



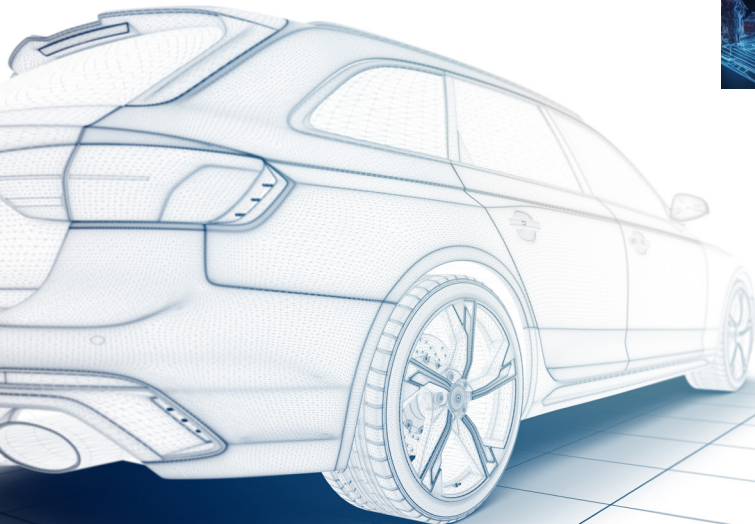
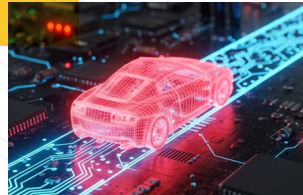
# BITS Pilani

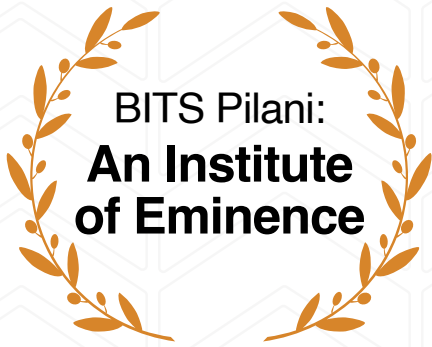
Pilani | Dubai | Goa | Hyderabad | Mumbai

**WORK INTEGRATED  
LEARNING PROGRAMMES**

**46**  
*Years*  
of Delivering  
Excellence

# AUTOMOTIVE COMPETENCY CENTRE CHENNAI





# BITS Pilani:

Since 1964, BITS Pilani has been a pioneer in higher education, recognised as an Institute of Eminence by the UGC and Ministry of Education. Known for academic excellence, it has grown into a globally respected institution and was the first Indian university to establish an international campus in Dubai.

## Welcome to BITS Pilani's Work Integrated Learning Programmes (WILP)

At BITS Pilani WILP, we blend education with professional growth through tailored programmes aligned with both business and learner goals. Professionals gain new skills, adopt best practices, and make a meaningful impact, while organisations benefit from increased productivity, retention, and a motivated workforce. Our UGC-approved programmes offer real-world, practical knowledge, ensuring lasting success.



**46**

Years of legacy

**1,36,904**

Working Professionals  
Graduated

**353**

CEOs and  
Founders

**4,997**

Global Heads,  
Presidents & Directors

**367**

Organisations Trust Us  
As Learning Partner

**50,117**

Working Professionals  
Currently Enrolled

# Objectives of ACC Chennai

ACC Chennai is an outcome of BITS Pilani's vision to build an integrated ecosystem that combines experiential learning, industry engagement, faculty development, applied research, and innovation. The centre enables students and faculty to work on real world automotive and mobility challenges through structured campus programmes and industry collaboration.

## Campus Immersions

Structured learning programmes offering hands on exposure through physical equipment, real test setups, and advanced simulation tools. Designed to strengthen system level understanding beyond theory.

## Research and Innovation

Focuses on applied research, rapid prototyping, and technology development through strong industry academia collaboration in advanced automotive and mobility domains.

## Practice School (PS-II) Opportunities

Industry linked projects and internships that provide real world engineering exposure and enhance professional readiness.

## Organisational Problem Solving

Collaborative engagements with industry partners to address real engineering and system level challenges, delivering practical and implementable solutions.

## Faculty Development Programmes (FDPs)

Capacity building programmes in emerging automotive and mobility areas, including advanced technical training, certifications, and lab and curriculum development support.

## M.Tech Dissertation and Research Support

Access to experimental and simulation infrastructure to support applied, industry relevant postgraduate research.

