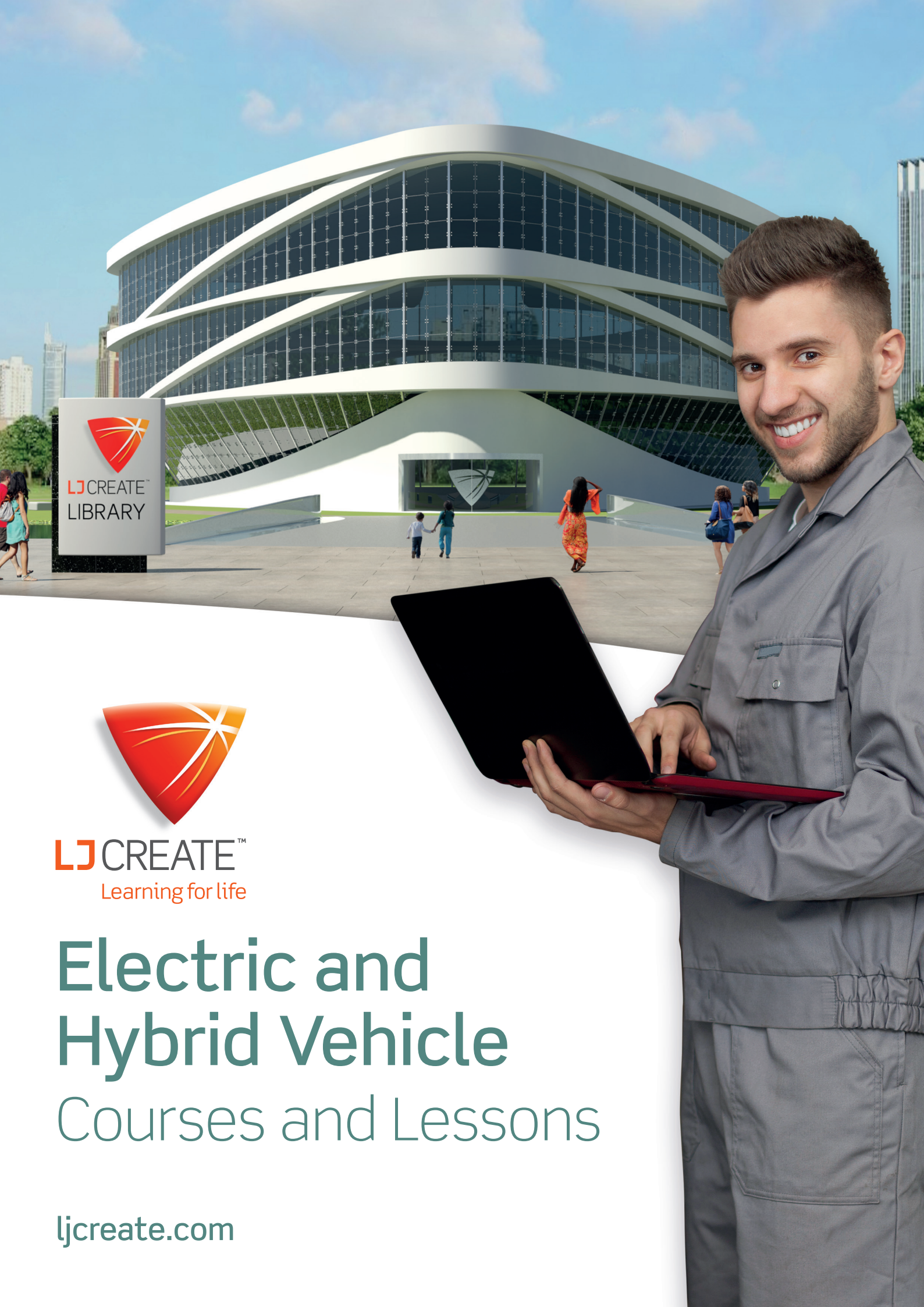




LJ CREATE™
Learning for life

Electric and Hybrid Vehicle Courses and Lessons

ljcreate.com

Electric and Hybrid Vehicle



AVAILABLE COURSES

700-10: Automotive Electronic Circuits	3	ALB2: Electric Vehicle Electrical Fundamentals A (730-10)	27
701-02: Auto CAN Lighting Board	4	-----	
721-01: Auto CAN Auxiliary Board	4	ALB2: EV01 Introduction to Electric Vehicle Technology	28
730-10: 1 EV Electronics Trainer Course 1	5	ALB2: EV02 Introduction to Hybrid Vehicles	28
730-10: 2 EV Electronics Trainer Course 2	6	ALB2: EV03 High Voltage Vehicle Safety	29
740-01: Electric Vehicle Systems Trainer	7	ALB2: EV04 Electric Vehicle Battery Systems	29-30
741-01: EV Batteries and Charging Trainer	8	ALB2: EV05 Electric Vehicle Motor/Generator Systems	31
742-01: EV Motors and Generators Trainer	9	ALB2: EV06 EV Electrical Fundamentals A	32
743-01: EV Charging Stations Trainer	10	ALB2: EV06 EV Electrical Fundamentals B	33
753-01: Automotive Electrics Panel Trainer	11	-----	
754-01: Air Conditioning Systems Trainer	12	LIB3: 42 Automotive Electrical Fundamentals	34
756-01: Hybrid Vehicle Systems	13	LIB3: 49 Electric and Hybrid Vehicle Technology	35
-----		LIB3: 50 Networked Systems	36
ALB2: Autocare Technician (IMI Level 2) 2019 - Air Conditioning	14-15	LIB3: 51 CAN Bus Lighting Systems	36
ALB2: Autocare Technician (IMI Level 2) 2019 - Customer Service and Sales	16	LIB3: 52 CAN Bus Auxiliary Systems	37
ALB2: Autocare Technician (IMI Level 2) 2019 - Stock Management	17	LIB3: 54 Automotive Heating and Air Conditioning	38
ALB2: Autocare Technician (IMI Level 2) 2019 - Vehicle Safety Inspection	18	LIB3: 55 Auto Shop	39
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 01 Foundation Skills	19	LIB3: 56 Passenger Safety Systems	40
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 02 Electric and Hybrid Vehicle Awareness	20-21	LIB3: 61 Engineering Mathematics	41
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 03 Wheels and Tyres	21	LIB3: 62 English Language Skills	42
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 04 Basic Braking Systems	22	LIB3: 65 Workplace Problem Solving	43
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 05 Basic Steering and Suspension	23	-----	
ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 06 Cooling, Lubrication and Filters	23	LJ APP5: Automotive Applications	43
ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 08 Customer Service and Sales	24		
ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 09 Stock Management	24		
ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 13 Air Conditioning	25		
ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 14 Vehicle Safety Inspection	26		

700-10: Automotive Electronic Circuits

Simple Electrical Circuits

- Simple Circuits
- Simple Battery and Lamp Circuit (board)
- Controlling and Protecting Simple Circuits
- Simple Battery, Lamp, and Switch Circuit (board)
- Simple Battery, Lamp, Switch and Fuse Circuit (board)

Common Ground Circuits and Wiring Diagrams

- Common Ground Circuits and Wiring Diagrams
- Common Ground Circuits (board)
- Wiring Diagrams (board)

DC and AC Current

- DC and AC Current
- Current Flow in a Simple Circuit (board)

Electrical Power

- Power
- Power in a Simple Lamp Circuit (board)

Continuity and Circuit Faults

- Continuity and Circuit Faults
- Continuity (board)
- Circuit Faults (board)

Series and Parallel Lamp Circuits

- Series Lamp Circuits
- Identical Lamps in Series (board)
- Non-Identical Lamps in Series (board)
- Parallel Lamp Circuits
- Identical Lamps in Parallel (board)
- Non-Identical Lamps in Parallel (board)

Pushbutton Switches and Switch Circuits

- Pushbutton Switches and Switch Circuits
- Pushbutton Switches (board)
- Switches in Series and Parallel (board)

Changeover Switches

- Changeover Switches
- Two-Position Changeover Switches (board)
- Three-Position Changeover Switches (board)
- Two-Position, Two-Pole Changeover Switches (board)

Resistance and Ohm's Law

- Resistance and Ohm's Law
- Ohm's Law (board)
- Resistance (board)

701-02: Auto CAN Lighting Board

Getting Started

- Using Auto CAN Lighting for the First Time (Task)

CAN Bus Lighting

- CAN Bus Park, Rear, and Headlight Systems
- CAN Bus Park, Rear, and Headlight Systems (Task)
- CAN Bus Fog Light Systems
- CAN Bus Fog Light Systems (Task)
- CAN Bus Indicator and Hazard Warning Systems
- CAN Bus Indicator and Hazard Warning Systems (Task)
- CAN Bus Brake and Reverse Light Systems
- CAN Bus Brake and Reverse Light Systems (Task)
- The Lighting Systems' CAN Bus
- The Lighting Systems' CAN Bus (Task)
- CAN Bus Lighting Systems Measurement
- CAN Bus Park and Rear Light System Measurement (Task)

- CAN Bus Headlight System Measurement (Task)
- CAN Bus Fog Light System Measurement (Task)
- CAN Bus Indicator and Hazard Warning System Measurement (Task)
- CAN Bus Brake and Reverse Light System Measurement (Task)
- CAN Data Bus Measurement
- CAN Data Bus Measurement (Task)
- CAN Bus Lighting Faults
- CAN Bus Lighting Fault 1 (Task)
- CAN Bus Lighting Fault 2 (Task)
- CAN Bus Lighting Fault 3 (Task)
- CAN Bus Lighting Fault 4 (Task)
- CAN Bus Lighting Fault 5 (Task)
- CAN Bus Lighting Fault 6 (Task)
- CAN Bus Lighting Fault 7 (Task)
- CAN Bus Lighting Fault 8 (Task)

721-01: Auto CAN Auxiliary Board

CAN BUS Auxiliary

- CAN Bus Window, Mirror, and Seat Systems
- CAN Bus Window, Mirror, and Seat Systems (Task)
- CAN Bus Central Locking System
- CAN Bus Central Locking System (Task)
- The Auxiliary Systems' CAN Bus
- The Auxiliary Systems' CAN Bus (Task)
- CAN Bus Window, Mirror, and Seat Systems Measurement
- CAN Bus Window System Measurement (Task)
- CAN Bus Mirror System Measurement (Task)
- CAN Bus Seat System Measurement (Task)
- CAN Bus Central Locking System Measurement
- CAN Bus Central Locking System Measurement (Task)
- CAN Data Bus Measurement

- CAN Data Bus Measurement (Task)
- CAN Bus Auxiliary Faults
- CAN Bus Auxiliary Fault 1 (Task)
- CAN Bus Auxiliary Fault 2 (Task)
- CAN Bus Auxiliary Fault 3 (Task)
- CAN Bus Auxiliary Fault 4 (Task)
- CAN Bus Auxiliary Fault 5 (Task)
- CAN Bus Auxiliary Fault 6 (Task)
- CAN Bus Auxiliary Fault 7 (Task)

