MALLAREDDY COLLEGE OF ENGINEERING

(Approved by AICTE, Permanently Affiliated to JNTUH)
Recognized under Section2(f)&12(B)of the UGC Act 1956, AnISO 9001:2015 Certified Institution.
Maisammaguda, Dhulapally, post via Kompally, Secunderabad-500100

DEPT OF CSE-DS & AI&DS

(Hard work beats Talent, When Talent Doesn't work hard)

Report

A

REPORT ON

" ONLINE FDP ON QUANTUM COMPUTING"

PARTICIPANTS

CSE & DS FACULTIES

06-09-2025, @ 2:30PM - 6:00 PM

Prepared By

A Prashanth
Assistant Professor
CSE – DS

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VISION

Leverage Data Science expertise in emerging technologies and innovations that benefits industry and society to foster a positive impact through data- driven insights

MISSION

To Equip Students with Innovative and Cognitive Skills in the field of Data Science, while instilling Ethical values and Fostering collaboration between Industry and Academia.
To create a learning environment focused on data science and programming for problem-solving, leveraging rapid technological advancements to enhance employ ability and opportunities for higher studies.
To Nurture knowledge that addresses Societal issues through Data Science

Program Outcomes (POs)

Engineering Graduates will be able to:
PO1: Engineering Knowledge: Apply knowledge of mathematics, natural science, computing, engineering fundamentals and an engineering specialization as specified in WK1 to WK4 respectively to develop to the solution of complex engineering problems.
PO2: Problem Analysis: Identify, formulate, review research literature and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development.
PO3: Design/Development of Solutions: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required. (WK5)

PO4: Conduct Investigations of Complex Problems: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modelling, analysis & interpretation of data to provide valid conclusions. (WK8).

PO5: Engineering Tool Usage: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems. (WK2 and WK6)
PO6: The Engineer and The World: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment. (WK1, WK5, and WK7).
PO7: Ethics: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws. (WK9)

PO8: Individual and Collaborative Team work: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
PO9: Communication: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences

PO10: Project Management and Finance: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.

PO11: Life-Long Learning: Recognize the need for, and have the preparation and ability for i) independent and life-long learning ii) adaptability to new and emerging technologies and iii) critical thinking in the broadest context of technological change. (WK8)

Program Educational Objectives (PEOs)

PEO1 – Our graduates will attain proficiency in delivering insights through analytics, visualization, design, implementation, and optimization using advanced methodologies and data science tools to effectively tackle challenges.

PEO2 – Our graduates will achieve the Skill to adapt rapidly evolving technologies, integrating new information effectively, and collaborating across multiple disciplines, with a strong focus on innovation and entrepreneurship
PEO3 – Our graduates will demonstrate strong moral values and professional ethics, with the ability to work both independently and collaboratively to address industry and societal needs.

Program Specific Outcomes (PSO's)

PSO1: Apply principles of Computer Science and Engineering to design advanced software tools for building intelligent prediction models that support data-driven decision-making processes.
PSO2: Leverage data science concepts to enhance knowledge in data analytics, statistics, and machine learning, aiming to solve real-world business challenges.

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IN COLLABRATION WITH

Objectives

- Build foundational understanding of quantum mechanics concepts relevant to computing (qubits, superposition, entanglement, measurement).
- Introduce quantum computing models and architectures, including gate-based and annealing approaches.
- Familiarize participants with quantum algorithms such as Grover's, Shor's, and basic variational algorithms.
- Develop hands-on skills using quantum programming frameworks (e.g., Qiskit, Cirq, or similar platforms).