## Short-Duration Certification Programmes

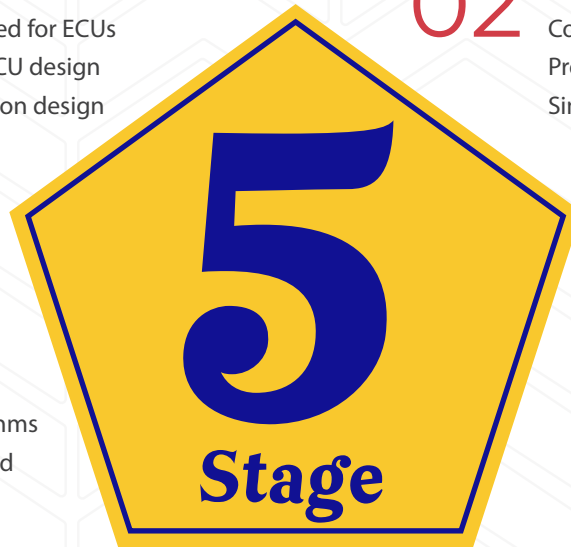
Industry aligned certification programmes for students, faculty, and working professionals, focused on current and emerging skill requirements.

# Software Defined Vehicle Hub

**01 Individual ECU**  
Embedded for ECUs  
Virtual ECU design  
Application design

**02 Networked ECU's**  
Communication Matrix Design  
Protocol Identification  
Simulation of ECU Network

**05 Real-Drivable SDV vehicle**  
Validate the control algorithms  
Diagnostics, debugging, and software updates.  
OTA (Over the air updates)



**03 Subsystems on a Drivable Test Vehicle / Cockpit**  
Wiring / Harness Design  
Power Management  
Domain Architecture  
Hardware in Loop & System  
Integration Testing

**04 Subsystem Development**  
Sensor / Actuator Integration, Model based Application Development  
Autosar based Application, Development, Simulation and Testing

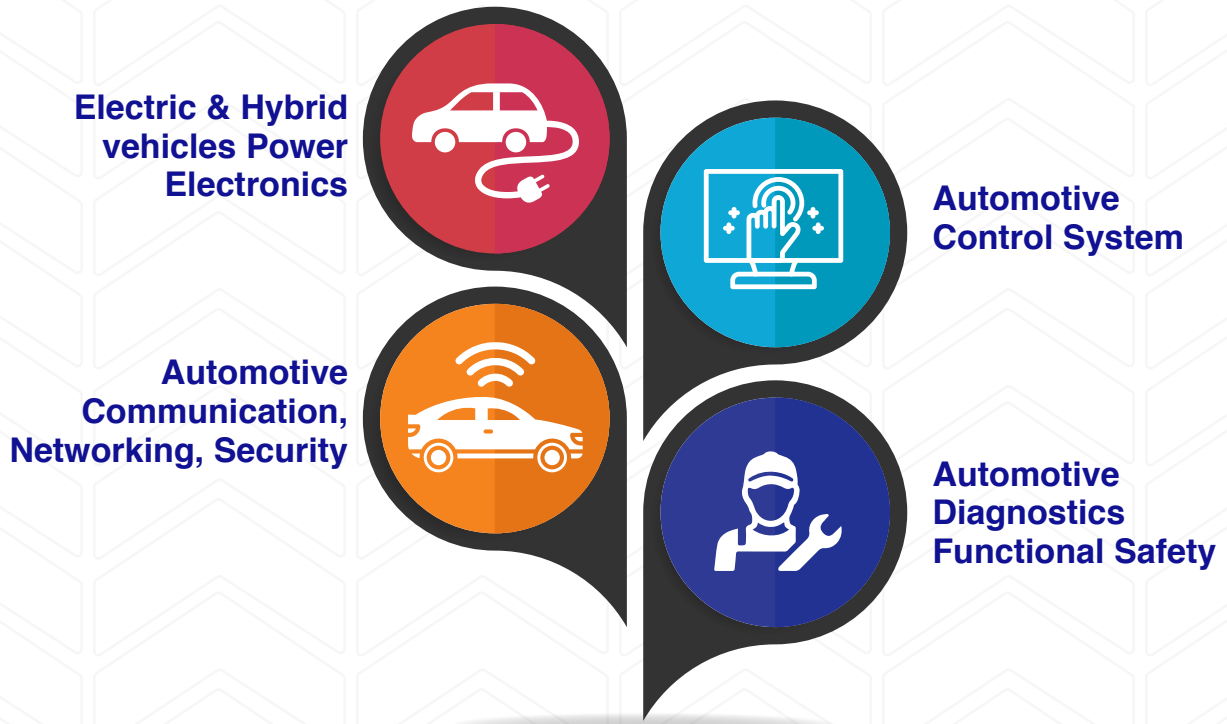


The Pentagonal SDV Oriented Collaborative ECU Development Environment is designed to mirror real world Software Defined Vehicle development workflows. The lab enables collaborative, system level work across software architecture, middleware, application development, integration, and validation.

