Sri SAIRAM COLLEGE OF ENGINEERING
Anekal, Bengaluru

Accredited by NAAC
ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi
Affiliated to Visvesvaraya Technological University
www.sairamce.edu.in

25 SCE
25 years of academic excellence!

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Date: 11/08/2025

REPORT – A 5-day online FDP on "Fundamentals and Applications of Edge Computing using JETSON ORIN NANO as Edge device"

The Department of Electronics and Communication Engineering, in association with the IEEE Student Chapter and IEEE Chapter Societies EPS, SPS, BTS and ComSoc, Sri Sairam College of Engineering, Bangalore, organized a five-day Faculty Development Program (FDP) on "Fundamentals and Applications of Edge Computing using JETSON ORIN NANO as Edge Device" from 21st to 25th July 2025 for faculty members from Sri Sairam and other institutions. Ms. Shilpa, CEO, and Mr. Abhishek from Aariv Technologies, Bangalore, were invited as Chief Guests for the FDP.

The FDP was inaugurated on 21.07.2025 in the presence of Dr. B. Shadaksharappa, Principal, Sri Sairam College of Engineering, Bangalore; Dr. A. Poonguzhali, Head of the Department, Electronics and Communication Engineering, Sri Sairam College of Engineering, Bangalore; Heads of various Departments; and faculty members through the online platform. The gathering was welcomed by Dr. A. Poonguzhali, Head of the Department of ECE, and felicitated by Dr. B. Shadaksharappa, Principal, followed by the inaugural address delivered by the resource person, Mrs. Shilpa.

This 5-day Faculty Development Program (FDP) on Edge Computing is designed for faculty members in Electronics and Communication Engineering (ECE) and related circuit branches such as Electronics & Telecommunication (ETC), Electrical & Electronics Engineering (EEE), Computer Science and Engineering (CSE), and Instrumentation & Control Engineering (ICE). The program aims to empower faculty members with industry-relevant skills in Edge Computing and AI, enabling them to enhance their teaching methodologies, research capabilities, and project mentoring skills. Demonstrations using Jetson Orin Nano will be included to illustrate real-time AI deployment at the edge.

The FDP will covers in Day 1: Edge computing is a technology approach that processes data closer to its source, reducing latency and enhancing real-time decision-making. It is essential for applications where speed, reliability, and local processing are critical. Compared to cloud computing, which relies on centralized servers, and fog computing, which distributes tasks between cloud and edge, edge computing performs computation directly on or near devices. This makes it ideal for

sectors such as healthcare (instant patient monitoring), surveillance (quick threat detection), and Industry 4.0 (real-time control of automated systems). Common hardware for edge computing includes NVIDIA Jetson for AI-powered applications, Raspberry Pi for cost-effective IoT projects, and Google Coral for efficient machine learning at the edge.

In Day 2 focuses on software tools for Edge AI with a special emphasis on NVIDIA Jetson platforms. Participants will explore the JetPack SDK, which provides the complete software stack for developing and deploying AI applications on Jetson devices. The session covers setting up the Jetson Orin Nano, working with popular AI frameworks like PyTorch, ONNX, and TensorRT for optimized inference, and leveraging Docker for containerized deployments. Additionally, participants will get an overview of NVIDIA Deep Stream for video analytics and learn the fundamentals of deploying AI models effectively at the edge.

In Day 3 focuses on hands-on session focuses on implementing real-time object detection using YOLOv8 on the Jetson Orin Nano. Participants will learn to connect and use a camera with the Jetson, build a live inference pipeline using OpenCV and Ultralytics, and visualize detection results in real time. The session also introduces optional TensorRT acceleration techniques to further optimize model performance for faster and more efficient edge AI deployment.

In Day 4 session explores the differences between edge and cloud computing in terms of latency, privacy, and cost, helping participants understand how to make the right architectural decisions for various applications. It covers scenarios where edge processing is preferable and introduces OpenAI's Whisper model for automatic speech recognition. The session includes a cloud-based demo of Whisper, showcasing its capabilities in transcribing and processing audio efficiently.

Day 5: This hands-on session guides participants through deploying lightweight versions of the Whisper speech recognition model, such as Whisper.cpp or Whisper-tiny, on the Jetson platform. They will set up microphones or audio input devices, run real-time speech-to-text processing directly on the edge, and optionally explore practical use cases like automatic subtitle generation for live audio or video streams.

