Department of Computer Science and Engineering
National Institute of Technology Calicut
July 2021

Course: CS4028D Quantum Computation
Lecture Hours : Slots F (3hrs/week)

Credits: 3

Instructor
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Core Competency: To understand the quantum model of computation, and devise algorithms on the model

CO1: Describe and apply the quantum computation model	CO2:. Analyze and apply quantum computation based algorithms	CO3: Describe and analyze quantum information

Evaluation Scheme:

Final Exam : 20%
Interim Assessments: 80%

Quizzes 30%	Midsem Tests 30%,	Assignments 20%

- Grading would be relative, but 30% marks are mandatory for a pass grade
- The institute regulations with respect to attendance would be strictly adhered to
- Copying in exams and other breaches of Academic Integrity (refer http://cse.nitc.ac.in/sites/default/files/Academic-Integrity.pdf) will be very strictly penalized.

Learning Plan

Week	Topic	Week	Topic
1	Introduction,Linear Algebra	8	Quantum Counting
2	Quantum circuits, Quantum Mechanics	9	Introduction to physical realizations
3	Quantum algorithms, Applications	10	Quantum Information
4	Review of Computability	11	Quantum Error Correction
5	Quantum Circuits	12	Entropy
6	Quantum Fourier Transform	13	More on Entropy and Information..
7	Quantum Search		

References:

Michael A Nielsen and Isaac L Chung, Quantum Computation and Quantum Information, Cambridge University Press, 10th Anniversary Edition- Indian Reprint, 2010 ("Mike and Ike")
More shall be announced from time to time