open stack and SDN potential.
- Describe and model NFV -SDN application in Data Centres- Cloud computing architecture.
- Apply SDN technology for mobile communication networks and SDN Security

## Group based learning Project utilization

Assessment Type **1**: Project

Indicative Time on Task **2**: 22 hours

Due: **Week 6 Project proposal +W13 Presentation**

Weighting: **30%**

Lab software modelling for SDN concepts and applications in Networking

On successful completion you will be able to:

- Analyse SDN fundamentals, open flow protocol, open stack and SDN potential.
- Describe and model NFV -SDN application in Data Centres- Cloud computing architecture.
- Apply SDN technology for mobile communication networks and SDN Security

<sup>1</sup> 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 [Writing Centre](#) for academic skills support.

<sup>2</sup> 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

100% Online software 5G Tool Box

100% Online zoom interactive Real time lectures

## Unit Schedule

Fridays :

Lecture 11-1PM

Lab and project 4-6PM

## 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) (<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) (<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](#) (<http://policycentral.mq.edu.au>)

[s://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto: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](https://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 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](https://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@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.

## Changes from Previous Offering

More SDN Security Focus and more white board case studies

## Changes since First Published

Date	Description
17/07/2020	Time table for Unit schedule has been updated