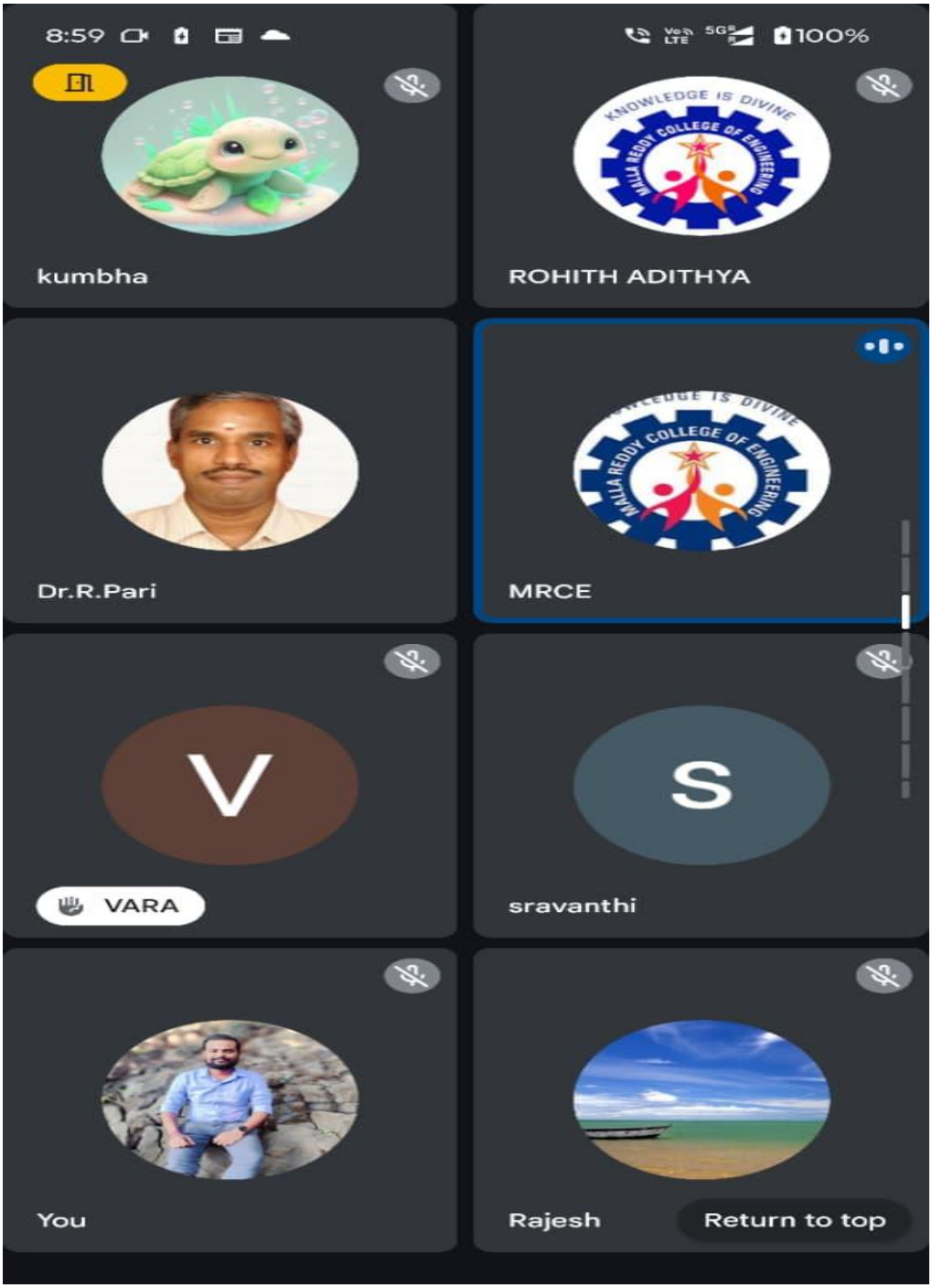
Purpose

The purpose of this Faculty Development Programme is to equip faculty members with a strong foundational understanding of quantum computing principles and emerging technologies, enabling them to comprehend, apply, and teach quantum computing concepts effectively. The program aims to bridge the gap between classical computing and quantum paradigms, promote hands-on exposure to quantum programming tools, and encourage interdisciplinary research and curriculum development in alignment with current and future technological advancements.

