



National Workshop on INTRODUCTION TO QUANTUM COMPUTING 20th – 22nd February 2020

Workshop Objective:

A quantum algorithm that is solely designed for quantum computers works based on the principles of quantum mechanics. Quantum computation is the center of both quantum algorithms and computers. There have been advancements in theories like Shor's algorithm for finding factors of large primes, Grover's search algorithm, etc. With recent developments and research on quantum supremacy, it is conjectured that a full-scale quantum computer will be developed in a not-so-distant future.

The objective of this workshop is to understand and study some theories of quantum computing and algorithms which will be useful for solving various problems related to cryptography, optimization, etc.

The workshop covers the following:

- Motivation of Quantum Computing
- Some Basic Results of Linear Algebra
- Postulates of Quantum Mechanics (Quantum State, State evolution, Measurement, etc.),
- Quantum gates
- Quantum Circuit
- Distinguishability of Orthogonal States
- Quantum Entanglement
- No-Cloning Theorem
- Teleportation
- Superdense Coding
- Quantum Algorithms of Jozsa
- Deutsch-Jozsa
- Bernstein-Vazirani
- Simon
- Shor and
- Grover

ABOUT SETS

Society for Electronic Transactions and Security (SETS) was set-up as a premier Research Institution to work in the area of Information Security under the Office of the Principal Scientific Adviser to the Government of India. It has established an Advanced Facility in Information Security and Cryptology working in the research areas of Information Security as Knowledge Centre with the following objectives:

- Knowledge Creation in Cryptology, Hardware Security and Network Security to meet the specific long-term and short-term needs of the Nation
- Knowledge Application by translating the knowledge created into solutions/products to meet the specific needs of the organizations in collaboration with academia and industry
- Knowledge Dissemination through sharing its expertise by organizing training programs, workshops and national conferences.

TARGET PARTICIPANTS	PRE-REQUISITES
<ul style="list-style-type: none">• Engineers• Scientists• Faculty• Researchers• PG Students• Final Year UG Students	The Participants should have familiarity of linear algebra: Operator and matrix
COURSE FEE	LAST DATE
Rs. 3,000/- (Includes GST) Course fee includes Kit, Working Lunch, Tea and Snacks.	Registration fee along with registration form should be sent to the Coordinator on or before 2 days of the each training programme starting date.
Venue:	
Society for Electronic Transactions and Security (SETS) (Under O/o the Principal Scientific Adviser to the Govt. of India) MGR Knowledge City, CIT Campus, Taramani, Chennai - 600 113	
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