SCHOOL OF ELECTRONICS ENGINEERING

35-Hours Value Added Course on

SOFTWARE DEFINED VEHICLE ARCHITECTURE AND EDGE COMPUTING WITH AI

4th March 2026 to 15th April 2026
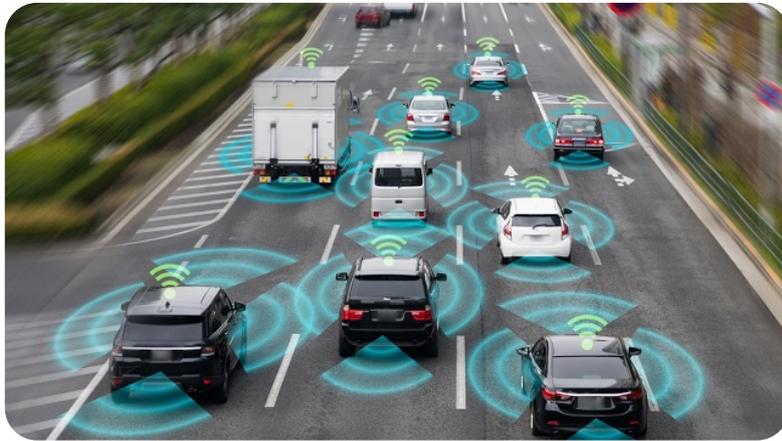
Organized by

Department of Embedded Technology

in Collaboration with

AUMOVIO

TECHNICAL SPONSORS

COURSE OBJECTIVES

1. Familiarize with architecture of connected and autonomous vehicles.
2. Provide hands-on exposure to embedded and edge computing platforms.
3. Enable understanding and implementation of automotive communication protocols.
4. Integrate AI-based edge computing for ADAS and predictive maintenance.
5. Develop awareness of cybersecurity and functional safety in automotive systems.

COURSE OUTCOMES

1. Design and deploy embedded systems for connected vehicle applications.
2. Implement CAN, LIN, and automotive Ethernet communication protocols.
3. Integrate edge computing and AI for real-time perception and decision-making.
4. Ensure data security and compliance with automotive cybersecurity standards.

PROGRAM OVERVIEW

Daily Session	2 Hours (on weekdays after class Hours) 4 hours (Non-Working Saturdays)
Mode	Online / Offline - Saturday / Sunday - 4 hours Online / Offline - MS Teams (on Weekdays)
Total Hours	35 Hours
Industry Partner	AUMOVIO
Resource Persons	AUMOVIO Experts & Faculties from SENSE, VIT Vellore
Certification	Industry-recognized certificate upon completion

SDG GOALS :

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

11 SUSTAINABLE CITIES AND COMMUNITIES

35-HOURS COURSE SCHEDULE

Hour	Module	Topics	Date	Time/Mode
1 & 2	Introduction to Transportation Models	V2V, V2I, V2N, V2P, V2X Networking	04/03/2026	10.00 -11.00 AM Online
3 & 4		Vehicular Connectivity concepts	06/03/2026	07.00 - 09.00 PM Offline/TT704
5 & 6	Smart Vehicles & Embedded Sensors	Hardware in the Loop (HIL) ECU Design Hierarchy	07/03/2026	10.00 -12.00 PM Online
7 & 8		Embedded Sensors & Automotive Gateways Role of IoT, Edge Computing, and AI in Mobility	09/03/2026	07.00 - 09.00 PM Online
9 & 10	AUTOSAR & Embedded Platforms	AUTOSAR Standards in Automotive Systems : Classic vs Adaptive Embedded Platforms for IoV	11/03/2026	07.00 - 09.00 PM Online
11 & 12		Embedded Software Implementation and Validation	13/03/2026	07.00 - 09.00 PM Online
13 & 14		Mini Projects on Intelligent Transportation System- Discussion	25/03/2026	06.00 - 08.00 PM Offline/TT704
15 & 16	Automotive-Grade Embedded Systems	Automotive Microcontrollers & SoCs Sensor Fusion and Real-time Data Acquisition Multi-Threading Integration in Automotive Computing	27/03/2026	07.00 - 09.00 PM Online
17 & 18		Automotive Microcontrollers & SoCs Sensor Fusion and Real-time Data Acquisition Multi-Threading Integration in Automotive Computing	29/03/2026	10.00 -11.00 AM Offline/TT704
19 & 20	Wired Automotive Communication	CAN (Controller Area Network) Protocol LIN (Local Interconnect Network) Protocol FlexRay Protocol	01/04/2026	07.00 - 09.00 PM Online
21 & 22		Automotive Ethernet and Time-Sensitive Networking (TSN)	03/04/2026	07.00 - 09.00 PM Online
23 & 24	Wireless Advanced Protocols	5G NR based V2X Communication Real-Time Protocols: Bluetooth, RTLS, MQTT, CoAP, LoRaWAN	05/04/2026	09.30 - 11.30 AM Online
25 & 26		Software-Defined Networking (SDN) in Vehicular Environment Cluster-Based Vehicular Networks	05/04/2026	11.45 - 01.45 PM Online

35-HOURS COURSE SCHEDULE (Contd.)

