



MCAST

Malta College of Arts, Science & Technology

MQF Level 3

ME3-A1-19

**Diploma in Automotive Repair (Body and Paint)
Course Specification**

Course Description

The course is intended for students with little or no knowledge and experience of the automotive industry. The student will learn how to work on vehicle accident repair tasks in body work under minimal supervision. The course will also provide the student with the skills required to carry out paint repairs to the manufacturers' specifications. The student will thus gain a combination of theoretical knowledge and practical skills in automotive accident repair (panel beating) together with body paint principles. The student will also be expected to carry out effective housekeeping practices to work effectively within the automotive industry. The student will also learn how to work safely when carrying out removal and replacement of exterior vehicle panels and paint jobs. The student will also be expected to improve his/her knowledge of key skills subject such as, Mathematics, English, Maltese, Information Technology and Personal Development.

Programme Learning Outcomes

At the end of the programme the students is able to

- 1. Use correct personal and vehicle protection within the automotive environment.*
- 2. Understand how to carry out removal and fitting of non-permanently fixed motor vehicle body panels.*
- 3. Understand how to carry out the preparation of bare metal and pre-painted surfaces to accept foundation materials and paint topcoats.*
- 4. Understand how to identify, mix and apply fillers and foundation materials in vehicle refinishing.*

Entry Requirements

- MCAST Foundation Certificate ;or
- 2 SEC/O-Level passes/SSC&P (Level 3) passes
- Preferred: Mathematics
- A full “Secondary School Certificate and Profile” (SSC&P) at Level 2 will be accepted in lieu of one (1) O-Level pass.

Other Entry Requirements

A medical certificate for colour blindness is a necessary requirement to attend the course.

Current Approved Programme Structure

Unit Title	ECVET/ECTS
Car Body Construction and Materials	3
Minor Repair of Exterior Vehicle Panels	6
Removal, Replacement and fitting of Vehicle Panels and Components	6
The Principles of Welding Technology	6
Repairing, Preparing and Light Finish	12
Health, safety, good housekeeping and working relationships in the automotive environment	3
Mathematics	4
English	4
Maltese	4
Information Technology	4
Individual and Social Responsibility	4
Science	4
Total ECVET/ECTS	60

Car Body Construction and Materials

Unit level (MQF): 3

Credits: 3

Unit Description

New, different car body constructions and materials, emerging in the last couple of decades, have changed significantly the practice of accident repair and body paint. This unit enables learners to develop an understanding of the types of metals and composites used nowadays in the construction of car body, the areas where these materials are used and what their properties are. It is also important to understand the basics about the design and construction techniques applied to the body and chassis. After completing this unit, learners will be familiar with car body materials and components, car body structure and assembly, and be able to assemble and disassemble car body parts.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Have the knowledge of car body materials and components.*
- 2. Have the knowledge of the car body structure and assembly.*
- 3. Know how to assemble and disassemble car body parts.*

Minor Repair of Exterior Vehicle Panels

Unit level (MQF): 3

Credits: 6

Unit Description

Successful minor repair of exterior vehicle panels requires skills and knowledge of materials, equipment, hand tools, as the basis for minor and major repairs. Therefore, this unit is designed to help learners develop the skills and knowledge required for the selection, care and use of key hand tools for the repair, and for the preparation and use of common workshop equipment, as well as selection and fabrication of materials. Learners will be able to use the suitably maintained workshop equipment safely, and report any faulty or damaged tools and equipment to the relevant persons clearly and promptly. They will be able to store work tools and equipment in a safe manner, which permits easy access and identification for their use. This unit will also help learners develop knowledge and skills necessary to carry out minor repairs in a safe manner. It will enable them to use relevant information to carry out the task, to produce work records that are accurate, complete and are passed to the relevant person promptly, to make suitable and justifiable recommendations for cost-effective repairs and to report any additional faults noticed during the course of their work promptly and in the format required. This unit provides an understanding and knowledge on how to select materials for the repair; how to prepare and use the workshop equipment; and how to select and use hand tools. Finally, it provides learners with knowledge and skills to carry out minor repairs of the body panels.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Understand and know how to select materials for the car body repair.*
- 2. Understand and know how to prepare and use workshop equipment.*
- 3. Understand and know how to select and use hand tools.*
- 4. Have knowledge and skills to carry out minor repairs of exterior panels.*

