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 Campus
University of Manchester

Host Institution Faculty

Host Institution Degree

Host Institution Department
Computer Science

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