



## Three Days Workshop on Quantum Computing WQC-2022 [Blended Mode]

**August 3 - 5, 2022**

Organised by  
DEPARTMENT OF COMPUTING  
TECHNOLOGIES  
in association with Qkrishi

College of Engineering and Technology  
SRM INSTITUTE OF SCIENCE AND  
TECHNOLOGY  
SRM Nagar, Kattankulathur - 603 203  
Chengalpattu Dist.(TN)

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Dr.S. Dhanalakshmi,FIE, Honorary Secretary,

### CONVENOR

Dr. M. Pushpalatha  
Professor & Head  
Computing Technologies, SRMIST, KTR

### CO-ORDINATOR

Mrs. J. Jayapradha , Assistant Professor, C.Tech

### ORGANIZING COMMITTEE

Dr.M.Uma Devi, Associate Professor, C.Tech  
Dr. Poornima, Assistant Professor, C.Tech  
Dr. C. Jothi Kumar, Assistant Professor, C.Tech  
Dr. M. Gayathri, Assistant Professor,C.Tech  
Mrs. D.Vathana, Assistant Professor, C.Tech

NO REGISTRATION FEES FOR SRM  
PARTICIPANTS

REGISTRATION LINK FOR SRM  
PARTICIPANTS:

<https://forms.gle/HjXiMdtQiS2SkKg4A>

Registration Fees for Others Rs 2100

Registration Link for non-SRM Participants:

<https://qkrishi.com/fdp>

Last date of Registration : July 28th , 2022

Session timing: 10.00 AM to 4.00 PM with  
breakout sessions

### INSTRUCTIONS FOR PARTICIPANTS

- Registration is compulsory for all participants.
- Certificate will be provided.
- Projects will be given and each team will be allotted with one mentor.
- Meeting link shall be sent through mail for external participants.
- SRM Participants needs to attend the event offline.
- Attendance shall be recorded through feedback form submission.

### TARGET AUDIENCE

- Academicians/Industry Persons
- Research scholars/ UG-PG students
- Practicing Engineers

Any Queries Contact

Mrs. J.Jayapradha, Assistant Prof, C.Tech.  
[jayapraj@ktr.srmuniv.ac.in](mailto:jayapraj@ktr.srmuniv.ac.in)

Dr. C. Jothi Kumar, Assistant Prof, C.Tech.  
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For Non-SRM participants  
[contact@qkrishi.com](mailto:contact@qkrishi.com)

## ABOUT SRMIST

Sri Ramasamy Memorial Engineering College (SRMEC) was started in the academic year 1985-86 at Kattankulathur, Kancheepuram District, Tamil Nadu, India. After being accorded the deemed to be university status in the year 2002, SRM Institute of Science and Technology (formerly known as SRM University) has made rapid strides in the field of education and has now become a multi stream university with six Faculties – Engineering & Technology, Science & Humanities, Medicine & Health Sciences, Management, Law and Agricultural Sciences. SRMIST is one of the top ranking institutions in India functioning in four campuses located at Kattankulathur, Vadapalani and Ramapuram in Tamil Nadu besides a fourth campus at Modi Nagar, Ghaziabad, with over 50,000 students and 3000 faculty, offering a wide range of Undergraduate, Postgraduate and Doctoral programs. Recently SRM IST has been accredited with the highest grade of A++ (A double plus) by NAAC. World renowned ranking agency QS has rated SRMIST as a '4 Star' institute with '5 Star' ratings in Teaching, Employability and Inclusiveness. MHRD has placed SRMIST under Category A. In addition to institutional accreditation, Five undergraduate engineering programs of Kattankulathur campus have been accredited by different commissions of ABET(USA) ([www.abet.org](http://www.abet.org)) and four other programs by IET (UK). This institution hosted the 98th Indian Science Congress in 2011 where distinguished delegates including six Nobel Laureates and other celebrated scientists, academicians and philosophers participated and delivered their thoughts. The launching of SRMSAT satellite in collaboration with ISRO was another milestone. SRMIST was ranked.

## DEPARTMENT OF COMPUTING TECHNOLOGIES

The future of Computing rests here. The department's mission is to advance, evolve and enhance Computer Science and Engineering fundamentals to build the intellectual capital of the society. The CSE Department Endeavour's to be an important regional, national, and international resource centre for the development of Computing and its applications. The department is witnessing a period of exciting growth and opportunity propelled by the growth of technology and its recognition through excellence. CSE boasts a vibrant student body of about 5000 undergraduate and 50 postgraduate students and a stellar faculty of professors and lecturers. The department provides extensive computing resources for research and education. Apart from academics, enormous scope is given to the students through estimable in house projects. The department also opens the doorstep of education for Virtual Reality (VR) and Augmented Reality (AR). Reputed Adjunct professors are hired to give hyper-immersive experience to students in the VR and AR field that will cater to an experiential learning environment through a purely digital ecosystem.

## ABOUT THE WORKSHOP

Quantum computing is a rapidly-emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers.

The key objectives of this workshop are

- The real-world implementation of Quantum Computing and how it has changed our lives
- Various algorithms and concepts in the area of Quantum Computing with hands-on.
- Understanding important concepts related to Quantum Computing using polarizers, Operators, Measurement in Quantum Mechanics, Bloch Sphere, Entanglement, Bell states
- To work on real-world project with the Mentors.
- Demonstrate the skill sets those industries around the world are looking for, identify skill gaps, and demonstrate the knowledge that learners should acquire in order to design exciting applications that solve real-world problems.

## TECHNICAL EXPERT

Chetan Waghela,  
Doctoral Researcher in Quantum Optics,  
IIT Ropar,  
Advisory Research Scientist, Qkrishi.

Date	Topics
03/08/2022(FN)	Mathematical Preliminaries Vector spaces, Linear Algebra, Types of Matrices Problem solving
03/08/2022(AN)	Quantum Mechanics Understanding important concepts related to Quantum Computing using polarizers, Operators, measurement in Quantum Mechanics, Bloch Sphere, Entanglement, Bell states
04/08/2022(FN)	Gates and Circuits Single Qubit, Multi Qubit gates, Creating circuits, Creating Bell states on Qiskit Hands-on creating circuit on Qiskit, Plotting the results
04/08/2022(AN)	Oracle and some simple oracular problems Phase-kickback, Deutsch problem, Deutsch-Jozsa Implementation on Qiskit
05/08/2022(FN)	Industry Talk 1 Industry Talk 2 Project statement and group formation
05/08/2022(AN)	Project implementation Project evaluation