



# MCAST

Malta College of Arts, Science & Technology

**MQF Level 3**

**Diploma in Light Vehicle Servicing**

**ME3-A2-18**

## **Course Description**

This course is for students who would like to start developing a strong grounding in the field of motor vehicle engineering and maintenance. Through the various aspects of training that this course provides, students should be able to gain a good understanding of the basic systems found in light vehicles and safe handling of tools. Students will also develop essential skills of the trade, including the carrying out of basic routine checks, the replacement of parts as required in the periodic servicing of vehicles, and maintaining appropriate service records. In this programme, students will also follow studies in key skills subjects, such as English, Maltese, Mathematics, Information Technology and Individual and Social Responsibility.

## **Programme Learning Outcomes**

At the end of the programme the students are able to

- 1. Carry out checks and maintenance according to safety and road worthiness regulations;*
- 2. Identify fault location and service needs;*
- 3. Maintain appropriate service and repair records;*
- 4. Carry out repairs by replacement faulty basic parts and components.*

## **Entry Requirements**

MCAST Foundation Certificate

or

2 SEC/O-Level passes/SSC&P (Level 3) passes

Compulsory: Mathematics or Physics

## **Other Entry Requirements**

N/A

## Current Approved Programme Structure

Unit Code	Unit Title	ECVET
ETAUT-303-1802	Body and Interiors of Light Vehicles	3
ETH&S-303-1803	Health and Safety and Working Relationships in the Automotive Environment	3
ETAUT-306-1803	Basic Brake, Steering and Suspension units of Light Vehicles	6
ETAUT-306-1804	Basic Electrical and Electronics Units of Light vehicles	6
ETAUT-306-1805	Basic Transmission and Drive Line Units of Light Vehicles	6
ETAUT-306-1806	Cooling, Lubrication and Fuel Systems	6
ETAUT-306-1807	Power Systems - Diesel, Petrol, LPG, Electrical and Hybrid Power	6
CDKSK-304-1921	Mathematics	4
CDKSK-304-1922	English	4
CDKSK-304-1923	Malti	4
CDKSK-304-1924	Information Technology	4
CDKSK-304-1913	Individual and Social Responsibility	4
CDKSK-304-1925	Science	4
<b>Total ECVET</b>		<b>60</b>

## **Unit: ETAUT-303-1802 - Body and Interiors of Light Vehicles**

**Unit level (MQF): 3**

**Credits: 3**

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### **Unit Description**

The aim of this unit is to introduce the learners to the vehicle's body and the systems that can be found in the interior of a vehicle.

Today's vehicles have accessories and system attached under body parts or behind vehicle trims. During this unit the learners will become familiar with these parts and the typical removal procedures to access various systems that different manufacturers place under body parts.

Together with the parts and interiors the unit will cover typical fastening methods used in body and interiors. Also, the importance of removal procedures and further actions required after assembly like alignment and water guarding requirements.

This unit will also introduce the learners to the vehicle lights and lamps. This should only be limited to the physical components not the electrical circuitry.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Identify the construction technology of different light vehicles;*
- 2. Recognise the fastening systems used in light vehicle bodies and interiors;*
- 3. Understand the dangers and risks associated with safety systems found in today's light vehicle technology;*
- 4. Assemble and replace body parts and interiors of a light vehicle in a safe manner and according to existing regulations.*

## **Unit: ETH&S-303-1803 - Health and Safety and Working Relationships in the Automotive Environment**

**Unit level (MQF): 3**

**Credits: 3**

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### **Unit Description**

The aim of this unit is to provide the learner with the soft skills necessary to work in an automotive environment and introduce the learner to the common practices carried out to keep a safe working environment.

Learners will familiarise themselves with the basics in Health and Safety legislations. This will provide a good background of common symbols and regulations used worldwide. As well as the importance of vehicle protection together with existing methods of vehicle protection.

The importance of good housekeeping is also introduced so that the learners will appreciate how good housekeeping can affect the working environment.

Learners will also have the opportunity to become familiar with Some communication practices that are necessary within an automotive environment. This will enable the learner to convey messages clearly and keep records in an appropriate manner for later referencing.

The learner will also be introduced to working relationship. This will include working etiquette and the hierarchy at the place of work.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Apply basic health and safety and vehicle protection procedures within a light vehicle workshop;*
- 2. Understand the local Health and Safety legislations and standards related to light vehicles engineering;*
- 3. Apply good Housekeeping practices within a light vehicle workshop;*
- 4. Identify the methods of communication and working relationships in an automotive environment.*

## Unit: ETAUT-306-1803 - Basic Brake, Steering and Suspension Units of Light Vehicles

Unit level (MQF): 3

Credits: 6

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### Unit Description

In this unit learners will familiarise themselves with the Brake, Steering and Suspension systems of light vehicle. Learners will gain the ability to identify and locate the various parts of the brake, steering and suspension units and will have the opportunity to carry out basic inspections and servicing tasks on light vehicles.