The Automotive Grade ECU Development and Testing Hub follow a five stage capability roadmap, progressing from individual automotive grade ECUs to networked ECUs, programmable SDV subsystems, a lab scale digital cockpit, and a fully integrated functional vehicle.

The facility supports development and testing of software defined automotive subsystems such as adaptive lighting, instrument clusters, wiper and power window controllers, and ORVM systems. Participants also gain exposure to x by wire functions, safety critical software, real time execution, diagnostics, and system integration.

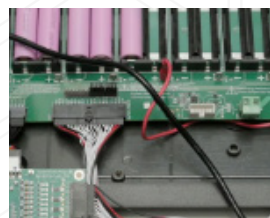
# e-Mobility Hub



**The E-Mobility Hub** offers a comprehensive hardware and software ecosystem for hands-on development of electrified, and software defined mobility systems. It integrates power electronics, energy systems, motor control platforms, battery systems, inverters, motor kits, and rapid prototyping setups for end-to-end development from power conversion to traction control.

Strong emphasis is placed on functional safety, diagnostics, automotive security, and reliability. The facility supports ECU diagnostics and OBD detection using industry tools, along with functional safety experimentation and chip level reliability analysis.

Advanced communication and validation workflows are enabled using CAN, LIN, Extended CAN, and FlexRay networks. Industry standard simulation and testing tools, along with HIL systems, support real time testing, early fault detection, and closed loop verification of control algorithms and ECU software.



# Short-Term Certificate Offerings

**BITS Pilani focuses on translating engineering knowledge into real world capability through hands on learning, industry aligned skill development and applied research.**

**These short duration certification programmes are typically conducted over 2 to 4 days, mainly on weekends, to suit students and working professionals.**



## Automotive Model-Based Embedded Systems

Hands on exposure to embedded systems using real hardware, test setups, and simulation tools.



## ECU Simulation and Testing

Covers SIL, MIL, and HIL concepts, test case development, and fault injection for ECU validation.



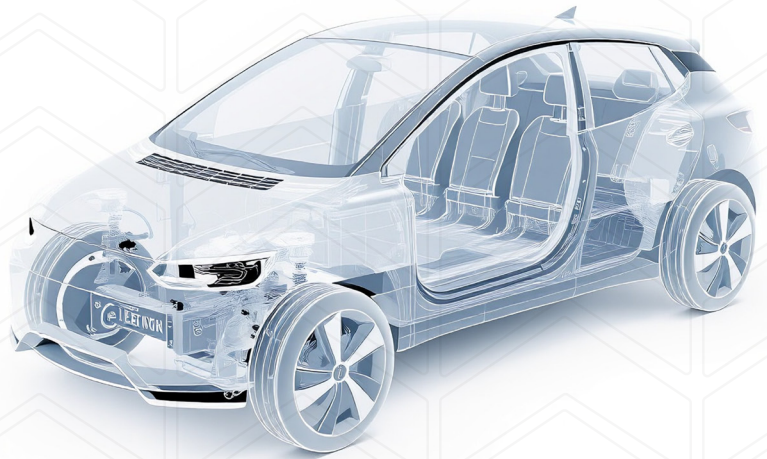
## Intra-Vehicle CAN Communication

Covers CAN fundamentals, message framing, signal design, network configuration, and traffic analysis.



## Diagnostics through UDS Protocols

Introduces UDS based automotive diagnostics including session control, fault handling, and ECU workflows.



## **AUTOSAR-Based ECU Development**

Overview of AUTOSAR architecture with hands on exposure to software component design and integration.



## **Reliability and Functional Safety**

Covers reliability principles, safety goals, fault tolerance, and ISO 26262 aligned practices.



## **Motors and Motor Control Algorithms**

Introduces motor fundamentals, control techniques, modeling, PWM, and simulation-based demonstrations.



## **Machine Learning for Automotive Applications**

Focuses on ML use cases such as fault detection, predictive maintenance, and control enhancement.



**Contact us**

**Automotive Competency Centre (ACC Chennai)**  
North Phase Industrial Estate, 42, 5th Cross St,  
Kalaimagal Nagar, Ekkatuthangal, Chennai,  
Tamil Nadu 600032.

**Prof. S. Raghuraman**

Centre Head, ACC Chennai  
[acc.chennai labsupport@wilp.bits-pilani.ac.in](mailto:acc.chennai labsupport@wilp.bits-pilani.ac.in)

**G Vykunta Rao**

Labs in-charge  
[acc.chennai labs@wilp.bits-pilani.ac.in](mailto:acc.chennai labs@wilp.bits-pilani.ac.in)