Electric and Hybrid Vehicle

730-10: 1 EV Electronics Trainer Course 1

Electrical Fundamentals

- Simple Circuits
- Simple Battery and Lamp Circuit
- Simple Battery, Lamp, and Switch Circuit
- Controlling and Protecting Simple Circuits
- Simple Battery, Lamp, Switch and Fuse Circuit
- Push-button Switches and Switch Circuits
- Push-button Switches
- Two-Position Changeover Switches
- Common Ground Circuits and Wiring Diagrams
- Common Ground Circuits
- DC and AC Current
- Continuity
- Current Flow in a Simple Circuit
- Electrical Test Equipment
- Using a Multimeter
- Voltage Drop
- Measuring Voltage
- Measuring Current
- Measuring Current in a Circuit
- Power
- Calculating Electrical Power for a Load
- Continuity and Circuit Faults
- Circuit Faults

Resistance

- Resistance and Ohm's Law
- Measuring Resistance
- Resistance
- Investigating Whether Resistors are in Tolerance
- Ohm's Law
- Electrical Circuits
- Investigating a Characteristic Graph for a Resistive Component
- Resistors in Series
- Resistors in Parallel
- Series and Parallel Resistor Combinations
- The Voltage Divider Principle
- Voltage Divider Operation
- Kirchhoff's First Law
- Current Behavior at a Node
- Kirchhoff's Second Law
- Voltages in a DC Network
- Internal Resistance
- Internal Resistance of Power Sources

Wiring Diagrams

- Introduction to Wiring Diagrams
- Reading Wiring Diagrams
- Wiring Diagrams
- Symbols, Device Markings and Terminal Block Designations

AC Circuits

- Measuring with an Oscilloscope
- Amplitude and Timebase Settings of an Oscilloscope
- Period and Frequency
- Peak, Peak-to-Peak and RMS Values

Passive Electrical Components and Operation

- Capacitor Types and Applications
- Charging and Discharging a Capacitor
- Capacitor Discharge Curve
- Capacitors in Series and Parallel
- Resistance and the Time Constant
- Capacitors in AC Circuits
- Inductors in AC Circuits

Electric and Hybrid Vehicle

730-10: 2 EV Electronics Trainer Course 2

Semiconductor Components and Operation

- Diode Types and Applications
- Diode Characteristics
- Changing the Resistance in an LED Circuit
- Rectifier Circuits
- Simple Rectifier Circuit
- Bridge Rectifier Circuit
- Fault Finding Semiconductor Circuits W3
- Transistors
- The Darlington Pair and the FET (730-10)
- Thyristor (730-10)
- Field Effect Transistor Operation
- High-Side Power Load Switch
- Alternative Components
- Analogue Switches

Electromagnetic Systems

- Electromagnetism
- Field Strength of an Electromagnet
- Field Shape and Direction for an Electromagnet
- Relays
- Reed Switch and Relay
- Electromagnetic Induction and the Solenoid
- Transformers
- Transformer Voltages and Turns Ratio
- Transformer Power and Efficiency
- The DC Motor
- DC Motor Operation
- DC Motor-Generator
- Servo Motor Operation

Sensing Systems

- Inputs, Outputs and Processes
- Physical Environment to Electrical Transformation
- Sensors and Actuators
- Sensors
- Hall Effect Sensor
- Automatic Temperature Control

Control Systems

- Control Principles
- Types of Control Signals
- Pulse Width Modulation Control
- PWM Signal driving an LED
- PWM Signal - Variable Frequency and Duty Cycle
- PWM Motor Speed Control Circuit
- Control Examples
- Investigation of a Sensorless Motor Speed Control Signal
- Information Flow
- Signal Processing
- Analogue Signal Processing
- Digital Signal Processing
- Operation of the Inverter Circuit
- Rectifier with DC Smoothing Capacitor
- Single Phase Inverter Driver Circuit
- The Inverter Controller
- Three Phase Bridge Rectifier Circuit
- Fault Finding Signal Conditioning Circuits W1
- Fault Finding Signal Conditioning Circuits W2
- Fault Finding Signal Conditioning Circuits W3
- Fault Finding Signal Conditioning Circuits W4
- Fault Finding Signal Conditioning Circuits W5

Electric and Hybrid Vehicle



740-01: Electric Vehicle Systems Panel Trainer

Introduction to the Electric Vehicle Trainer

- Introduction to the Electric Vehicle Trainer

Safety with Electric Vehicles

- Dangers of Electric Current for Humans
- Dealing with a Victim of an Electric Shock
- Effect of Electric Current on the Human Body
- First Responder Loop
- First Responder Loop
- Safety in High Voltage Vehicles
- Safety with Batteries
- Special Equipment for High Voltage Testing and Repair
- Qualifications for Working on High Voltage Vehicles

Introduction to Electric Vehicles

- Features of Electric Vehicles
- Plug-in Electric Vehicles
- High Voltage Vehicles
- Reasons for the Development of High Voltage Vehicles

EV High Voltage Systems

- High Voltage System
- Electric Vehicle Systems Fault Finding 1
- Electric Vehicle Systems Fault Finding 2
- Electric Vehicle Systems Fault Finding 3
- Disabling the HV System
- Electric Vehicle Systems Fault Finding 4
- Electric Vehicle Systems Fault Finding 5

EV Low Voltage Systems

- Low Voltage System
- Low Voltage System
- Electric Vehicle Systems Fault Finding 6

Electric Vehicle CAN Bus

- Electric Vehicle Bus Systems
- Electric Vehicle CAN Bus System
- Electric Vehicle CAN Bus System
- Electric Vehicle CAN Bus Operation
- Electric Vehicle Systems Fault Finding 7
- Electric Vehicle Systems Fault Finding 8

Electric Vehicle Powertrain Systems

- Powertrain System
- Angular Position Sensor
- Traction Motor Control
- Driver Input Sensors
- Electric Vehicle Systems Fault Finding 9
- Electric Vehicle Systems Fault Finding 10
- Electric Vehicle Systems Fault Finding 11

Electric Vehicle Climate Control

- Vehicle Thermal Management
- Cabin Climate Control System
- HV Battery Thermal Management
- Electric Vehicle Systems Fault Finding 12
- Electric Vehicle Systems Fault Finding 13
- Electric Vehicle Systems Fault Finding 14

Battery Charging Systems

- Batteries
- Electric Vehicle Batteries
- Charging System
- AC Charging System
- DC Charging System
- Electric Vehicle Systems Fault Finding 15
- Electric Vehicle Systems Fault Finding 16
- Regenerative Braking System

Electric Vehicle Troubleshooting

- Troubleshooting Introduction
- Diagnostic Trouble Codes
- Scan Tools
- Diagnose Insulation Measurement Faults
- Diagnose Equipotential Faults

Electric Vehicle Charging Stations Trainer Connection

- Electric Vehicle Charging Station Connection
- Electric Vehicle Charging Station Connection
 - Single Phase AC Charging
- Electric Vehicle Charging Station Connection
 - Three Phase AC Charging
- Electric Vehicle Charging Station Connection
 - DC Fast Charging
- Electric Vehicle Charging Station Connection
 - DC Fast Charging Station Operation
- Electric Vehicle Charging Station Connection
 - EV Operation During Charging
- Electric Vehicle Charging Station Connection
 - Charging Station and Vehicle Communications

741-01: EV Batteries and Charging Trainer

741-01 EV Batteries and Charging Trainer

- Introduction to the EV Batteries and Charging Trainer
- Start-up Process and Tests

Batteries

- Batteries
- Introduction to Electrical Storage Devices
- Battery Materials Used and Element Scarcity
- NiMH Batteries
- Principles of NiMH Batteries
- Lithium-ion Batteries
- Principles of Lithium-ion Batteries
- Safety with Batteries

EV Battery Servicing

- Disabling the HV System
- Disabling the HV System
- First Responder Loop
- Internal Disconnection of the HV Battery
- EV Batteries and Charging Fault Finding 1
- EV Batteries and Charging Fault Finding 2

EV Batteries

- Introduction to the HV Battery Stack
- Electric Vehicle Batteries
- Battery Packs
- Battery Range and Trip Economy
- HV Battery Modules and Cells

EV Battery Management

- The HV Battery Management System
- Voltage and Current Sensing
- EV Batteries and Charging Fault Finding 3
- HV Battery Cell Balancing
- HV Battery Cell Balancing
- HV Battery State of Health
- Module Controllers and Sensing
- EV Batteries and Charging Fault Finding 4
- EV Batteries and Charging Fault Finding 5

Electric Vehicle Charging Systems

- Charging Systems
- Charging Modes, Types and Levels
- The Charge Controller
- The Charge Controller
- Charging Methods and Circuits
- EV Batteries and Charging Fault Finding 6
- EV Batteries and Charging Fault Finding 7
- EV Batteries and Charging Fault Finding 8

DC Charging

- DC Fast Charging
- DC Charging
- EV Batteries and Charging Fault Finding 9
- EV Batteries and Charging Fault Finding 10

AC Charging

- On-Board Vehicle AC Charger
- AC Charging
- EV Batteries and Charging Fault Finding 11

EV Thermal Management

- Vehicle Thermal Management
- Temperature Monitoring and Control
- EV Batteries and Charging Fault Finding 12
- EV Batteries and Charging Fault Finding 13
- EV Batteries and Charging Fault Finding 14

EV CAN Bus System

- Electric Vehicle Bus Systems
- Electric Vehicle CAN Bus System
- Electric Vehicle CAN Bus System
- EV Batteries and Charging Fault Finding 15
- EV Batteries and Charging Fault Finding 16

Electric Vehicle Charging Station Connection

- Electric Vehicle Charging Station Connection
 - Single Phase AC Charging
- Electric Vehicle Charging Station Connection
 - Three Phase AC Charging
- Electric Vehicle Charging Station Connection
 - DC Fast Charging
- Electric Vehicle Charging Station Connection
 - DC Fast Charging Station Operation
- Electric Vehicle Charging Station Connection
 - EV Operation During Charging
- Electric Vehicle Charging Station Connection
 - Charging Station and Vehicle Communications

742-01: EV Motors and Generators Trainer

742-01 EV Motors and Generators Trainer

- Introduction to the EV Motors and Generators Trainer
- System Start-Up Procedure
- System Start-Up Procedure
- EV Motors and Generators Fault Finding 1
- EV Motors and Generators Fault Finding 2

Disabling the HV System

- Disabling the HV System

Electric Motors

- Electromagnetism
- Electric Motors
- Three-Phase AC
- The DC Motor
- The Induction Motor
- The Single-phase AC Motor

Controlling a Motor

- Operation of the Inverter Circuit
- Pulse Width Modulation Control
- EV Motors and Generators Fault Finding 3
- EV Motors and Generators Fault Finding 4
- EV Motors and Generators Fault Finding 5
- EV Motors and Generators Fault Finding 6
- The Inverter Controller
- EV Motors and Generators Fault Finding 7
- EV Motors and Generators Fault Finding 8
- Operation of the Inverter Controller with Different Feedback Types
- Generator Operation
- Regenerative Braking and the Rectifier Circuit
- HV Battery State of Charge

Traction Motors

- EV Motors and Generators Fault Finding 9
- EV Motors and Generators Fault Finding 10
- The Three Phase Traction Motor
- Three Phase Traction Motor Types
- The Motor-Generator
- EV Motors and Generators Fault Finding 11
- EV Motors and Generators Fault Finding 12
- EV Motors and Generators Fault Finding 13

Vehicle Thermal Management

- Vehicle Thermal Management
- EV Motors and Generators Fault Finding 14

EV CAN Bus

- Electric Vehicle CAN Bus System
- The Vehicle Management System
- EV Motors and Generators Fault Finding 15
- EV Motors and Generators Fault Finding 16