Removal, replacement and fitting of vehicle panels and components

Unit level (MQF): 3

Credits: 6

Unit Description

This unit will help learners develop knowledge and skills necessary to carry out fitting, removing and replacing of a range of permanently and non-permanently fixed vehicle panels and components. It also covers the evaluation of the operation when the fitting is done. More specifically, this unit will enable learners to work safely when carrying out repair, removal, replacement and fitting of the permanently and non-permanently fixed vehicle panel. Learners will also learn how to use relevant information to carry out the task, to use appropriate tools and equipment, to produce work records that are accurate, complete and are passed to the relevant person promptly, to make suitable and justifiable recommendations for cost-effective repairs and to report any additional faults noticed during the course of their work promptly and in the format required. The proper use of measuring devices is also covered in this unit, in order to ensure high quality of work done. Therefore, this unit also helps learners develop the skills and knowledge required for the selection, care and use of measuring devices for the repair, and how to handle repairs. To summarize, learners will acquire the knowledge and skills on how repair, fit, remove and replace car body components safely; knowledge and skills to remove and replace exterior panels, including permanently-fixed components; knowledge and skills to remove and fit the non-permanently fixed body panels; understanding and knowledge on how to select and use the measuring devices; and understanding and knowledge on how to handle the repair.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Apply general knowledge and skills to repair, fit, remove and replace car body components safely.*
- 2. Apply knowledge and skills to remove and replace exterior panels.*
- 3. Apply knowledge and skills to remove and fit non-permanently fixed body panels.*

4. *Understand and know how to select and use measuring devices.*
5. *Have the skills and knowledge of car body repair.*

The Principles of Welding Technology

Unit level (MQF): 3

Credits: 6

Unit Description

Welding is a special process where quality has to be built in, not to be proved afterwards. Therefore, all activities in welding have to be in accordance with requests, as defined by appropriate standards, including welding procedure specification (WPS) as the essence of welding technology. This unit explains the principles of welding technology, as well as the underlying processes associated with Metal Inert Gas (MIG), Metal Active Gas (MAG) and Tungsten Inert Gas (TIG) arc welding, as well as with Oxy-Acetylene and Resistance Spot welding, including basics of MIG brazing. It covers a range of joints and simple welding positions used in repair practice of low-carbon steel used for car body. Learners will also learn to deal with risks involved in MIG/MAG, TIG, Oxy-Acetylene, Resistance Spot welding and MIG brazing. After completing this unit, learners will understand and be able to apply the welding technology for car body repair; be able to prepare and use the MIG/MAG, TIG, Resistance Spot welding and MIG brazing equipment and tools safely. Finally, they will be able to produce repair welded joints, as well as to ensure their quality.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Understand and apply the principles of welding technology.*
- 2. Prepare welding equipment, consumables and tools for a safe use.*
- 3. Know how to use the equipment, consumables and tools safely to perform MIG/MAG, TIG, Oxy-Acetylene, Resistance Spot welding and MIG brazing of low-carbon steel.*
- 4. Perform car body repair by using MIG/MAG, TIG, Resistance Spot welding and MIG brazing.*

Repairing, Preparing and Light Finish

Unit level (MQF): 3

Credits: 12

Unit Description

Preparing and applying paint, as well as paint repairing skills are covered in this practical unit. It will enable learners to develop an understanding of how to identify substrates, and how to mix and adjust the viscosity of fillers and foundation materials, as well as how to apply fillers and foundation materials following guidelines and procedures. Learners will learn how to prepare a wide variety of different panels and component surfaces to accept foundation/paint topcoat materials. They will also learn how to identify substrates and plastics whilst undertaking paint operations. This unit enables learners to become familiar with the selection, maintenance and use of hand and power tools, as well as equipment used in vehicle refinishing. It will also enable them to develop an understanding of the causes and the rectification of minor paint defects using a range of tools, equipment and materials. This unit provides learners with the general knowledge and skills to prepare, apply and repair body paint; skills and knowledge to work safely when preparing, applying and repairing body paint, knowledge and skills to prepare and pre-paint. They will also be able to apply fillers and foundation materials, to work with plastic materials, and to repair minor paint defects.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Have general knowledge and skills to prepare for, apply and repair body paint.*
- 2. Have the skills and knowledge to work safely when prepare for, apply and repair body paint.*
- 3. Have knowledge and skills to prepare and pre-paint.*
- 4. Have knowledge and skills to apply fillers and foundation materials.*

Health Safety good housekeeping and working relationships in the Automotive Environment

Unit level (MQF): 3

Credits: 3

Unit Description

Modern approach in the automotive industry is to minimise risks and hazards in all activities. This unit enables learners to develop an understanding of all related issues, i.e. health and safety, including and focused on PPE and OHSAS 18000, good housekeeping, including cleaning routines, and working relationship of the automotive (motor vehicle engineering) environment. It also enables learners to use the resources economically and efficiently, taking into account health and safety legislation at the same time. It will give learners an insight into what constitutes significant risks in the automotive environment and how to identify and deal with them. It will also develop skills required to keep good working relationships with all the colleagues and customers in the automotive work environment by using effective communication and support. This unit also enables learners to develop an understanding of how to gain information from customers on their perceived needs, give advice and information and agree upon a course of action, how to contract the agreed work and complete all necessary records and instructions. After completing this unit, learners will get an understanding, knowledge and skills to manage hazards and risks, health and safety issues and develop good housekeeping practices, in a motor vehicle engineering workshop. They will also practice maintaining good working and customer relationships.

Learning Outcomes

On completion of this unit the learner will be able to

- 1. Understand risks and hazards; apply health and safety in the working practices.*
- 2. Understand and know good housekeeping practices in a motor vehicle engineering workshop.*
- 3. Know the importance of maintaining good working and customer relationships.*