27 & 28	Edge Computing & AI Integration	Edge vs Cloud Computing for Automotive Data Processing Deploying ML/DL Models on Edge Devices TensorFlow Lite and Edge Impulse Frameworks ADAS Applications: Lane Detection, Pedestrian Recognition	08/04/2026	07.00 - 09.00 PM Online
29 & 30	Cloud Integration & Fleet Management	Cloud-Edge Integration for Fleet Management Hadoop and Mapreduce Framework Mobility as a Service (MaaS) Cloud for Vehicular Data Management	10/04/2026	07.00 - 09.00 PM Online
31 & 32	Automotive Cybersecurity & Safety	CAN Bus Attacks and ECU Spoofing Prevention Secure Boot and Encryption Mechanisms Over-The-Air (OTA) Updates Intrusion Detection and Prevention Systems	12/04/2026	09.30 -11.30 AM Online
33		Automotive Standards: ISO 26262, ISO/SAE 21434, ETSI, CEN, ITS, IEEE	12/04/2026	11.45 -12.45 PM Offline/TT704
34 & 35	Industry Use Cases & Real Applications	Mini Project Evaluation - Intelligent Transportation Systems (ITS) Sustainable Mobility in Smart Cities Traffic Management and Surveillance ADAS Applications: Lane Detection, Pedestrian Recognition, Driver Fatigue Detection Battery Management System for Electric Vehicles	15/04/2026	05.00 - 07.00 PM Offline/TT704
36		Career Pathways in Automotive IoT Feedback and Closing Ceremony	15/04/2026	07.00 - 08.00 PM Offline/TT704

KEY PROGRAM FEATURES

> Led by professionals from AUMOVIO.

> Real-world automotive projects and simulations

> Comprehensive V2X Coverage - From fundamentals to advanced applications

> AI/ML Integration - Advanced techniques for autonomous vehicle systems

> Cybersecurity Focus - Deep dive into automotive security standards and practices

> Edge Computing Excellence - Practical experience with cutting-edge edge technologies

WHO SHOULD ATTEND?

- B. Tech/M. Tech students & Research scholars in Computer Science, Electrical, Electronics, Communication, Automotive and Embedded Systems
- Embedded Systems, Automotive, IoT, Edge Computing and Vehicular Communication enthusiasts of VIT.

CERTIFICATION OF COMPLETION

Upon successful completion of all modules and assessments, participants will receive a professional Certificate - Recognized by ⋀ AUMOVIO

PARTNERSHIPS

This Value-Added Course is conducted in EXCLUSIVE COLLABORATION with ⋀ AUMOVIO, a global leader in automotive technology and connected vehicle solutions.

⋀ AUMOVIO **Brings:**

- Industry expertise and real-world case studies
- Access to latest automotive technologies
- Potential for industry internships and placements
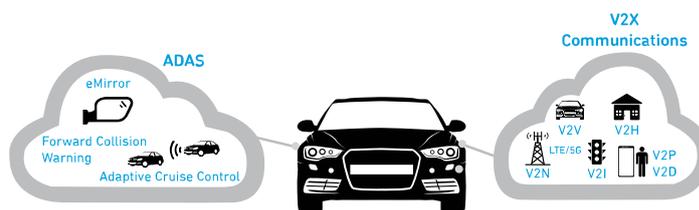
PATRONS

Dr. Jasmin Pemeena Priyadarshini

Professor & Dean

School of Electronics Engineering

Vellore Institute of Technology, Vellore

Dr. R. Sakthivel

Professor & Associate Dean

School of Electronics Engineering

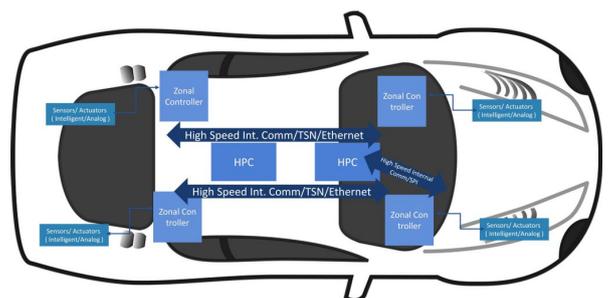**Vellore Institute of Technology, Vellore**

Dr. S. Sundar

Associate Professor & HoD

Department of Embedded Technology

Vellore Institute of Technology, Vellore

TECHNICAL SPONSORS

REGISTRATION

For Registration

FOR MORE INFORMATION, CONTACT

For Enrollment and Inquiries, Contact Course Coordinators

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Limited Seats Only : 40 Seats

Embark on your journey into the future of automotive technology with cutting-edge embedded systems and intelligent edge computing!

Register Today - Transform Your Career in Edge Computing!