Electric and Hybrid Vehicle

743-01: EV Charging Stations Trainer

Introduction to 743-01 EV Charging Stations Trainer

- Introduction to the EV Charging Stations Trainer
- EV Charging Terminology: kW and kWh
- Charging Systems

Electrical Installations

- EV Charging Station Installations
- Overview of Residential House Wiring
- Bonding Check - Testing Electrical, Gas and Water System Grounding
- EVSE Grounding and Safety Devices
- EV Charging Stations Fault Finding 1
- EV Charging Stations Fault Finding 2

AC Charging

- On-Board Vehicle AC Charger
- Single Phase AC Power
- Single Phase AC Charging
- Three Phase AC Supply
- Three Phase AC Charging
- Three Phase Signals
- EV Charging Stations Fault Finding 3
- EV Charging Stations Fault Finding 4
- EV Charging Stations Fault Finding 5

DC Charging

- DC Fast Charging
- EVSE DC-DC Converter Circuit
- EV Charging Stations Fault Finding 6
- DC Fast Charging Station Operation
- EV Operation During Charging
- EV Charging Stations Fault Finding 7

Charging Station Communications

- Charging Station and Vehicle Communications
- EV Charging Stations Fault Finding 8
- EV Charging Stations Fault Finding 9
- EV Charging Stations Fault Finding 10

Electric Vehicle CAN Bus System

- Electric Vehicle Bus Systems
- Electric Vehicle CAN Bus System
- EV Charging Stations Fault Finding 11

Running Costs

- Energy Company Tariffs
- Calculating EV Running Costs

Equipment Management

- Electric Vehicle Supply Equipment Management
- Charging Station Software
- Voltage and Current Sensing
- Charging Station Safety - RCD
- EV Charging Stations Fault Finding 12
- EV Charging Stations Fault Finding 13
- EV Charging Stations Fault Finding 14

Thermal Management

- Charging Station Thermal Management
- EV Charging Stations Fault Finding 15
- EV Charging Stations Fault Finding 16

Electric and Hybrid Vehicle



753-01: Automotive Electrics Panel Trainer

Batteries and Fuses

- Batteries
- Battery and Fuse Investigation (panel)
- Battery and Fuse Circuit Fault Investigation 1 (panel)
- Battery and Fuse Circuit Fault Investigation 2 (panel)

Starting Systems

- Starting Systems
- Starter Motor and Solenoid Measurements (panel)
- Starter Control Circuit Service (workshop)
- Performing Voltage Drop and Current Draw Tests (workshop)
- Starter Relay & Solenoid Testing, Starter Motor Replacement (workshop)
- Starting System Problems (panel)

Park, Tail, and Headlight Circuits

- Types of Light Sources
- Headlamps
- Headlights (panel)
- Park, Tail, and Headlamp Circuits
- Park and Tail Lights (panel)

Stop and Backup Light Circuits

- Stop and Backup Lamps
- Stop Lamp Circuit Investigation (panel)
- Backup Lamp Circuit Investigation (panel)

Turn Signal and Hazard Warning Circuits

- Turn Signal Systems
- Hazard Warning Lamps
- Turn Signal and Hazard Warning Circuit Investigation (panel)
- Turn Signal and Hazard Warning Circuit Fault Investigation (panel)

Internal Lighting Circuits

- Internal Lighting
- Internal Lamp Circuit Investigation (panel)

Lighting Circuit Fault Diagnosis

- Introduction to Fault-Finding
- Lighting Circuit Fault Investigation 1 (panel)
- Lighting Circuit Fault Investigation 2 (panel)
- Lighting Circuit Fault Investigation 3 (panel)

Electric and Hybrid Vehicle



754-01: Air Conditioning Systems Panel Trainer

Heating and Air Conditioning Fundamentals

- Air Conditioning Principles
- Air Conditioning Systems
- Refrigeration Cycle (panel)
- Investigation of a FOTCC System (panel)
- FOTCC System Troubleshooting (panel)

HVAC Components and Operation

- Compressors
- Lines and Hoses
- Condensers
- Air Distribution Control System Investigation (panel)
- Air Distribution Control System Troubleshooting 1 (panel)
- Air Distribution Control System Troubleshooting 2 (panel)
- Air Distribution Control System Troubleshooting 3 (panel)
- HVAC Electrical Controls Investigation (panel)
- A/C Electrical System Fault Investigation (panel)
- Blower Motor Fault Investigation 1 (panel)
- Blower Motor Fault Investigation 2 (panel)
- Compressor Fault Investigation (panel)

HVAC Servicing

- A/C System Troubleshooting 1 (panel)
- A/C System Troubleshooting 2 (panel)
- Inspection and Testing of Airflow Components (workshop)
- Inspect Airflow Components on a Workshop Vehicle (workshop)
- Testing Automatic Air Conditioning System Operation (workshop)
- Cooling System Inspection (workshop)
- Control Head and Component Servicing (workshop)
- Heater and Air Management Service Procedure (workshop)
- Refrigerant Leak Detection (panel)
- Discharging and Recharging an A/C System (panel)
- Testing A/C Fail Safe Switches (workshop)
- A/C Compressor Clutch Removal (workshop)
- Removal, Inspection, and Replacement of A/C Compressor Clutch (workshop)
- Removing and Replacing the A/C Compressor (workshop)
- Remove, Inspect, and Install A/C System Hose and Fittings (workshop)
- Airflow Restrictions and Components (workshop)
- Replacement and Inspection of Accumulator/Receiver-drier (workshop)
- Servicing the FOT and TXV (workshop)
- Inspection of A/C Evaporator Drain (workshop)
- Filter Inspection and Installation (workshop)

Electric and Hybrid Vehicle



756-01: Hybrid Vehicle Systems

Hybrid and Electric Systems, Fuel and Emissions

- Introduction to Hybrid and Electric Vehicles
- Fuel and Emissions
- Series Hybrid Systems
- Parallel Hybrid Systems

Series Parallel Systems and Components

- Series Parallel Hybrid Systems and Components
- Series Parallel Hybrid Systems and Components (Task)

Gears and Planetary Gears

- Gears and Planetary Gear Sets

Practical Series Parallel Hybrid Systems

- Practical Series Parallel Hybrid Systems
- Practical Series Parallel Hybrid Systems (Task)

The Hybrid Vehicle Trainer

- Introduction to the Hybrid Vehicle Trainer
- Introduction to the Hybrid Vehicle Trainer (Task)
- Hybrid Vehicle Trainer Controls (Task)

Plug-in Electric and Hybrid Vehicles

- Plug-in Electric Vehicles
- Plug-in Hybrid Vehicles

Hybrid Vehicle Trainer Electrical Systems

- The High Voltage System (Task)
- The Low Voltage System (Task)
- Troubleshooting Introduction
- Troubleshooting Introduction (Task)

Hybrid Components

- AC Motors and Generators
- AC Motors and Generators (Task)
- Hybrid Electric Motors
- Hybrid Electric Motors (Task)
- Hybrid Engines
- Electronic Circuits and Modules
- Cables, Connectors and Protection Devices

Storage Devices

- Introduction to Electrical Storage Devices
- Lead Acid Batteries
- Lead Acid Batteries (Task)
- Nickel Metal Hydride Batteries
- Lithium-ion Batteries
- Battery Packs
- Battery Packs (Task)

Hybrid Systems

- Brake Systems
- Brake Systems (Task)

Maintenance and Repair

- Hybrid Safety Issues and Concerns
- Personal Protective Equipment
- Tools and Test Equipment
- Rules and Procedures
- Troubleshooting the High Voltage System (Task)

Practical Procedures

- Disabling Hybrid Vehicle Systems
- Disabling Hybrid Vehicle Systems (Task)
- Disabling the High Voltage System (Task)

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2019 - Air Conditioning

Workshop and Personal Safety

- Rules and Procedures
- Handling Tools and Equipment
- Handling Tools and Equipment (workshop)
- Lifting Equipment
- Ventilation Procedures
- Marked Safety Areas and Evacuation Routes
- First Aid
- First Aid (Electric Vehicles)
- Fire Fighting
- Fire Safety Equipment
- Personal Protective Equipment
- SRS, EBS, and Hybrid High Voltage Systems
- High Voltage Circuits
- Material Safety Data Sheets

Tools and Equipment

- Tool Usage
- Standard and Metric Designation
- Tool Cleaning, Storage, and Maintenance
- Tool Cleaning, Storage, and Maintenance (workshop)
- Measuring with a Caliper, Micrometer, or Dial Gauge
- Measuring with a Caliper, Micrometer, or Dial Gauge (workshop)

Preparing Vehicle for Service

- Repair Orders
- The Three Cs (Concern, cause, correction) (workshop)
- Vehicle Care
- Vehicle Service History

Preparing Vehicle for Customer

- Air Distribution Control System Investigation (panel)
- Air Distribution Control System Troubleshooting 1 (panel)
- Air Distribution Control System Troubleshooting 2 (panel)
- Air Distribution Control System Troubleshooting 3 (panel)
- HVAC Electrical Controls Investigation (panel)
- A/C Electrical System Fault Investigation (panel)
- Blower Motor Fault Investigation 1 (panel)
- Blower Motor Fault Investigation 2 (panel)
- Compressor Fault Investigation (panel)

Heating and Air Conditioning Fundamentals

- Air Conditioning Systems
- Air Conditioning Principles
- Automotive AC Refrigerants
- Refrigeration Cycle (panel)
- Air Conditioning Trainer (auto rig)
- Air Conditioning Trainer Operation (auto rig)
- Investigation of a FOTCC System (panel)
- FOTCC System Troubleshooting (panel)

Air Conditioning Components

- Compressors
- A/C Compressor Clutch Removal (workshop)
- Pipes and Hoses
- Condensers

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2019 - Air Conditioning - Continued...

