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Sector: Automobile

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VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector: Automotive Engineering Specialization – Auto Electricals and Electronics)
NVEQF/AUTO/AEE

S.No.	Certificate Level	Vocational Hours
1.	Level-I	200 hrs
2.	Level-II	250 hrs
3.	Level-III	350 hrs
4.	Level-IV	350 hrs
5.	Level-V	500 hrs
6.	Level-VI	550 hrs
7.	Level-VII	750 hrs

Certificate Level- I

- Basic Auto Electricals: Basic Introduction / tools
- Application 2 & 3 Wheelers: Power Source, Wiring & Connectors, wiring diagrams, lighting systems, signals & alarms, routing & clamping

Certificate Level- II

- Basic Auto Electricals: Basic Introduction / tools
- Application: 4wheeler : Power Source, Wiring & Connectors, wiring diagrams, lighting systems, signals & alarms, routing & clamping, Wipers & window winders, AC, Music System

Certificate Level- III

- Basic Auto Electricals: Basic Introduction / tools
- Application : CV : Power Source, Wiring & Connectors, wiring diagrams, lighting systems, signals & alarms, routing & clamping, Wipers & window winders, AC, Music System, Basic Electronics

Certificate Level- IV

- Auto Electronics: Basics, Sensors, wirings, Installations, ECU, Diagnostics, Settings, Calibration, Service /Spares, Instrument Cluster

Certificate Level- V

- ECU Technology: Basics, Programming, Mapping, Flashing, Diagnostics

Certificate Level- VI

- Advance Electronics I: CAN Bus system, Immobiliser system, Integration of all ECU, Diagnostics, Accessories - Mobile, Wi-fi, GPS etc, Safety Systems

Compulsory

- Advance Electronics II: CAN Bus system, Integration of all ECU, Diagnostics, Safety Systems - Crash systems, Electronic Stability Controlling systems, Infomatics

Certificate Level- VII

- CAN Bus system, Integration of all ECU, Diagnostics, Safety System-, Crash Systems-, Electronics Stability, Controlling systems, Informatics

VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector: Automotive Engineering, Specialization: Engine Testing)
NVEQF/AUTO/ET

S.No.	Certificate Level	Vocational Hours
1.	Level-I	200 hrs
2.	Level-II	250 hrs
3.	Level-III	350 hrs
4.	Level-IV	350 hrs
5.	Level-V	500 hrs
6.	Level-VI	550 hrs
7.	Level-VII	750 hrs

Certificate Level- I

Tools:

- **Tools :Usage**

W Engines:

- Dismantling from vehicle
- **Scooter** :Complete engine stripping
- **Motor cycles:** Engine reassy
- **Step thru** :Re Mounting on vehicle

2W general vehicle service:

- Routine main checks, Routine repairs, Electricals/Controls

Certificate Level- II

Tools:

- Tools : Usage

3W Engine:

- Dismantling from vehicle
- Petrol : Complete engine stripping
- Diesel : Engine reassy
- Alt fuel: Re Mounting on vehicle

3W general vehicle:

- Routine maintenance checks
- Service: Routine repairs: Electricals/Controls

Certificate Level- III

Tools:

- **Tools :** Usage

4 wheeler engine:

- Dismantling from vehicle
- Pass cars Segment A&B: Engine stripping
- Diesel/Petrol: Reassembly

Alt fuels:

- Remounting on vehicle, Engine Peripherals like-HVAC, Alternator, Vacuum pump, steering pump, Air intake system, Exhaust system, Cooling system, Catcon/Oxycat,

Engine controls:

- Fuel injection equipment, Sensors

Certificate Level- IV

MUV/SUV/LCV:

- MUV/SUV/LCV: Dismantling from vehicle
- Diesel/Petrol: Engine stripping
- Alt fuels: Reassembly, Remounting on vehicle

Alt fuels:

- Engine Peripherals like-HVAC, Alternator, Vacuum pump, steering pump, Air intake system, Exhaust system, Cooling system, Catcon/Oxycat

Engine controls:

- Fuel injection equipment, Sensors

Certificate Level- V

HCV:

- Dismantling from vehicle, Engine stripping, Reassembly, Remounting on vehicle, Engine Peripherals like HVAC, Alternator, Vacuum pump, steering pump, Air intake system

HCV:

- Exhaust system, Cooling system ,Oxycat EGR Turbo charger

HCV:

- Engine controls, Fuel inj eqpt, Sensors

Certificate Level- VI

Engine testing:

- Engine testing: Mounting on dynamometer

All types of engines:

- All types of engines: Test bench/dyno/controls, Gen Performance tests, Gen Durability tests, Gen Instrumentation, Data Collection/transfer, Trouble shooting, Diagnostics

Certificate Level- VII**Advanced Engine:**

- Advanced Engine: Instrumentation

Testing and:

- Data acquisition eqpt

Validation:

- Simulation tests, Special tests, Data collection, Transient Analysis

VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector: Automotive Engineering - Specialization:-Vehicle Testing)
NVEQF/AUTO/VT

S.No.	Certificate Level	Vocational Hours
1.	Level-I	200 hrs
2.	Level-II	250 hrs
3.	Level-III	350 hrs
4.	Level-IV	350 hrs
5.	Level-V	500 hrs
6.	Level-VI	550 hrs
7.	Level-VII	750 hrs

Certificate Level- I

Tools:

- Tools: Usage
- Light 4w vehicles:
- Dismantling of vehicle peripherals

Pass cars A/B segment:

- Assembly of vehicle peripherals
- Gen Vehicle service: Routine main checks
- Basic Maintenance: Routine repairs, Electricals/Controls

Certificate Level- II

Tools: Usage

- MUV/LCV/SUV : Dismantling of vehicle peripherals, Re assembly on vehicle
- Gen vehicle service : Routine maintenance checks
- Basic Maintenance : Routine repairs, Electricals/Controls

Certificate Level- III

Tools: Usage

- Light 4w vehicles : Dismantling of vehicle peripherals
- Pass cars A/B segment: Assembly of vehicle peripherals
- Gen Vehicle service: Routine maintenance checks
- Basic Maintenance: Routine repairs, Electricals/Controls, Air intake system, Exhaust system,
- Cooling system, EGR/Oxycat, Fuel injection equipment, Sensors, Brake system, Steering & Suspension

Certificate Level- IV

- MUV/SUV/LCV : Basic Driving Skills
- Pass cars : Driving requirements - Critical situations, General Durability testing, Performance Testing, Accelerated durability testing on tracks
- Specific testing and equipment: Chassis dynamometer, Brake testing dyno,
- ALL vehicles: Side slip test, Wheel alignment, Other instrumentation
- Specific testing and validation: Emissions, Fuel efficiency, Brakes, Other CMVR requests

Certificate Level- V

- All CV: Basic Driving Skills, Driving requirements - Critical situations, General Durability testing, Performance Testing, Accelerated durability testing on tracks,
- Specific testing and equipment: Chassis dynamometer, Brake testing dyno,
- ALL vehicles: Side slip test, Wheel alignment, Other instrumentation
- Specific testing and validation: Emissions, Fuel efficiency, Brakes, Other CMVR requests

Certificate Level- VI

- Specific testing and validation : Chassis dynamometer, Brake testing dyno
- ALL vehicles: Side slip test, Wheel alignment, Other instrumentation
- Specific testing and validation: Emissions, Fuel efficiency, Brakes, Other CMVR reqts

Certificate Level- VII

- Advanced Skills: Instrumentation
- All Vehicles: Data acquisition equipment, mapping for preferred optimization, Simulations, Data collections, Analysis.
- Dynamic evaluation: Assessment
- Ride and Handling : Tuning

VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector: Automotive Engineering Specialization – Vehicle Quality)
NVEQF/AUTO/VQ

S.No.	Certificate Level	Vocational Hours
1.	Level-I	200 hrs
2.	Level-II	250 hrs
3.	Level-III	350 hrs
4.	Level-IV	350 hrs
5.	Level-V	500 hrs
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Certificate Level- I

Welding types / joints, ARC, MIG, TIG, Gas, Brazing, soldering, Spot, Seam: Application Welding equipments Process Parameters types of joints, Welding Qualification

