

DAY 2

16-06-2026

Session 4: Overview of essential concepts in quantum physics and computing including principles of quantum mechanics

Session 5: Building Blocks (gates & circuits) for quantum programmes and Bell state generators

DAY 3

17-06-2026

Session 6: Architecture of quantum computer

Session 7: Applications of quantum computing, quantum communication (cryptography, QKD, BB89), Teleportation, and quantum sensing

DAY 4

18-06-2026

Session 8: Subroutine techniques and Identities used in Quantum Algorithms

Session 9: Quantum Algorithms (Shor's, Grover's, Deutsch, Deutsch – Jozsa) to solve complex problems.

DAY 5

19-06-2026

Session 10 & 11: Hands – on experience of Bloch sphere, Various quantum gates, and Bell states

Session 12: Quiz on Quantum Technologies

FEEDBACK BY PARTICIPANTS

VALEDICTORY FUNCTION

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Sri. K. V. Chowdary, IRS, Chancellor, Siddhartha University

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Convener:

Dr. K. Narendra

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Co-Convener:

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For Registration:

<https://forms.gle/T1teG5ckKr7DnyUz5>

Five Days National level Faculty Development Program

on



Quantum Technologies: Quantum Computing, Communication & Sensing

15th - 19th June 2026

@ 9.30 am to 5.00 pm

Venue:
Mechanical Engineering
Seminar Hall

Organized by:
Department of Physics



VELAGAPUDI RAMAKRISHNA SIDDHARTHA SCHOOL OF ENGINEERING

SIDDHARTHA
ACADEMY OF HIGHER EDUCATION

An Institution **DEEMED TO BE UNIVERSITY**

(Under Section 3 of UGC Act, 1956)

(Sponsored by Siddhartha Academy of General & Technical Education)
Vijayawada, A.P., India - 520007

www.siddhartha.edu.in

ABOUT THE UNIVERSITY:

In 2024, V. R. Siddhartha Engineering College was declared as an Institution Deemed to be university under Section 3 of the UGC Act, 1956 by Ministry of Education, Government of India. With a legacy of educational excellence, the institution's UGC-granted autonomy, renewed through 2027-28, provides a strong foundation for its transformation. Guided by a detailed 15-year strategic vision and a 5-year rolling implementation plan, Siddhartha Academy of Higher Education focuses on key areas such as academics, faculty recruitment, student admissions, research, ICT infrastructure, and administration, with specific annual milestones and measurable outcomes. SAGTE, as a responsive educational trust, aligns with the Government of India's target of achieving a 50% GER in higher education by 2035. Siddhartha Academy of Higher Education, Deemed to be University, offers diverse undergraduate and postgraduate programs through its specialized schools, including the School of Engineering (B.Tech., M.Tech.), School of Management (MBA), School of Law, School of Science (B.Sc., M.C.A.), and School of Arts & Commerce (B.Com.). Envisioned to support interdisciplinary and multidisciplinary education for students' holistic development, the university aligns with the aspirations and requirements of NEP 2020 to equip students with the skills and knowledge essential for future growth and societal contributions.

ABOUT THE DEPARTMENT:

Department of Physics is a supporting department to all core branches in engineering. The department precisely fosters core-level physics for all the branches in engineering. It has well-established laboratories with experienced and doctorate-level faculty. The faculty are involved in research in the fields of Ultrasonics, Nanotechnology, Glass Science, Condensed Matter Physics, and Materials Science, and they publish articles in highly reputed International Journals.

ABOUT FDP:

This workshop covers Quantum Computer Architecture, Computing, Communication, and Sensing through lectures and Qiskit labs. Participants learn quantum physics basics, qubits, gates, circuits, encryption, and algorithms for exponential problem-solving. They gain hands-on experience building circuits on simulators and real hardware via cloud toolkits, applying principles like superposition and entanglement. Designed for students and professionals, it blends theory with practical skills in Quantum Algorithms.

ABOUT RESOURCE PERSONS:

Prof. G. Bhagavannarayana

Former Chief Scientist, CSIR – National Physics Laboratory, New Delhi. He is an eminent expert in crystal growth and molecular beam epitaxy. He has published more than 300 research articles in internationally reputed journals.

Dr. G. Durga Babu

Asst. Prof, Dept of Physics, RGUKT, Nuzvid, Andhra Pradesh. He has expertise in Integrated Photonics, nonlinear optical materials and Nanomaterials.

Resource Persons



Prof. G. Bhagavannarayana
Former Chief Scientist,
CSIR – National Physics Laboratory,
New Delhi



Dr. G. Durga Babu
Asst. Professor, Dept. of Physics,
RGUKT, Nuzvid,
Andhra Pradesh

Program Schedule

DAY 1

15-06-2026

Session 1:

Inaugural (9:30 AM - 10:45 AM)

Inaugural Talk

Prof. P. Venkateswara Rao
Hon'ble Vice Chancellor

Prof. A.V. Ratna Prasad
Hon'ble Pro-Vice Chancellor

Session 2:

Introduction to quantum computing and its role in AI, ML, DL, and QML

Session 3:

Types of qubit technologies and encoding of classical information on quantum states