Heating and Ventilation Control Systems

- Air Distribution Control System Investigation (panel)
- Air Distribution Control System Troubleshooting 1 (panel)
- Air Distribution Control System Troubleshooting 2 (panel)
- Air Distribution Control System Troubleshooting 3 (panel)
- HVAC Electrical Controls Investigation (panel)
- A/C Electrical System Fault Investigation (panel)
- Blower Motor Fault Investigation 1 (panel)
- Blower Motor Fault Investigation 2 (panel)
- Compressor Fault Investigation (panel)

Heating and Air Conditioning Test Procedures

- Discharging and Recharging an A/C System (panel)
- A/C System Troubleshooting 1 (panel)
- A/C System Troubleshooting 2 (panel)
- Air Conditioning System Performance Test (auto rig)
- Air Conditioning Practical (auto rig)
- Adjusting Drive Belt Tension (workshop)
- Testing For Leaks (workshop)
- Inspection and Testing of Airflow Components (workshop)
- Inspect Airflow Components on a Workshop Vehicle (workshop)
- Filter Inspection and Installation (workshop)

Air Conditioning Servicing

- Airflow Restrictions and Components (workshop)
- Inspection of A/C Evaporator Drain (workshop)
- Removal, Inspection, and Replacement of A/C Compressor Clutch (workshop)
- Remove, Inspect, and Install A/C System Hose and Fittings (workshop)
- Removing and Replacing the A/C Compressor (workshop)
- Replacement and Inspection of Accumulator/Receiver-drier (workshop)
- Servicing the FOT and TXV (workshop)
- Testing A/C Fail Safe Switches (workshop)
- Testing Automatic Air Conditioning System Operation (workshop)
- Heater and Air Management Service Procedure (workshop)

Electric and Hybrid Vehicle

ALB2: Autocare Technician (IMI Level 2) 2019 - Customer Service and Sales

Autocare Sales and Customer Service

- Customer Care
- Autocare Sales Process
- Vehicle Care
- Repair Orders
- The Three Cs (Concern, Cause, Correction) (workshop)
- Vehicle Service History
- Vehicle Preparation
- Autocare Payments
- Autocare Stock Management

Customer Care Skills

- How to Introduce Yourself
- Speak on the Telephone
- Handling a Telephone Call
- Listening and Understanding
- Engage in a Two-Way Conversation
- Punctuality
- Dress Code
- Personal Space
- Handle Collective Property
- Common Courtesy
- Attending a Meeting

General Sales and Customer Service

- Products
- Pricing Strategies
- Control of the Customer's Order
- Calculating Sales Discounts
- Calculating VAT Rates
- Marketing Planning
- Marketing Communications
- Sales Conversion - Calculating Rates

Electric and Hybrid Vehicle

ALB2: Autocare Technician (IMI Level 2) 2019 - Stock Management

Workshop and Personal Safety

- Accident Prevention in the Warehouse
- Rules and Procedures
- Handling Tools and Equipment
- Material Safety Data Sheets
- Handling of Hazardous Materials
- Management of Hazardous Substances

Tools and Equipment

- Standard and Metric Designation
- Tool Cleaning, Storage, and Maintenance

Communication Skills

- How to Introduce Yourself
- Speak on the Telephone
- Handling a Telephone Call
- Listening and Understanding
- Engage in a Two-Way Conversation
- Punctuality
- Dress Code
- Personal Space
- Handle Collective Property
- Common Courtesies

Preparing Vehicle for Service

- Repair Orders
- The Three Cs (Concern, cause, correction) (workshop)
- Vehicle Care
- Vehicle Service History

Preparing Vehicle for Customer

- Vehicle Preparation

Business Organisation and Process

- Business Organisational Structure
- Corporate Mission and Goals
- Business Process Optimisation
- Control of the Customer's Order

Autocare Stock Servicing

- Customer Care
- Autocare Stock Management
- Autocare Sales Process
- Autocare Payments

Stock Control

- Key Figures of Picking
- Organisation of Picking
- Stock Control and the Production Process
- Storage Costs
- Storage Indicators
- The Inventory
- List Price Determination

Procurement

- Material Procurement
- Organising Procurement
- Monitoring Purchasing
- Purchasing Calculations
- Purchase Cost Calculations
- Controlling Procurement
- Calculating VAT Rates

Office Technology

- The Intranet and Internet
- The Network
- The Workstation Computer
- Privacy Policy

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2019 - Vehicle Safety Inspection

Workshop and Personal Safety

- Rules and Procedures
- Handling Tools and Equipment
- Handling Tools and Equipment (workshop)
- Lifting Equipment
- Ventilation Procedures
- Marked Safety Areas and Evacuation Routes
- First Aid
- First Aid (Electric Vehicles)
- Fire Fighting
- Fire Safety Equipment
- Personal Protective Equipment
- SRS, EBS, and Hybrid High Voltage Systems
- High Voltage Circuits
- Material Safety Data Sheets

Tools and Equipment

- Tool Usage
- Standard and Metric Designation
- Tool Cleaning, Storage, and Maintenance
- Tool Cleaning, Storage, and Maintenance (workshop)
- Measuring with a Caliper, Micrometer, or Dial Gauge
- Measuring with a Caliper, Micrometer, or Dial Gauge (workshop)

Communication Skills

- How to Introduce Yourself
- Speak on the Telephone
- Handling a Telephone Call
- Listening and Understanding
- Engage in a Two-Way Conversation
- Punctuality
- Dress Code
- Personal Space
- Handle Collective Property
- Common Courtesies

Preparing Vehicle for Service

- Repair Orders
- The Three Cs (Concern, cause, correction) (workshop)
- Vehicle Care
- Vehicle Service History

Preparing Vehicle for Customer

- Vehicle Preparation
- Vehicle Safety Inspection

Inspection - Braking Systems

- Troubleshooting a Braking System (workshop)
- Master Cylinder Inspection (workshop)
- Testing the Anti-lock Braking System (workshop)
- Test Brake Light Switch (workshop)
- Brake Pipe Inspection (workshop)

Inspection - Steering and Suspension

- Wheel and Tyre Diagnosis
- Tyre Inspection and Repair
- Road Wheel Removal and Installation (workshop)
- Tyre Inspection and Inflation (workshop)
- Tyre Inspection (workshop)
- Wheel Bearing Maintenance (workshop)
- Wheel Alignment Checks (workshop)
- Inspecting FWD Shafts and Joints (workshop)
- How to Check Shock Absorbers for Leaks (auto rig)
- Remove and Inspect Conventional Steering Components (workshop)
- Steering Column Inspection (workshop)
- Check Power Steering System (workshop)
- Disabling and Enabling the Air Bag System (workshop)

Inspection - Engine Systems

- Inspecting the Complete Transmission System of a Vehicle (workshop)
- Retrieval and Clearing of OBD II Trouble codes (workshop)
- Inspection and Testing of Airflow Components (workshop)
- Fuel System Inspection (workshop)
- Vehicle Cooling System Inspection (workshop)
- Catalytic Converter Inspection and Efficiency Testing (workshop)
- Exhaust Gas Analyzer (workshop)
- Exhaust System Inspection and Testing (workshop)
- Investigation of Exhaust Emission Levels (workshop)
- Cooling System Inspection (workshop)
- Intake Air System Inspection (workshop)

Inspection - Air-conditioning

- Testing A/C Fail Safe Switches (workshop)
- Testing For Leaks (workshop)

Electric and Hybrid Vehicle

ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 01 Foundation Skills

Automotive Terminology

- Automotive Terminology

Workshop and Personal Safety

- Rules and Procedures
- First Aid
- Fire Fighting
- Fire Safety Equipment
- Personal Protective Equipment
- Material Safety Data Sheets
- Ventilation Procedures
- Marked Safety Areas and Evacuation Routes

Tools and Equipment

- Tool Usage
- Lifting Equipment
- Standard and Metric Designation
- Tool Cleaning, Storage, and Maintenance
- Tool Cleaning, Storage, and Maintenance (workshop)
- Handling Tools and Equipment
- Handling Tools and Equipment (workshop)

Communication Skills

- How to Introduce Yourself
- Speak on the Telephone
- Handling a Telephone Call
- Listening and Understanding
- Engage in a Two-Way Conversation
- Punctuality
- Personal Space
- Handle Collective Property
- Common Courtesy
- Formal Letters with a Perspective

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 02 Electric and Hybrid Vehicle Awareness

High Voltage Vehicle Safety

- High Voltage Circuits
- SRS, EBS, and Hybrid High Voltage Systems
- First Aid (Electric Vehicles)
- Safety with Batteries
- Safety in High Voltage Vehicles
- Hybrid Safety Issues and Concerns
- Working on High Voltage Vehicles
- Diagnose Insulation Measurement Faults
- Diagnose Equipotential Faults

Electric Vehicles

- High Voltage Vehicles
- Definition of Electric Vehicles
- Features of Electric Vehicles
- Reasons for the Development of High Voltage Vehicles
- Features of Hybrid Vehicles
- Plug-in Hybrid Vehicles
- Classification of Hybrid Vehicles by Engine Arrangement
- High Voltage Wiring and Connectors
- Lithium-Ion Batteries
- Electric Motors
- The Motor-Generator
- The Rotating Magnetic Field
- Special Equipment for High Voltage Testing and Repair
- Three-Phase AC

Hydrogen Vehicles

- Introduction to Hydrogen Vehicles
- Fuel Cells
- Types of Hydrogen Vehicles

Electric Vehicle Panel Hands-On

- Introduction to the Electric Vehicle Trainer (panel)
- High Voltage System
- High Voltage System (panel)
- Low Voltage System
- Low Voltage System (panel)
- First Responder Loop
- First Responder Loop (panel)
- Disabling the HV System
- Disabling the HV System (panel)
- Voltage Converters
- The Inverter Principle

- The DC to DC Converter
- Electric Vehicle CAN Bus System
- Electric Vehicle CAN Bus Operation
- Electric Vehicle Bus Systems
- Powertrain System
- Traction Motor Control (panel)
- Angular Position Sensor (panel)
- Driver Input Sensors (panel)
- Vehicle Thermal Management
- HV Battery Thermal Management (panel)
- Cabin Climate Control System (panel)
- Regenerative Braking System
- Regenerative Braking System (panel)
- Charging System
- AC Charging System (panel)
- DC Charging System (panel)
- Electric Vehicle Charging Station Connection
 - Single Phase AC Charging (panel)
- Electric Vehicle Charging Station Connection
 - Three Phase AC Charging (panel)
- Electric Vehicle Charging Station Connection
 - DC Fast Charging (panel)
- Electric Vehicle Charging Station Connection
 - DC Fast Charging Station Operation (panel)
- Electric Vehicle Charging Station Connection
 - EV Operation During Charging (panel)
- Electric Vehicle Charging Station Connection
 - Charging Station and Vehicle Communications (panel)
- Electric Vehicle Systems Fault Finding 1 (panel)
- Electric Vehicle Systems Fault Finding 2 (panel)
- Electric Vehicle Systems Fault Finding 3 (panel)
- Electric Vehicle Systems Fault Finding 4 (panel)
- Electric Vehicle Systems Fault Finding 5 (panel)
- Electric Vehicle Systems Fault Finding 6 (panel)
- Electric Vehicle Systems Fault Finding 7 (panel)

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 02 Electric and Hybrid Vehicle Awareness - Continued...

Hybrid Panel Hands-On

- Introduction to the Hybrid Vehicle Trainer
- Introduction to the Hybrid Vehicle Trainer (panel)
- Hybrid Vehicle Trainer Controls (panel)
- Disabling Hybrid Vehicle Systems
- Disabling Hybrid Vehicle Systems (workshop)
- Practical Series Parallel Hybrid Systems
- Practical Series Parallel Hybrid Systems (workshop)
- Series Parallel Hybrid Systems and Components
- The Low Voltage System (panel)
- The High Voltage System (panel)
- Hybrid Electric Motors
- Hybrid Electric Motors (panel)
- Brake Systems
- Brake Systems (panel)
- Cables, Connectors and Protection Devices
- AC Motors and Generators
- AC Motors and Generators (panel)
- Troubleshooting Introduction
- Troubleshooting Introduction (panel)

ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 03 Wheels and Tyres

Wheels and Tyres

- Tyres
- Road Wheels
- Tyre Wear and Rotation
- Tyre Inspection and Repair
- Wheel Balancing Principles
- Wheel Alignment
- Wheel and Tyre Runout

Wheels and Tyres Workshop Tasks

- Tyre Inspection and Inflation (workshop)
- Tyre Rotation (workshop)
- Tyre Inspection (workshop)
- Tyre Repair Workshop Procedure (workshop)
- Wheel Stud Replacement Procedure (workshop)
- Road Wheel Removal and Installation (workshop)
- Balance Wheel and Tyre Assembly (workshop)
- Caster, Camber, Toe, and Setback Checks and Adjustment (workshop)
- Check Front Cradle (Subframe) Alignment (workshop)
- Check Steering Axis Inclination and Toe-out on Turns (workshop)
- Measure Wheel, Tyre, Axle and Hub Runout (workshop)
- Perform Prealignment Inspection (workshop)
- Ride Height Measurement (workshop)
- Wheel Alignment Checks (workshop)

ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 04 Basic Braking Systems

Basic Brake System

- Brake Systems 1
- Brake Systems 2
- Friction
- Brake Discs
- Brake Calipers
- Brake Pads
- Brake Drums
- Brake Shoes
- Wheel Cylinders
- Handbrake
- Integral Caliper Handbrake
- The Master Cylinder
- Wheel Bearings
- Brake Warning Systems
- Brake Pipes and Hoses
- Pressure Control Valves

Basic Brakes Workshop Tasks

- Introduction to the Brake Systems Trainer (auto rig)
- Checking Pedal Heights and Adjusting Push Rod Length (workshop)
- Measuring Brake Discs (auto rig)
- Brake Disc Replacement (auto rig)
- Brake Caliper Inspection (auto rig)
- Brake Pad Replacement (auto rig)
- Brake Pad Removal and Brake Assembly Inspection (auto rig)
- Brake Pad Wear Indicator Inspection (workshop)
- Drum Brake Removal and Inspection (auto rig)
- Drum Brake Removal, Disassembly and Inspection (auto rig)
- Brake Shoe Replacement (auto rig)
- Wheel Cylinder Removal and Inspection (workshop)
- Handbrake Cable Replacement (auto rig)
- Adjusting the Handbrake (auto rig)
- Wheel Bearing Maintenance (workshop)
- Testing the Brake Lamp Switch Circuit (workshop)

- Brake Fluid Warning System (panel)
- Brake Pipe Inspection (workshop)
- Wheel Bearing Replacement Procedure (workshop)
- Master Cylinder Inspection (workshop)
- Master Cylinder Removal, Bench Bleed, and Reinstall (workshop)
- Test Brake Light Switch (workshop)
- Test Vacuum Brake Booster Procedure (workshop)
- Vacuum Leak Testing Procedure (workshop)
- Vacuum Supply Testing Procedure (workshop)

Basic Steering Systems

- Steering Systems
- Conventional Steering System Components
- Steering Rack
- The Steering Column
- Track Rods
- Geometry Fundamentals

ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 05 Basic Steering and Suspension

Basic Steering Systems

- Steering Systems
- Conventional Steering System Components
- Steering Rack
- The Steering Column
- Track Rods
- Geometry Fundamentals

Steering System Workshop Tasks

- Introduction to the Steering and Suspension Trainer (auto rig)
- Adjusting the Wheel Height of the Steering and Suspension Trainer (auto rig)
- Using the Power Steering on the Steering and Suspension Trainer (auto rig)
- Check and Top-Up Power Steering Fluid (auto rig)
- Remove and Inspect Conventional Steering Components (workshop)
- Removing Rack and Pinion Steering Gear (auto rig)
- Steering Wheel Adjustment (auto rig)
- Steering Column Inspection (auto rig)
- Hub Carrier Removal and Inspection (auto rig)
- Track Rod Removal and Adjustment (auto rig)
- Remove, Inspect, and Replace Conventional Steering Components (workshop)
- Adjustment of Steering Box Pre-Load (workshop)

Basic Suspension Systems

- Suspension Systems 1
- Control Arms
- Coil Springs
- Torsion Bars
- Leaf and Rubber Springs
- MacPherson Struts

Suspension Systems Workshop Tasks

- How to Check Shock Absorbers for Leaks (auto rig)
- MacPherson Strut Coil Spring Removal and Inspection (auto rig)
- Leaf Spring Removal, Inspection, and Reinstallation Procedures (workshop)
- MacPherson Strut Removal, Inspection, and Reinstallation Procedures (workshop)
- Removal, Inspection and Installation of Coils Springs and Insulators (workshop)
- Remove, Inspect, and Install U/L Ball Joints on S/L Arm Suspension (workshop)
- Removal, Inspection, and Installation of Stabilizer Components (workshop)
- Remove, Inspect, and Install Transverse Links and Strut Rods (workshop)
- Remove, Inspect, Install and Adjust Torsion Bars (workshop)

ALB2: Autocare Technician (IMI Level 2) 2026 Phase I: 06 Cooling, Lubrication and Filters

Automotive Terminology

- Automotive Terminology

Cooling, Lubrication and Filters

- Lubrication Systems
- Cooling Systems
- Engine Oil Pressure
- Brake Fluid
- Air Management in a Diesel Engine

Fluid Systems Workshop Tasks

- Engine Oil Pressure (panel)
- Adjusting Drive Belt Tension (workshop)
- Bleed Brake System (Manual Bleed) (workshop)
- Brake Pipe Inspection (workshop)
- Flush Brake System (workshop)
- Fuel Filter Inspection (workshop)
- Intake Air System Inspection (workshop)
- Coolant Servicing (workshop)
- Vehicle Cooling System Inspection (workshop)
- Thermostat Servicing (workshop)

Electric and Hybrid Vehicle

ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 08 Customer Service and Sales

Sales and Customer Service

- Vehicle Service History
- Customer Care
- Autocare Sales Process
- Autocare Payments
- Repair Orders
- The Three Cs (Concern, cause, correction) (workshop)
- Vehicle Care
- Vehicle Preparation
- Diagnostic Trouble Codes
- Scan Tools

ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 09 Stock Management

Stock Control

- Autocare Stock Management
- Key Figures of Picking
- Organisation of Picking
- Stock Control and the Production Process
- Storage Costs
- Storage Indicators
- The Inventory

Electric and Hybrid Vehicle



ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 13 Air Conditioning

Heating and Air Conditioning

- Air Conditioning Systems
- Air Conditioning Principles
- Compressors
- Pipes and Hoses
- Condensers

Air Conditioning Panel Hands-On

- Refrigeration Cycle (panel)
- Discharging and Recharging an A/C System (panel)
- Investigation of a FOTCC System (panel)
- Air Distribution Control System Investigation (panel)
- HVAC Electrical Controls Investigation (panel)
- A/C System Troubleshooting 1 (panel)
- A/C System Troubleshooting 2 (panel)
- FOTCC System Troubleshooting (panel)
- Air Distribution Control System Troubleshooting 1 (panel)
- Air Distribution Control System Troubleshooting 2 (panel)
- Air Distribution Control System Troubleshooting 3 (panel)
- A/C Electrical System Fault Investigation (panel)
- Blower Motor Fault Investigation 1 (panel)
- Blower Motor Fault Investigation 2 (panel)
- Compressor Fault Investigation (panel)

Heating and Air Conditioning Workshop Tasks

- Air Conditioning Trainer (auto rig)
- Air Conditioning Trainer Operation (auto rig)
- Cooling System Inspection (workshop)
- Air Conditioning Practical (auto rig)
- Testing For Leaks (workshop)
- A/C Compressor Clutch Removal (workshop)
- Air Conditioning System Performance Test (auto rig)
- Control Head and Component Servicing (workshop)
- Heater and Air Management Service Procedure (workshop)
- Inspect Airflow Components on a Workshop Vehicle (workshop)
- Inspection and Testing of Airflow Components (workshop)
- Testing Automatic Air Conditioning System Operation (workshop)
- Airflow Restrictions and Components (workshop)
- Filter Inspection and Installation (workshop)
- Inspection of A/C Evaporator Drain (workshop)
- Removal, Inspection, and Replacement of A/C Compressor Clutch (workshop)
- Remove, Inspect, and Install A/C System Hose and Fittings (workshop)
- Removing and Replacing the A/C Compressor (workshop)
- Replacement and Inspection of Accumulator/Receiver-drier (workshop)
- Servicing the FOT and TXV (workshop)
- Testing A/C Fail Safe Switches (workshop)

Electric and Hybrid Vehicle

ALB2: Autocare Technician (IMI Level 2) 2026 Phase II: 14 Vehicle Safety Inspection

Maintenance and Repair

- Maintenance Inspection
- Maintenance and Accident Prevention
- Mechanical Breakdown
- Customer Care
- Diagnostic Trouble Codes
- Scan Tools

Maintenance Topics

- Tyre Wear and Rotation
- Tyre Inspection and Repair
- Lubrication Systems
- Airbag Safety

Wheels and Tyres Workshop Tasks

- Tyre Inspection and Inflation (workshop)
- Tyre Rotation (workshop)
- Tyre Inspection (workshop)
- Ride Height Measurement (workshop)
- Steering Column Inspection (auto rig)
- Brake Pipe Inspection (workshop)
- Vehicle Cooling System Inspection (workshop)
- Alternator Service Procedure (workshop)
- Steering Column Inspection (workshop)
- Exhaust System Inspection and Testing (workshop)
- Cooling System Inspection (workshop)
- Filter Inspection and Installation (workshop)
- Servicing the FOT and TXV (workshop)

Electric and Hybrid Vehicle

ALB2: Electric Vehicle Electrical Fundamentals A (730-10)

Electrical Fundamentals

- Simple Circuits
- Simple Battery and Lamp Circuit
- Simple Battery, Lamp, and Switch Circuit
- Controlling and Protecting Simple Circuits
- Simple Battery, Lamp, Switch and Fuse Circuit
- Push-button Switches and Switch Circuits
- Push-button Switches
- Two-Position Changeover Switches
- Common Ground Circuits and Wiring Diagrams
- Common Ground Circuits
- DC and AC Current
- Continuity
- Current Flow in a Simple Circuit
- Electrical Test Equipment
- Using a Multimeter
- Voltage Drop
- Measuring Voltage
- Measuring Current
- Measuring Current in a Circuit
- Power
- Calculating Electrical Power for a Load
- Continuity and Circuit Faults
- Circuit Faults

Resistance

- Resistance and Ohm's Law
- Measuring Resistance
- Resistance
- Investigating Whether Resistors are in Tolerance
- Ohm's Law
- Electrical Circuits
- Investigating a Characteristic Graph for a Resistive Component
- Resistors in Series
- Resistors in Parallel
- Series and Parallel Resistor Combinations
- The Voltage Divider Principle
- Voltage Divider Operation
- Kirchhoff's First Law
- Current Behavior at a Node
- Kirchhoff's Second Law
- Voltages in a DC Network
- Internal Resistance
- Internal Resistance of Power Sources

Wiring Diagrams

- Introduction to Wiring Diagrams
- Reading Wiring Diagrams
- Symbols, Device Markings and Terminal Block Designations

AC Circuits

- Measuring with an Oscilloscope
- Amplitude and Timebase Settings of an Oscilloscope
- Period and Frequency
- Peak, Peak-to-Peak and RMS Values

Electrical Components and Operation

- Capacitor Types and Applications
- Charging and Discharging a Capacitor
- Capacitor Discharge Curve
- Capacitors in Series and Parallel
- Resistance and the Time Constant
- Capacitors in AC Circuits
- Capacitors in AC Circuits
- Inductors in AC Circuits
- Inductors in AC Circuits
- Diode Types and Applications
- Diode Characteristics
- Changing the Resistance in an LED Circuit
- Rectifier Circuits
- Simple Rectifier Circuit
- Transistors

Electromagnetic Systems

- Relays
- Transformers
- Transformer Voltages and Turns Ratio
- Transformer Power and Efficiency

Sensing Systems

- Physical Environment to Electrical Transformation
- Sensors

Control Systems

- Control Principles
- Types of Control Signals
- Control Examples
- Information Flow
- Signal Processing

