HIGHER NITEC IN AUTOMOTIVE ENGINEERING (3 YEARS)

CERTIFICATION

Credits required for certification:

Sector Foundation Modules	:	24
Specialisation Modules	:	33
Internship Programmes	:	12
Life Skills Modules	:	10
Cross-Disciplinary Core Modules	:	9
Electives	:	8
Total	:	96

COURSE STRUCTURE

Module Title	Credits
SECTOR FOUNDATION MODULES	
Workplace Safety, Health & Environment	3
Data & Digital Essentials	3
Electrical Fundamentals	3
IoT for Engineering	3
Sustainable Engineering	3
Engineering Drawing	3
Mechanical Fundamentals	3
Coding Essentials	3
SPECIALISATION MODULES	
Engine Technology	3
Chassis & Drivetrain Technology	3
Chassis & Drivetrain Systems	3
Automotive Electrical & Electronic Technology	3
Automotive Electrical & Electronic Systems	3
Engine & Powertrain Management	3
High Voltage Vehicle System & Safety	3
Vehicle Telemetry Systems	3
Automotive Body & Chassis Diagnosis	3
Control & Driver Assistance Systems	3
Automotive Powertrain Diagnosis	3
INTERNSHIP PROGRAMMES	
Internship Programme 1	4
Internship Programme 2	8
ELECTIVES (GENERAL) AND LIFE SKILLS MODULES	

Module Title	Credits
For details, click here	

Note: The offer of electives is subject to the training schedule of respective ITE Colleges. Students are advised to check with their Class Advisors on the availability of the elective modules they intend to pursue.

MODULE OBJECTIVES

Sector Foundation Modules

Workplace Safety, Health & Environment
On completion of the module, students should be able to apply Workplace Safety and Health (WSH) policies, Environmental Management System procedures and practices in the planning, preparation and execution of work activities to ensure a safe and reliable workplace environment.

Data & Digital Essentials
On completion of the module, students should be able to prepare data for analysis, use online tools for collaborative work and maintain information security when online.

Electrical Fundamentals
On completion of the module, students should be able to interpret circuit schematic and board layout, perform DC circuit connection and in-circuit measurement.

IoT for Engineering
On completion of the module, students should be able to set up an IoT, configure the controller to transmit sensor's collected data wirelessly to an IoT platform.

Sustainable Engineering
On completion of the module, students should be able to determine key contributors to environmental changes and the challenges involved in implementing sustainable initiatives, and propose effective strategies to promote sustainability and address environmental challenges across various industries.

Engineering Drawing
On completion of the module, students should be able to interpret and create engineering drawings in accordance with ISO standards.

Mechanical Fundamentals
On completion of the module, students should be able to measure and fabricate mechanical components for assembly.

Coding Essentials
On completion of the module, students should be able to perform basic coding to solve general problems as well as develop programmable board-based engineering applications.

Specialisation Modules

Engine Technology
On completion of the module, students should be able to service fuel, lubrication, cooling and air intake system components in petrol and diesel engines.

Chassis & Drivetrain Technology
On completion of the module, students should be able to service and replace automotive drivetrain and chassis components, including the manual transmission clutch and brakes, on a vehicle.

Chassis & Drivetrain Systems
On completion of the module, students should be able to repair and rectify faults within automotive chassis and drivetrain systems

Automotive Electrical & Electronic Technology
On completion of the module, students should be able to interpret, measure, and identify faults in vehicle auxiliary systems, including the starter, charging, and lighting systems.

Automotive Electrical & Electronic Systems
On completion of the module, students Should be able to perform functional checks on engine electrical and auxiliary electrical systems by conducting diagnosis, troubleshooting and rectifying faults using manufacturer service manuals and accurately interpret electrical wiring diagrams.

Engine & Powertrain Management
On completion of the module, students should be able to use systematic fault-finding techniques to identify faults in engine systems, as well as service engine mechanical components and the emission control system.

High Voltage Vehicle System & Safety
On completion of the module, students should be equipped with the knowledge and skills necessary to understand, work with, and ensure the safety of high voltage electrical systems in automotive engineering.

Vehicle Telemetry Systems
On completion of the module, students should be able to diagnose communication faults within the vehicle communication system using diagnostics tool and perform remote vehicle monitoring.

Automotive Body & Chassis Diagnosis
On completion of the module, students should be able to interpret diagnostic results and rectify faults on vehicle steering include SRS Airbag braking and transmission systems on petrol- or diesel-powered vehicle as well as service alternative powered vehicle's powertrain.

Control & Driver Assistance Systems
On completion of this module, students should be able to perform fundamental assessment on the status and performance of the vehicle stabilisation control systems and advanced driver assistance systems. They will be equipped with the skills and knowledge to perform diagnosis and calibration of the systems using appropriate diagnostic tools and equipment.

Automotive Powertrain Diagnosis
On completion of the module, students should be able to use systematic fault-finding techniques to diagnose and identify issues in the engine drivetrain and electrical systems. They will be equipped with skills in using On-Board Diagnostic equipment to rectify faults in the vehicle's powertrain systems.

Electives (General) and Life Skills Modules
For details, click here.