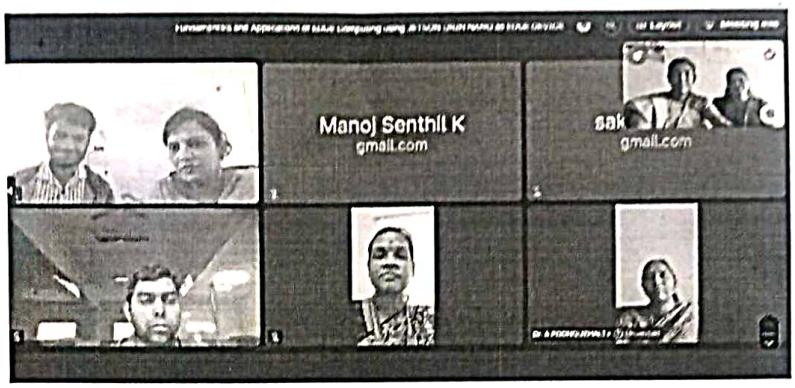
Sri

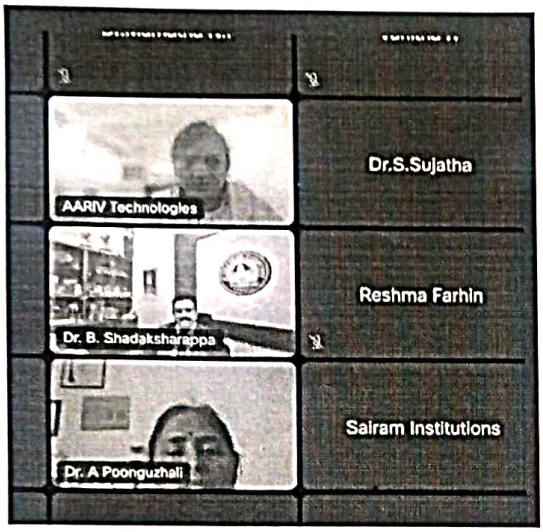
SAIRAM COLLEGE OF ENGINEERING

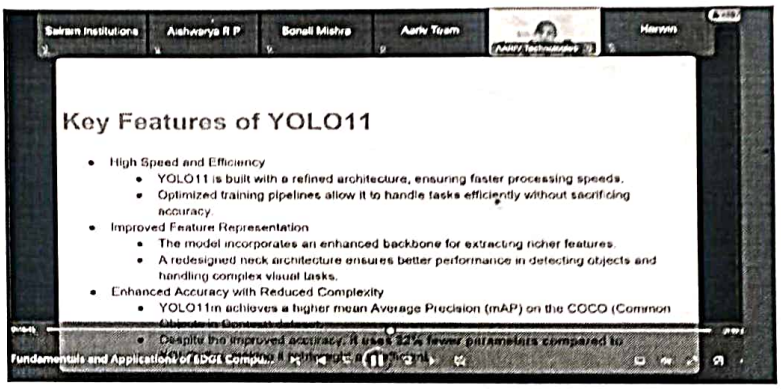
Anekal, Bengaluru

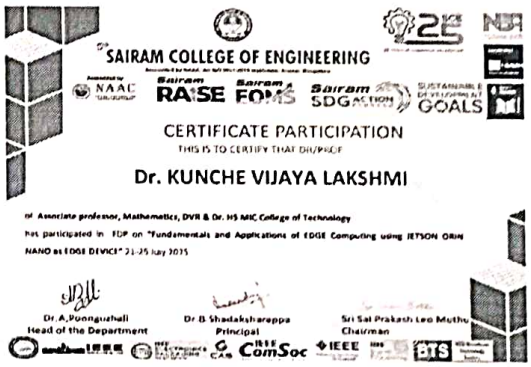
Accredited by NAAC
ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi
Affiliated to Visvesvaraya Technological University
www.sairamce.edu.in

25 SCE
25 years of academic excellence!








SAIRAM COLLEGE OF ENGINEERING

CERTIFICATE PARTICIPATION

THIS IS TO CERTIFY THAT DR/PROF

Dr. KUNCHE VIJAYA LAKSHMI

of Associate professor, Mathematics, DVR & Dr. HS MIC College of Technology

has participated in FDP on "Fundamentals and Applications of EDGE Computing using JETSON ORIN NANO as EDGE DEVICE" 21-25 July 2025

Dr.A.Poonguzhali
Head of the Department

Dr.B.Shadaksharappa
Principal

Sri.Sai Prakash Leo Muthu
Chairman

P.H Principal Coordinator

HOD

03/08/2025