Electric and Hybrid Vehicle

ALB2: EV01 Introduction to Electric Vehicle Technology

Introduction to Electric Vehicles

- Definition of Electric Vehicles
- Features of Electric Vehicles
- Introduction to the Electric Vehicle Trainer
- Plug-in Electric Vehicles
- High Voltage Vehicles
- Reasons for the Development of High Voltage Vehicles
- Fuel and Emissions

Hydrogen Vehicles

- Introduction to Hydrogen Vehicles
- Fuel Cells
- Types of Hydrogen Vehicles

The Electric Vehicle Voltage Systems

- High Voltage System
- Low Voltage System
- Disabling the HV System

Electric Vehicle Climate Control

- Vehicle Thermal Management
- Cabin Climate Control System
- HV Battery Thermal Management

EV CAN Bus

- Electric Vehicle CAN Bus System

EV Powertrain Systems

- Powertrain System
- Angular Position Sensor
- Traction Motor Control
- Driver Input Sensors

Introduction to Vehicle Charging

- Regenerative Braking System
- Charging System
- AC Charging System
- DC Charging System

EV Trainer Troubleshooting

- Electric Vehicle Systems Fault Finding 1
- Electric Vehicle Systems Fault Finding 2
- Electric Vehicle Systems Fault Finding 3
- Electric Vehicle Systems Fault Finding 4
- Electric Vehicle Systems Fault Finding 5
- Electric Vehicle Systems Fault Finding 6
- Electric Vehicle Systems Fault Finding 7
- Electric Vehicle Systems Fault Finding 8
- Electric Vehicle Systems Fault Finding 9

ALB2: EV02 Introduction to Hybrid Vehicles

Hybrid Vehicles

- Introduction to Hybrid and Electric Vehicles
- Classification of Hybrid Vehicles by Power Source
- Features of Hybrid Vehicles
- Classification of Hybrid Vehicles by Engine Arrangement
- Plug-in Hybrid Vehicles
- Series Hybrid Systems
- Parallel Hybrid Systems
- Series Parallel Systems and Components
- Practical Series Parallel Hybrid Systems

Electric and Hybrid Vehicle

ALB2: EV03 High Voltage Vehicle Safety

Electric Shock

- Dangers of Electric Current for Humans
- Dealing with a Victim of an Electric Shock
- Effect of Electric Current on the Human Body

High Voltage Electric Vehicle Safety

- Safety in High Voltage Vehicles
- Legal Regulations
- Safety with Batteries
- Working on High Voltage Vehicles
- Hybrid Safety Issues and Concerns
- Special Equipment for High Voltage Testing and Repair
- Qualifications for Working on High Voltage Vehicles

Troubleshooting Safely

- Troubleshooting Introduction
- Diagnose Insulation Measurement Faults
- Diagnose Equipotential Faults

ALB2: EV04 Electric Vehicle Battery Systems

Electrical Storage Systems

- Introduction to Electrical Storage Devices
- Fuel Cells
- Introduction to the EV Batteries and Charging Trainer

Batteries

- Batteries and Cells
- Batteries
- Lead Acid Batteries
- Electrochemistry
- NiMH Batteries
- Principles of NiMH Batteries

Lithium-Ion Batteries

- Lithium-ion Batteries
- Principles of Lithium-ion Batteries
- Battery Materials Used and Element Scarcity

Servicing EV Batteries

- First Responder Loop
- Disabling the HV System (741-01)
- Internal Disconnection of the HV Battery

Electric Vehicle Batteries

- Electric Vehicle Batteries
- Battery Range and Trip Economy
- Battery Packs
- HV Battery Modules and Cells

The Battery Stack

- Introduction to the HV Battery Stack
- The HV Battery Management System
- HV Battery State of Health
- HV Battery Cell Balancing
- HV Battery Cell Balancing
- Module Controllers and Sensing

In Car Charging Systems

- Charging Methods and Circuits
- The Charge Controller
- The Charge Controller
- Charging Modes, Types and Levels
- DC Charging
- On-Board Vehicle AC Charger
- AC Charging

Troubleshooting EV Battery Systems

- EV Batteries and Charging Fault Finding 1
- EV Batteries and Charging Fault Finding 2
- EV Batteries and Charging Fault Finding 8
- EV Batteries and Charging Fault Finding 12
- EV Batteries and Charging Fault Finding 13
- EV Batteries and Charging Fault Finding 14
- EV Batteries and Charging Fault Finding 15
- EV Batteries and Charging Fault Finding 16

Electric and Hybrid Vehicle

ALB2: EV04 Electric Vehicle Battery Systems - Continued...

Residential Charging Station Installation

- Introduction to the EV Charging Stations Trainer
- Overview of Residential House Wiring
- EV Charging Station Installations
- Bonding Check - Testing Electrical, Gas and Water System Grounding
- EVSE Grounding and Safety Devices
- Charging Station Safety - RCD
- EV Charging Terminology: kW and kWh
- Three Phase AC Supply
- Three Phase Signals

Charging Station Operation

- Charging System
- Three Phase AC Charging
- Single Phase AC Charging
- DC Fast Charging
- DC Fast Charging Station Operation
- EVSE DC-DC Converter Circuit
- Electric Vehicle Charging Station Connection
- Charging Station and Vehicle Communications
- Voltage and Current Sensing

Charging Station Management

- Electric Vehicle Supply Equipment Management
- Energy Company Tariffs
- Calculating EV Running Costs
- Charging Station Software
- Charging Station Software
- Electric Vehicle CAN Bus System

Charging Station Troubleshooting

- EV Charging Stations Fault Finding 1
- EV Charging Stations Fault Finding 2
- EV Charging Stations Fault Finding 3
- EV Charging Stations Fault Finding 4
- EV Charging Stations Fault Finding 5
- EV Charging Stations Fault Finding 6
- EV Charging Stations Fault Finding 7
- EV Charging Stations Fault Finding 8
- EV Charging Stations Fault Finding 9
- EV Charging Stations Fault Finding 11
- EV Charging Stations Fault Finding 12
- EV Charging Stations Fault Finding 13
- EV Charging Stations Fault Finding 14
- EV Charging Stations Fault Finding 15

ALB2: EV05 Electric Vehicle Motor/Generator Systems

Introduction to the EV Motors and Generators Trainer

- Introduction to the EV Motors and Generators Trainer
- System Start-Up Procedure
- System Start-Up Procedure

Electric Motor Theory

- Electromagnetism
- The Rotating Magnetic Field
- Electric Motors

High Voltage Motors

- Disabling the HV System
- Disabling the HV System
- Three-Phase AC
- The Motor-Generator
- The DC Motor
- Characteristics of the DC Motor
- The Induction Motor
- Characteristics of an Induction Motor
- The Single-phase AC Motor

Traction Motors

- The Three Phase Traction Motor
- Three Phase Traction Motor Types
- The Three Phase Traction Motor

Controlling a Motor

- Connecting a Motor
- Motor Starting and Speed Control
- Pulse Width Modulation Control
- Starting a Single-Phase AC Motor
- Speed Control of Induction Motors
- The Inverter Controller
- Operation of the Inverter Circuit
- Operation of the Inverter Controller with Different Feedback Types
- Generator Operation

Motor Efficiency

- Efficiency of Electric Motors
- Efficiency Formulas for Electric Motors
- Torque

EV CAN Bus

- Electric Vehicle CAN Bus System

High Voltage Cabling

- High Voltage Wiring and Connectors
- Motor Installations and Safety

Regenerative Braking

- Braking Forces
- Range Extenders
- Regenerative Braking and the Rectifier Circuit

Troubleshooting

- EV Motors and Generators Fault Finding 1
- EV Motors and Generators Fault Finding 2
- EV Motors and Generators Fault Finding 3
- EV Motors and Generators Fault Finding 4
- EV Motors and Generators Fault Finding 8
- EV Motors and Generators Fault Finding 9
- EV Motors and Generators Fault Finding 10

ALB2: EV06 EV Electrical Fundamentals A

Electrical Fundamentals

- Simple Circuits
- Simple Battery and Lamp Circuit
- Simple Battery, Lamp, and Switch Circuit
- Controlling and Protecting Simple Circuits
- Simple Battery, Lamp, Switch and Fuse Circuit
- Push-button Switches and Switch Circuits
- Push-button Switches
- Two-Position Changeover Switches
- Common Ground Circuits and Wiring Diagrams
- Common Ground Circuits
- DC and AC Current
- Continuity
- Current Flow in a Simple Circuit
- Electrical Test Equipment
- Using a Multimeter
- Voltage Drop
- Measuring Voltage
- Measuring Current
- Measuring Current in a Circuit
- Power
- Calculating Electrical Power for a Load
- Continuity and Circuit Faults
- Circuit Faults

Resistance

- Resistance and Ohm's Law
- Measuring Resistance
- Resistance
- Investigating Whether Resistors are in Tolerance
- Ohm's Law
- Electrical Circuits
- Investigating a Characteristic Graph for a Resistive Component
- Resistors in Series
- Resistors in Parallel
- Series and Parallel Resistor Combinations
- The Voltage Divider Principle
- Voltage Divider Operation
- Kirchhoff's First Law
- Current Behavior at a Node
- Kirchhoff's Second Law
- Voltages in a DC Network
- Internal Resistance
- Internal Resistance of Power Sources

Wiring Diagrams

- Introduction to Wiring Diagrams
- Reading Wiring Diagrams
- Wiring Diagrams
- Symbols, Device Markings and Terminal Block Designations

AC Circuits

- Measuring with an Oscilloscope
- Amplitude and Timebase Settings of an Oscilloscope
- Period and Frequency
- Peak, Peak-to-Peak and RMS Values

Passive Electrical Components and Operation

- Capacitor Types and Applications
- Charging and Discharging a Capacitor
- Capacitor Discharge Curve
- Capacitors in Series and Parallel
- Resistance and the Time Constant
- Capacitors in AC Circuits
- Inductors in AC Circuits

ALB2: EV06 EV Electrical Fundamentals B

Semiconductor Components and Operation

- Diode Types and Applications
- Diode Characteristics
- Changing the Resistance in an LED Circuit
- Rectifier Circuits
- Simple Rectifier Circuit
- Fault Finding Semiconductor Circuits W3 (730-10)
- Transistors
- Alternative Components (730-10)
- Analogue Switches

Electromagnetic Systems

- Electromagnetism
- Field Strength of an Electromagnet
- Field Shape and Direction for an Electromagnet
- Relays
- Reed Switch and Relay
- Electromagnetic Induction and the Solenoid
- Transformers
- Transformer Voltages and Turns Ratio
- Transformer Power and Efficiency
- DC Motor Operation (730-10)
- DC Motor-Generator (730-10)

Sensing Systems

- Inputs, Outputs and Processes
- Inputs, Outputs and Processes (730-10)
- Sensors and Actuators (730-10)
- Physical Environment to Electrical Transformation
- Sensors
- Hall Effect Sensor
- Automatic Temperature Control
- Automatic Temperature Control (730-10)

Control Systems

- Control Principles
- Types of Control Signals
- Pulse Width Modulation Control
- PWM Signal driving an LED (730-10)
- PWM Signal - Variable Frequency and Duty Cycle (730-10)
- Control Examples
- Information Flow
- Signal Processing
- Operation of the Inverter Circuit
- The Inverter Controller