In addition to this, learners will have the opportunity to use tools and equipment safely to conduct basic tasks related to such systems. They will also use data sheets and servicing manuals during the inspection and servicing tasks.

### Learning Outcomes

On completion of this unit the student will be able to:

1. *Identify and locate parts and components of Brake, Steering and Suspension systems in light vehicles;*
2. *Understand the basic operation and function of the brake, steering and suspension components in light vehicles;*
3. *Use tools, equipment, data sheets and manuals during servicing and when inspecting the brake, steering and suspension systems in light vehicles in a safe manner;*
4. *Replace basic brake, steering and suspension components according to maker's specifications under supervision.*

## **Unit: ETAUT-306-1804 - Basic Electrical and Electronics Units of Light Vehicles**

**Unit level (MQF): 3**

**Credits: 6**

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### **Unit Description**

The aim of this unit is to help learners familiarise with the components forming part of the Electrical and Electronic systems of light vehicle. Learners will learn to identify the parts and location of each system and will have the opportunity to carry out basic inspections and servicing tasks.

Learners will also learn how to use tools and equipment safely to conduct basic servicing tasks. They will also learn how to use data sheets and servicing manuals to inspect and service these electrical units.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Identify electrical systems and components and their location in a light vehicle;*
- 2. Understand the basic operation and function of electrical components;*
- 3. Use tools, equipment, data sheets and manuals to carry out basic servicing tasks under supervision;*
- 4. Understand basic operation of electronic components and work out formulas to find circuit operation values.*

## **Unit: ETAUT-306-1805 - Basic Transmission and Drive Line Units of Light Vehicles**

**Unit level (MQF): 3**

**Credits: 6**

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### **Unit Description**

In this unit learners will familiarise themselves with the transmission and drive line systems of light vehicle. Learners will gain the ability to identify and locate the various parts of the transmission and drive line units and will have the opportunity to carry out basic inspections and servicing tasks on light vehicles.

In addition to this, learners will have the opportunity to use tools and equipment safely to conduct basic tasks related to such systems. They will also use data sheets and servicing manuals during the inspection and servicing task.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Identify and locate parts and components of a transmission and drive line system in light vehicles;*
- 2. Understand the basic operation and function of transmission and drive line components in light vehicles;*
- 3. Use tools, equipment, data sheets and manuals during servicing and inspecting systems in light vehicles in a safe manner;*
- 4. Replace basic transmission and drive line components according to maker's specifications under supervision.*



## **Unit: ETAUT-306-1806 - Cooling, Lubrication and Fuel Systems**

**Unit level (MQF): 3**

**Credits: 6**

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### **Unit Description**

In this unit, learners will learn about the components/features and basic operational principles of the light vehicle's cooling, lubrication and fuel systems.

Learners will develop the necessary knowledge and skills to perform basic servicing tasks on cooling systems, lubrication systems, fuel systems including petrol and diesel. Learners will also be performing repairs by replacement of major systems components on light vehicles.

Learners will also have the possibility to familiarise themselves with technical workshop manuals and thus be able to follow such manuals whilst doing work on different systems. Learners will also have the opportunity to make use of workshop tools and equipment while performing a number of servicing tasks under supervision. Since learners will be working with tools and equipment they will also become familiar with how to use such tools and equipment in a safe and appropriate manner.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Understand the basic principle of operation of different components of light vehicles;*
- 2. Perform basic service and repair by replacement under supervision on a vehicle's cooling system;*
- 3. Perform basic service and repair by replacement under supervision task on the vehicle's lubrication system;*
- 4. Perform basic service and repair by replacement under supervision tasks on the vehicle's fuel system including Petrol and Diesel.*

## **Unit: ETAUT-306-1807 - Power Systems - Diesel, Petrol, LPG, Electrical and Hybrid Power**

**Unit level (MQF): 3**

**Credits: 6**

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### **Unit Description**

In this unit, learners will learn about the basic operational principles of a Diesel, Petrol, LPG power and electrical/ hybrid power systems used in light vehicles.

Learners will familiarise themselves with the important parts and components of such systems and thus will develop the necessary knowledge and skills to perform basic servicing and repair tasks under supervision and according to the workshop manuals. This will give learners the opportunity to follow workshop safety procedures and use a variety of tools and equipment safely.

With regards to the Diesel, Petrol and LPG learners will have the opportunity for hands on experience on the system by dismantling, identifying the fault with the technician as well as assembling the power system when the fault is fixed.

In relation to the Electrical and Hybrid power systems, learners will be given basic understanding of this vehicles' technology. As well as understand the principles of operation and basic repair of such vehicles.

### **Learning Outcomes**

**On completion of this unit the student will be able to:**

- 1. Understand the basic operating principles of Diesel, Petrol, LPG, electrical and hybrid power systems;*
- 2. Locate the different components of a light vehicle's power systems;*
- 3. Perform basic maintenance tasks under supervision on the main components and sub systems of Electric and Hybrid vehicles;*
- 4. Use the appropriate tools and working procedures to carry out service and repair tasks by replacement in a diesel, petrol and LPG power systems under supervision.*