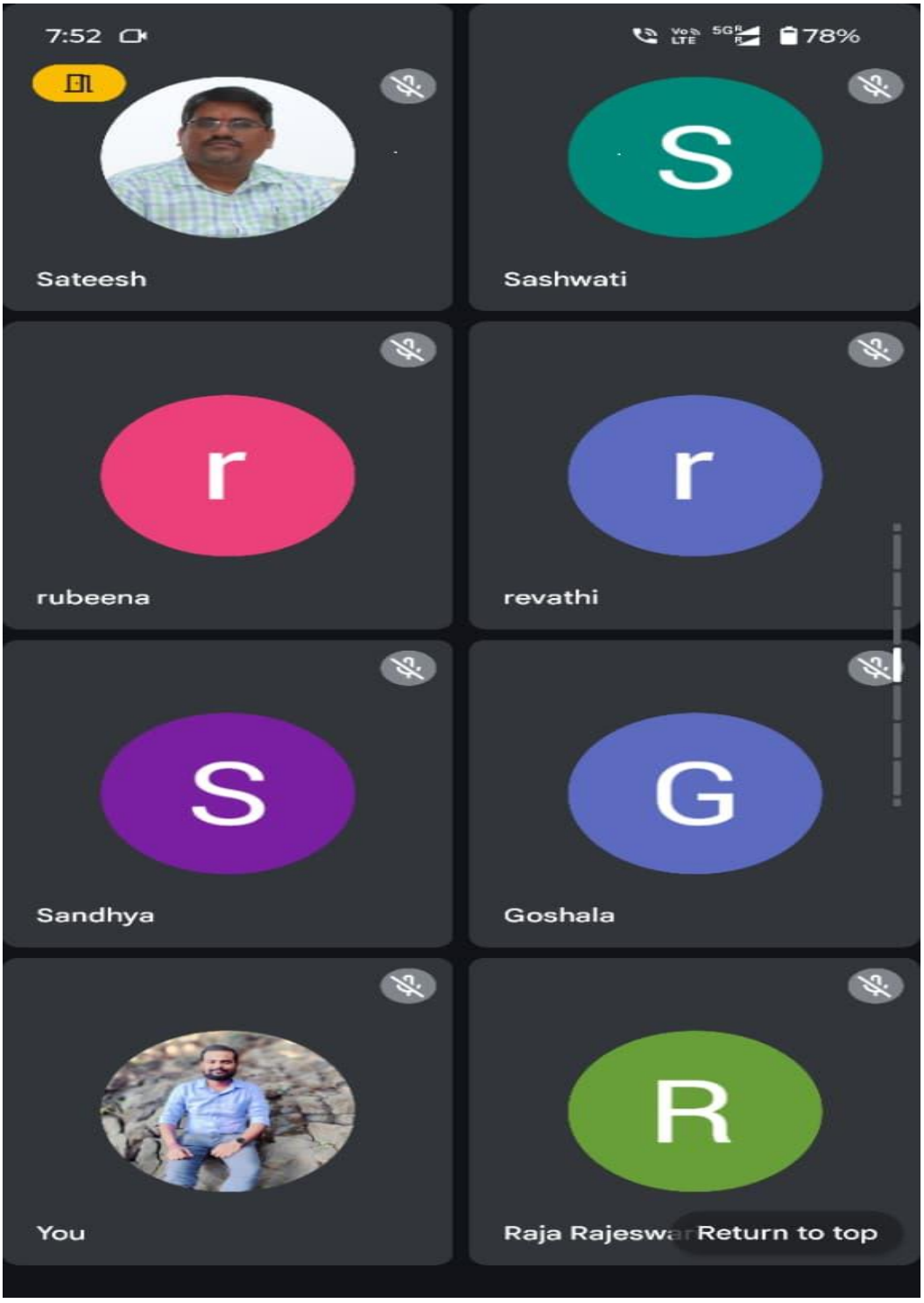
Scope

The scope of this Faculty Development Programme encompasses an introduction to the fundamental principles of quantum mechanics as applied to computation, quantum information theory, and quantum computing architectures. The programme covers quantum algorithms, quantum programming frameworks, and hands-on simulation using available quantum platforms. It also includes discussions on quantum hardware technologies, current research trends, practical applications across disciplines, and the challenges associated with implementing quantum systems. The FDP is designed to support faculty members in integrating quantum computing concepts into academic curricula, research activities, and interdisciplinary initiatives.