LIB3: 42 Automotive Electrical Fundamentals

Electrical Fundamentals

- Simple Circuits
- Simple Battery and Lamp Circuit (board)
- Controlling and Protecting Simple Circuits
- Simple Battery, Lamp, and Switch Circuit (board)
- Simple Battery, Lamp, Switch and Fuse Circuit (board)
- Common Ground Circuits and Wiring Diagrams
- Common Ground Circuits (board)
- Wiring Diagrams (board)
- DC and AC Current
- Current Flow in a Simple Circuit (board)
- Power
- Continuity and Circuit Faults
- Continuity (board)
- Circuit Faults (board)
- Pushbutton Switches and Switch Circuits
- Pushbutton Switches (board)
- Switches in Series and Parallel (board)
- Changeover Switches
- Two-Position Changeover Switches (board)
- Two-Position, Two-Pole Changeover Switches (board)
- Resistance and Ohm's Law
- Ohm's Law (board)
- Resistance (board)
- Electricity
- Electrical Circuits
- Electromagnetic Principles
- Electrical Safety and Circuit Checks
- Introduction to Wiring Diagrams
- Control Principles
- Control Examples
- Information Flow
- Physical Environment to Electrical Transformation

Electrical Components and Operation

- Capacitor Types and Applications
- Diode Types and Applications
- Transistors
- Relays
- The Relay (board)
- Signal Processing
- Sensors
- Types of Control Signals

Electrical Supply

- Batteries
- Battery and Fuse Investigation (board)
- Battery and Fuse Investigation (panel)
- Battery and Fuse Circuit Fault Investigation 1 (board)
- Battery and Fuse Circuit Fault Investigation 1 (panel)
- Battery and Fuse Circuit Fault Investigation 2 (board)
- Battery and Fuse Circuit Fault Investigation 2 (panel)

Electrical Measurement

- Electrical Test Equipment
- Using a Multimeter
- Voltage, Resistance, and Continuity (board)
- Measuring Current
- Reading Wiring Diagrams
- Voltage Drop
- Calculating and Adjusting Permitted Voltage Drop
- Electrical Circuit Testing (workshop)
- Symbols, Device Markings and Terminal Block Designations

Electric and Hybrid Vehicle

LIB3: 49 Electric and Hybrid Vehicle

Electric Vehicles

- Definition of Electric Vehicles
- Fuel Cells
- The Principle of the Fuel Cell
- Electric Motors
- Three-Phase AC
- Features of Electric Vehicles
- Range Extenders

High Voltage Electric Vehicles

- High Voltage Vehicles
- Reasons for the Development of High Voltage Vehicles
- NiMH Batteries
- Principles of NiMH Batteries
- Lithium-ion Batteries
- Principles of Lithium-ion Batteries
- Safety with Batteries
- High Voltage Wiring and Connectors
- Voltage Converters
- The Inverter Principle
- The DC to DC Converter
- The Motor-Generator
- The Rotating Magnetic Field
- Safety in High Voltage Vehicles
- Legal Regulations
- Special Equipment for High Voltage Testing and Repair
- Working on High Voltage Vehicles
- Qualifications for Working on High Voltage Vehicles

Hybrid Vehicles

- Classification of Hybrid Vehicles by Power Source
- Features of Hybrid Vehicles
- Classification of Hybrid Vehicles by Engine Arrangement
- Diagnose Insulation Measurement Faults
- Diagnose Equipotential Faults

Hybrid and Electric Vehicle Systems

- Introduction to Hybrid and Electric Vehicles
- Fuel and Emissions
- Series Hybrid Systems
- Parallel Hybrid Systems
- Series Parallel Systems and Components
- Practical Series Parallel Hybrid Systems
- Introduction to the Hybrid Vehicle Trainer
- Hybrid Vehicle Trainer Controls
- Plug-in Electric Vehicles
- Plug-in Hybrid Vehicles
- The High Voltage System
- The Low Voltage System
- Troubleshooting Introduction
- AC Motors and Generators
- Hybrid Electric Motors
- Hybrid Engines
- Electronic Circuits and Modules
- Cables, Connectors and Protection Devices
- Cables and Connectors
- Introduction to Electrical Storage Devices
- Lead Acid Batteries
- Nickel Metal Hydride Batteries
- Lithium-ion Batteries
- Battery Packs
- Brake Systems
- Hybrid Safety Issues and Concerns
- Troubleshooting the High Voltage System
- Disabling Hybrid Vehicle Systems
- Disabling the High Voltage System

LIB3: 50 Networked Systems

Networked Systems Structure

- The CAN Data Bus
- The LIN Data Bus
- The MOST Data Bus

Networked Systems Data

- CAN Bus Data Processing
- Transmitting CAN Data
- CAN Signal Response
- CAN Bus Fault Diagnosis
- CAN Bus Fault Diagnosis - 2
- CAN Bus Fault Diagnosis - 3
- CAN Bus Fault Diagnosis - 4
- CAN Bus Fault Diagnosis - 5
- CAN Bus Fault Diagnosis - 6

LIB3: 51 CAN Bus Lighting Systems

Lighting Systems Operation

- Using Auto CAN Lighting for the First Time
- CAN Bus Lighting Systems
- CAN Bus Lighting Systems (board)
- CAN Bus Lighting Control
- CAN Bus Lighting Control (board)
- CAN Bus Park, Tail, and Headlight Systems
- CAN Bus Park, Tail, and Headlight Systems (board)
- CAN Bus Fog Light Systems
- CAN Bus Fog Light Systems (board)
- CAN Bus Turn Signal and Hazard Warning Systems
- CAN Bus Turn Signal and Hazard Warning Systems (board)
- CAN Bus Stop and Backup Light Systems
- CAN Bus Stop and Backup Light Systems (board)
- The Lighting Systems' CAN Bus
- The Lighting Systems' CAN Bus (board)

Lighting Systems Measurement

- CAN Bus Lighting Systems Measurement
- CAN Bus Park and Tail Light System Measurement (board)
- CAN Bus Headlight System Measurement (board)
- CAN Bus Fog Light System Measurement (board)
- CAN Bus Turn Signal and Hazard Warning System Measurement (board)
- CAN Bus Stop and Backup Light System Measurement (board)
- CAN Data Bus Measurement
- CAN Data Bus Measurement (board)

Lighting Systems Diagnosis

- CAN Bus Lighting Faults
- CAN Bus Lighting Fault 1 (board)
- CAN Bus Lighting Fault 2 (board)
- CAN Bus Lighting Fault 3 (board)
- CAN Bus Lighting Fault 4 (board)
- CAN Bus Lighting Fault 5 (board)
- CAN Bus Lighting Fault 6 (board)
- CAN Bus Lighting Fault 7 (board)
- CAN Bus Lighting Fault 8 (board)
- CAN Bus Lighting Control Fault 1 (board)
- CAN Bus Lighting Control Fault 2 (board)

Electric and Hybrid Vehicle

LIB3: 52 CAN Bus Auxiliary Systems

Auxiliary Systems Operation

- Auxiliary CAN Bus Systems
- Effect of a Disconnected CAN Bus Control Module
- The Auxiliary Systems' CAN Bus
- The Auxiliary Systems' CAN Bus (board)
- CAN Bus Window, Mirror, and Seat Systems
- CAN Bus Window, Mirror, and Seat Systems (board)
- CAN Bus Power Door Locking System
- CAN Bus Power Door Locking System (board)
- Auxiliary CAN Bus Door Mirror Control Systems
- Auxiliary CAN Bus Safety Systems
- Auxiliary CAN Bus Security Systems
- Auxiliary CAN Bus Window Control Systems

Auxiliary Systems Measurement

- CAN Data Bus Measurement
- CAN Data Bus Measurement (board)
- Multimeter Tests on an Auxiliary CAN Bus System
- CAN Bus Window, Mirror, and Seat Systems Measurement
- CAN Bus Mirror System Measurement (board)
- CAN Bus Window System Measurement (board)
- CAN Bus Seat System Measurement (board)
- CAN Bus Power Door Locking System Measurement
- CAN Bus Power Door Locking System Measurement (board)
- Oscilloscope Tests on an Auxiliary CAN Bus System
- Analyzer Tests on an Auxiliary CAN Bus System

Auxiliary Systems Diagnosis

- Testing Auxiliary CAN Bus Systems
- Auxiliary CAN Bus Fault Tolerance
- Faults in Auxiliary CAN Bus Systems
- Open Circuit Auxiliary CAN Bus Faults
- Short Circuit Auxiliary CAN Bus Faults
- CAN Bus Auxiliary Faults
- CAN Bus Auxiliary Fault 1 (board)
- CAN Bus Auxiliary Fault 2 (board)
- CAN Bus Auxiliary Fault 3 (board)
- CAN Bus Auxiliary Fault 4 (board)
- CAN Bus Auxiliary Fault 5 (board)
- CAN Bus Auxiliary Fault 6 (board)
- CAN Bus Auxiliary Fault 7 (board)

LIB3: 54 Automotive Heating and Air Conditioning

Heating and Air Conditioning Fundamentals

- Air Conditioning Principles
- Air Conditioning Systems
- Air Conditioning Trainer (auto rig)
- Air Conditioning Trainer Operation (auto rig)
- Refrigeration Cycle (panel)
- Refrigerant Leak Detection (panel)

HVAC Components and Operation

- Compressors
- Lines and Hoses
- Condensers
- Air Distribution Control System Investigation (panel)
- Air Distribution Control System Troubleshooting 1 (panel)
- Air Distribution Control System Troubleshooting 2 (panel)
- Air Distribution Control System Troubleshooting 3 (panel)
- HVAC Electrical Controls Investigation (panel)
- A/C Electrical System Fault Investigation (panel)
- Blower Motor Fault Investigation 1 (panel)
- Blower Motor Fault Investigation 2 (panel)
- Compressor Fault Investigation (panel)
- Climate Control System Operation (rig)

HVAC Servicing

- Discharging and Recharging an A/C System (panel)
- A/C System Troubleshooting 1 (panel)
- A/C System Troubleshooting 2 (panel)
- Air Conditioning Practical (auto rig)
- Air Conditioning System Performance Test (auto rig)
- Inspection and Testing of Airflow Components (workshop)
- Inspect Airflow Components on a Workshop Vehicle (workshop)
- Testing Automatic Air Conditioning System Operation (workshop)
- Cooling System Inspection (workshop)
- Control Head and Component Servicing (workshop)
- Heater and Air Management Service Procedure (workshop)
- Testing For Leaks (workshop)
- Testing A/C Fail Safe Switches (workshop)
- Removal, Inspection, and Replacement of A/C Compressor Clutch (workshop)
- Removing and Replacing the A/C Compressor (workshop)
- Remove, Inspect, and Install A/C System Hose and Fittings (workshop)
- Airflow Restrictions and Components (workshop)
- Replacement and Inspection of Accumulator/Receiver-drier (workshop)
- Servicing the FOT and TXV (workshop)
- Inspection of A/C Evaporator Drain (workshop)
- Filter Inspection and Installation (workshop)
- A/C Compressor Clutch Removal (workshop)
- Duratec Engine Air-conditioning System Servicing (rig)
- Investigation of a FOTCC System (panel)
- FOTCC System Troubleshooting (panel)

Electric and Hybrid Vehicle



LIB3: 55 Auto Shop

Automotive Technology

- Automotive Terminology

Shop and Personal Safety

- Rules and Procedures 1
- Rules and Procedures 2
- Ventilation Procedures
- Marked Safety Areas and Evacuation Routes
- Fire Safety Equipment
- Fire Fighting
- First Aid 1
- First Aid 2
- Personal Protective Equipment 1
- Personal Protective Equipment 2
- SRS, EBS, and Hybrid High Voltage Systems
- High Voltage Circuits
- Material Safety Data Sheets

