

# COURSE DETAIL

## QUANTUM COMPUTING

**Country**

United Kingdom - England

**Host Institution**

University of Manchester

**Program(s)**

University of Manchester

**UCEAP Course Level**

Upper Division

**UCEAP Subject Area(s)**

Computer Science

**UCEAP Course Number**

125

**UCEAP Course Suffix****UCEAP Official Title**

QUANTUM COMPUTING

**UCEAP Transcript Title**

QUANTUM COMPUTING

**UCEAP Quarter Units**

4.00

**UCEAP Semester Units**

2.70

## Course Description

This course explores quantum computing, one of the most intriguing of modern developments at the interface of computing, mathematics, and physics, whose long term impact is far from clear as yet. The perspective that quantum phenomena bring to the questions of information and algorithm is quite unlike the conventional one. In particular, selected problems which classically have only slow algorithms, have in the quantum domain, algorithms which are exponentially faster. Most important among these is the factoring of large numbers, whose difficulty underpins the security of the RSA encryption protocol, used for example in the secure socket layer of the internet. If serious quantum computers could ever be built, RSA would become instantly insecure. This course gives students an introduction to this new field.

## Language(s) of Instruction

English

## Host Institution Course Number

COMP39112

## Host Institution Course Title

QUANTUM COMPUTING

## Host Institution Course Details

<https://studentnet.cs.manchester.ac.uk/ugt/COMP39112/syllabus/>

## Host Institution Campus

University of Manchester

## Host Institution Faculty

## Host Institution Degree

## Host Institution Department

Computer Science

## Course Last Reviewed

2019-2020

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