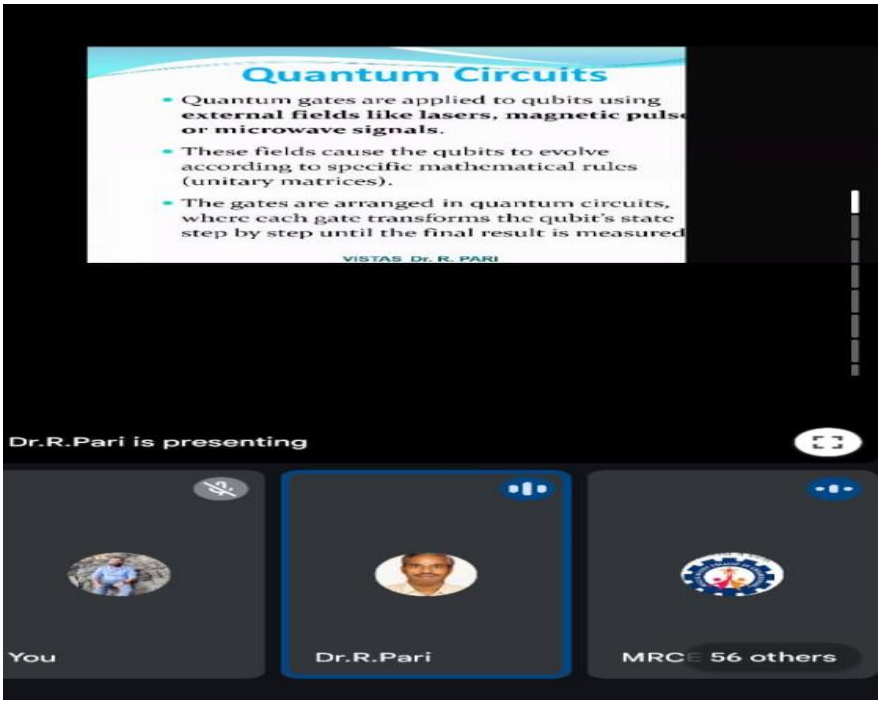
PHOTOS



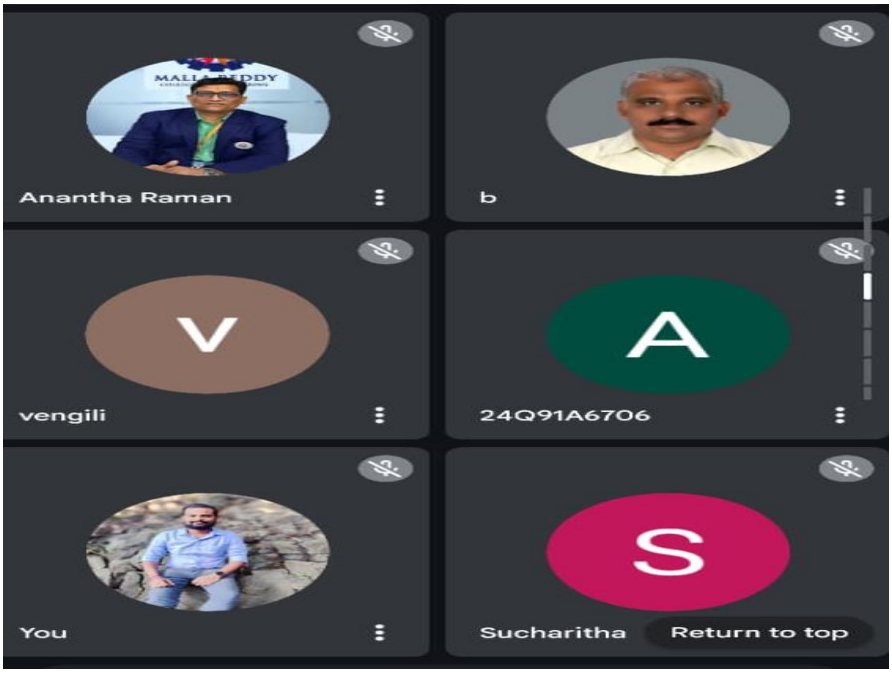
Principal Sir Dr. M. Ashok Addressing the faculty members and resource person



Dr. Sateesh Nagavarapu DEAN-EDC, Dr. J. Gladson Maria Britto Sir HOD-CSD attended the FDP



Resourse person Dr. R. Pari presenting in FDP



Neighbour Department HODS, Faculties and department faculties attended FDP.

OUTCOME :

Upon successful completion of the Faculty Development Programme, the participants will be able to:

1. Understand and explain the fundamental principles of quantum computing and quantum information.
2. Differentiate between classical and quantum computing paradigms.
3. Analyze and implement basic quantum algorithms using quantum programming tools.
4. Gain hands-on experience with quantum computing platforms and simulators.
5. Identify potential applications of quantum computing in various domains.

PO'S AND PSO'S MAPPED:

PO1, PO2, PO3, PO4, PO5, PO8, PO9, PO10, PO11

SDGS MAPPED:

SDG SDG 4, SDG 8, SDG 9, SDG 17