Tools and Equipment

- Tools and Test Equipment
- Tool Usage
- Standard and Metric Designation
- Handling Tools and Equipment
- Handling Tools and Equipment (workshop)
- Lifting Equipment
- Measuring with a Caliper, Micrometer, or Dial Gauge (workshop)
- Tool Cleaning, Storage, and Maintenance
- Tool Cleaning, Storage, and Maintenance (workshop)

Preparing Vehicle for Service

- Repair Orders
- The Three Cs (Concern, Cause, and Correction) (workshop)
- Vehicle Care
- Vehicle Service History
- Logical Fault Diagnosis
- Door Panel Removal and Replacement (workshop)

Preparing Vehicle for Customer

- Vehicle Preparation

Auto Shop Sales and Administration

- Autocare Sales Process
- Autocare Payments
- Customer Care
- Autocare Stock Management

LIB3: 56 Passenger Safety Systems

SRS Components and Operation

- Airbag Safety
- Introduction to SRS (rig)
- Air Bags
- Air Bags
- Airbags (rig)
- Seat Belts (rig)

SRS Inspection and Diagnosis

- Disabling and Enabling the Air Bag System (workshop)
- SRS Faults (rig)
- SRS Fault Diagnosis 1 (rig)
- SRS Fault Diagnosis 2 (rig)
- SRS Fault Diagnosis 3 (rig)
- SRS Fault Diagnosis 4 (rig)
- SRS Fault Diagnosis 5 (rig)
- SRS Fault Diagnosis 6 (rig)

LIB3: 61 Engineering Mathematics

Units of Measure

- Units of Measurement

Approximation

- Approximations

Arithmetic

- Multiply Sums
- Adding and Subtracting
- Multiplication and Division of Decimal Numbers

Fractions

- Fractions - Addition and Subtraction
- Fractions - Multiplication and Division
- Use Fractions
- Simplify Fractions
- Expand Fractions
- Convert Mixed Numbers into Improper Fractions
- Convert Improper Fractions into Mixed Numbers
- Add and Subtract Fractions with the Same Denominator
- Add and Subtract Fractions with Different Denominators
- Convert Fractions to Decimal Numbers
- Convert Decimal Numbers to Fractions

Percentages

- Percentages (Part of 100)
- Percentages
- Calculate Percentages of Values
- Calculate Percentage Increases
- Calculate Percentage Reductions
- Parts per Thousand

Length, Area and Volume

- Lengths, Surface Area and Volume
- Lengths, Units and Prefixes
- Calculate the Perimeter of a Rectangle
- Calculate the Area of a Rectangle
- Calculate the Area of a Complex Shape
- Calculate Volume

Graphs and Charts

- Graphs - Straight Line Graphs
- Graphs - Square Law
- Graphs - Pie Chart

Equations

- Transposing Equations
- Performing Calculations
- Sign Rules for Mathematical Operations

- Distributive Law
- Multiply Out Brackets
- Structure Equations
- Transform Equations by Addition and Subtraction
- Transform Equations by Multiplication and Division
- Transpose Equations
- Calculate the Unknown Variable in an Equation
- Equating Method for Solving Simultaneous Equations
- Addition Method for Solving Simultaneous Equations

Algebra

- Algebra - Simple Formula
- First, Second, and Third Order Brackets
- Rule of Three (Direct Proportion)
- Rule of Three (Inverse Proportion)

Factorisation

- Simple Factorisation

Indices

- Working with Powers and Standard Form
- Indices - Powers of 10
- Indices - Addition and Subtraction
- Indices - Multiplication and Division
- Indices - Letter Notation
- Powers
- Indices
- Square Roots

Angles

- Angular Measure
- Measuring Angles
- Calculating with Angles

Trigonometry

- Lengths and Pythagoras' Theorem
- Pythagoras' Theorem
- Basic Trigonometry

Phasors

- Phase Angles
- Phasor Diagrams

Number Systems

- Binary and Decimal Conversions

Electric and Hybrid Vehicle

LIB3: 62 English Language Skills

Language

- Language Acquisition

Reading

- Citing Strong and Thorough Evidence
- Identifying and Analyzing Ideas in a Text
- Understanding and Interpreting a Text
- Understanding the Different Meanings of Language
- Understanding the Structure of a Text
- Determining a Writer's Perspective
- Understanding Multiple Sources of Information
- Evaluating Arguments and Specific Claims Made in a Text

Speaking and Listening

- Planning, Writing, Presenting, and Evaluating
- Discussing Different Perspectives
- Justifying Decisions with Reasoning
- Engaging in Group Discussions
- Presenting a Perspective to an Audience
- Speak on the Telephone
- How to Introduce Yourself
- Listening and Understanding
- Engage in a Two-Way Conversation

Writing

- Arguing a Perspective
- Presenting a Persuasive Perspective
- Formal Letters with a Perspective
- Creating an Informative Text
- Informing an Audience
- Writing an Informative Article
- Understanding and Using Perspective in a Narrative
- Writing Reality as a Narrative
- Writing History

Electric and Hybrid Vehicle



LIB3: 65 Workplace Problem Solving

Production

- Running a Bicycle Parts Production Line
- Running Two Production Lines for Bicycle Parts
- Paint Mixing - Calculating Materials
- Machine Productivity for Cutting Metal Shapes
- Mass Production - Calculating Quantities
- Comparing Machine Productivities
- Choosing Packaging for Parts
- Calculating Costs in a Food Factory
- Programming a Drinks Bottling Plant
- Setting Up a Paint Filling Machine

Distribution

- Calculating Shipping Costs
- Planning Logistics

Construction

- Car Park Construction - Calculating Materials
- Perimeter Fencing - Calculating Materials
- Installing a Flag Pole
- Tiling a Bathroom Floor

Sales and Marketing

- Sales Conversion - Calculating Rates
- Calculating Sales Discounts

Finance

- Upgrading a Vehicle Fleet
- Phone Contracts - Comparing Deals
- Calculating Costs for a Building Project
- Comparing Crane Hire Costs
- Calculating Stationery Costs
- Calculating VAT Rates

Customer Service

- Handling a Telephone Call

Human Resources

- Visiting a Construction Site
- Improving the Workplace
- Attending a Meeting
- Choosing a Computer Monitor
- Workforce Planning

LJ APP5: Automotive Applications

Automotive

- AutoFault
- Automotive Electrics Trainer
- CAN Bus Simulator
- Diesel Engine Explorer Application
- Hybrid Vehicle Application
- Inverter Conversion Circuits Application
- Oil Level Maintenance Application
- Tire Maintenance Application
- Types of Fuels Application

Electronics

- Electrical Circuits Application

Employability Skills

- Engaging in a Two-Way Conversation Application
- How to Introduce Yourself Application
- Speaking on the Telephone Application

Fluid Power

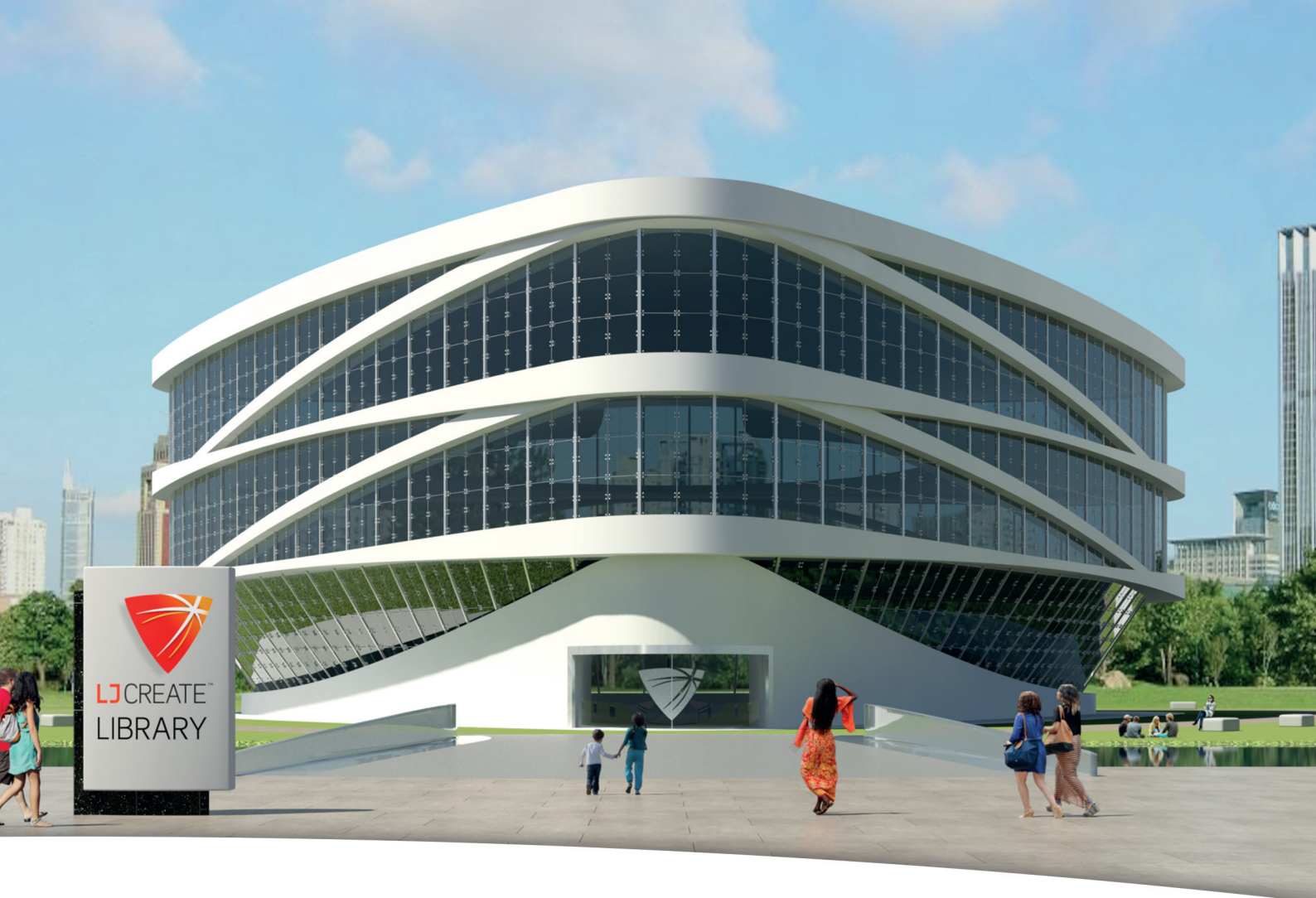
- Hydraulics Simulator

Measurement

- Measuring with Calipers and Micrometers Application

Mechanical Systems

- Mechanisms Simulators
- Planetary Gearset Application



For more information on our range of learning resources, please contact:

LJ Create

Morgan Way
Bowthorpe
Norwich NR5 9JJ
United Kingdom

T: +44 (0)1603 748001
F: +44 (0)1603 746340
E: info@ljcreate.co.uk
W: www.ljcreate.com

ljcreate.com

LJ Create recognises all product names used in this document as trademarks or registered trademarks of their respective holders. We reserve the right to change the contents of any module or programme. For the latest information on any of our products, please visit our website.