



Course

# Quantum Devices and Computers

ELEC4605

6 Units of Credit

## Overview

Quantum Engineering is concerned with the design and production of devices that exploit the laws of Quantum Mechanics, unlocking novel functionalities and improved performance. This course will provide an Engineering-oriented and in-depth treatise of the conceptual and practical tools required to model, design and understand natural and engineered quantum systems, such as quantum computers and quantum-enhanced sensors and amplifiers. Particular attention will be given to platforms and algorithms for quantum computation, a technology synonymous with the new quantum revolution.

The course includes a laboratory component that will introduce fundamental quantum effects, ranging from spin resonance to superposition and entanglement. The experiments will demonstrate the tangible applications of these quantum effects, including quantum logic operations, quantum cryptography, quantum state control and magnetic resonance imaging.

A primary outcome of the course is to train and empower students to become active contributors to the emerging field of quantum technologies, which is undergoing an explosive growth, accompanied by an accelerating demand for highly skilled quantum engineers in the workforce.

**Faculty**

Faculty of Engineering

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**School**

School of Electrical Engineering & Telecommunications

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**Study Level**

Undergraduate

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**Offering Terms**

Term 3

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**Campus**

Kensington

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**Delivery Mode**

Fully on-site

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**Indicative contact hours**

6

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**Timetable**

[Visit timetable website for details](#)

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# Conditions for Enrolment

Pre-Requisite: Elec3705

## **Course Outline**

To access course outline, please visit:

[ELEC4605 Course Outline](#)

## Fees

Commonwealth Supported Students \$1191

Domestic Students \$5970

International Students \$5970

### **DISCLAIMER**

Please note that the University reserves the right to vary student fees in line with relevant legislation. This fee information is provided as a guide and more specific information about fees, including fee policy, can be found on the [fee website](#).

For advice about fees for courses with a fee displayed as "Not Applicable", including some Work Experience and UNSW Canberra at ADFA courses, please contact the relevant Faculty.

Where a Commonwealth Supported Students fee is displayed, it does not guarantee such places are available.

## **Pre-2019 Handbook Editions**

Access past handbook editions (2018 and prior)

[Pre-2019 Handbook Editions](#)

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Authorised by Deputy Vice-Chancellor (Academic)

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