Certificate Level- II

Body in White: Basic Structural Exposure, Press parts, Handling, Joineries & reinforcements, Welding process for all joints, Fixtures, Sealants

Certificate Level- III

Body works: Tools, Damage modes - dents, accidents, Rectification Alternatives --- replacement, denting & finishing, Surface preparation & process, Surface protection, Alignments & measurements, Gaps & flushness

Certificate Level- IV

Trims & Add-ons: Exposure, Seats, upholstery & comfort, Trim panels - Doors, window & sealing, Dash Board, Instrument panel, Acoustic & thermal insulation, Safety equipments, NVH, HVAC

Certificate Level- V

- Painting & Finishing: Tools & Equipments, Surface preparation, Painting process, Coatings & Sealing, Surface textures, Plastic parts painting
- Surface protective: Various types of plating
- Coating: Powder coating
- Lab testing : Life, scratch, gloss, corrosion testing

Certificate Level- VI

- Metrology: Instruments – Measuring, Instruments – lab, Measurement parameters, Drawings & specifications
- Standard Room: Equipments, Calibration System
- CMM : Operations & Measurements, Surface Scanners

Compulsory

- Materials: Introduction
- Ferrous & nonferrous : Physical properties
- Plastics : Mechanical properties
- Rubbers : Heat treatment process
- Glass : Testing
- Composites : Application, Recyclability

Certificate Level- VII

- Material: Introduction
- Ferrous and Non Ferrous : Physical Properties
- Plastics: Mechanical Properties
- Rubber: Heat Treatment Process
- Glass: Testing
- Composites : Application, Recyclability

VOCATIONAL EDUCATIONAL QUALIFICATION FRAMEWORK
(Sector: Automotive Engineering Specialization – Farm Equipment & Machinery)
NVEQF/AUTO/VQ

S.No.	Certificate Level	Vocational Hours
1.	Level-I	200 hrs
2.	Level-II	250 hrs
3.	Level-III	350 hrs
4.	Level-IV	350 hrs
5.	Level-V	500 hrs
6.	Level-VI	550 hrs
7.	Level-VII	750 hrs

Certificate Level- I

Farm tractor

- (15HP to 60HP) : Tools usage, Peripherals Dismantling, Peripherals Assembling, Routine Service & Repairs, Hydraulics, Implements, Electrical

Certificate Level- II

Farm Tractor: Tools usage, Peripherals Dismantling, Peripherals Assembling, Routine Service & Repairs, Hydraulics, Implements, Electricals

Certificate Level- III

Farm Tractor: Tools ,Tractor Dismantling ,Engine Stripping, Reassembly -Engine & T/M., Tractor Assembly, Brake Systems, Steering System, Hydraulic System Complete, Controls & Mechanism, Fuel Systems, Cooling, Air Intake & Exhaust

Certificate Level- IV

Farm Tractor: Tractor Dismantling ,Engine Stripping, Reassembly -Engine & T/M., Tractor Assembly, Brake Systems-Component Level, Steering System-Component System, Hydraulic System Complete, Fuel Systems-Fip, Injectors, Implement-Attachment & Operation, Fault Finding & Rectification

Certificate Level- V

- Farm Tractor Basic
- Testing: Basics ,Performance – Haulage, Performance - Farm Operations,
- Steering & Brake /Clutch , Hydraulic Testing, PTO Testing, Attachment & Implement Testing, NVH & Emissions

Certificate Level- VI

- Farm Tractor: Performance Enhancement – Haulage, Performance Enhancement - Farm Operations,
- Steering & Brake /Clutch - Durability, Hydraulic Testing – Durability, Pto Testing – Durability
- Attachment & Implement Testing, NVH, Emissions & Comfort – Driver, Diagnostics, Training To Users,

Certificate Level- VII

- **Tractor Mounted:** Eqipt. - Backhoe: Front End Loader: Selection & Installation, Performance Testing, Hydraulic & Pto , Special Tests
- **Earth Moving** Eqpt. -: Operation & Maintenance, Hydraulics & Controls , Application , Testing , Trouble Shooting