10

MOTORIZED EQUIPMENT MAINTENANCE

AUTOMOTIVE BODY REPAIR AND REPAINTING

PROGRAM OF STUDY

5717

VOCATIONAL and TECHNICAL EDUCATION

020801
7898003

Québec

AUTOMOTIVE BODY REPAIR AND REPAINTING

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MOTORIZED EQUIPMENT MAINTENANCE

AUTOMOTIVE BODY REPAIR AND REPAINTING

PROGRAM OF STUDY
5717

The *Automotive Body Repair and Repainting* program
leads to the Diploma of Vocational Studies (DVS)
and prepares the student to practise the trade of

AUTOMOTIVE BODY REPAIRER AND REPAINTER

Direction générale de la formation professionnelle et technique

DEVELOPMENT TEAM

Design and Development	Bernard Duprat Education Development Officer
Coordination	Yvon Boutet Coordinator of the Motorized Equipment Maintenance Sector
Translation	Services à la communauté anglophone Direction de la production en langue anglaise

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This program of study, *Automotive Body Repair and Repainting*, is issued in accordance with section 461 of the *Education Act* (R.S.Q., c. I-13.3).

In conformity with the provisions of paragraph (a) of section 23 of the *Act respecting the Conseil supérieur de l'éducation* (R.S.Q., c. C-60), as replaced by section 569 of the Statutes of 1988, the confessional committees of the Conseil supérieur de l'éducation have given their opinion on this program of study.

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INTRODUCTION

Implemented in 1991 and revised in 1997, the *Automotive Body Repair and Repainting* program was designed on the basis of a framework for developing vocational education programs that calls for the participation of experts from the workplace and the field of education.

The program of study is developed in terms of competencies, expressed as objectives. These objectives are divided into modules. Various factors were kept in mind in developing the program: training needs, the job situation, purposes, goals, and strategies and means used to attain objectives.

This program of study lists the competencies that are the minimum requirements for a Diploma of Vocational Studies (DVS) for students in both the youth and adult sectors. It also provides the basis for organizing courses, planning teaching strategies, and designing instructional and evaluation materials.

The duration of the program is 1590 hours, which includes 810 hours spent on the specific competencies required to practise the trade and 780 hours on general competencies. The program of study is divided into 27 modules, which vary in length from 15 to 120 hours (multiples of 15). The time allocated to the program is to be used not only for teaching but also for evaluation and remedial work.

This document contains two parts. Part I is of general interest and provides an overview of the training plan. It includes a synoptic table of basic information about the modules, a description of the program training goals, the competencies to be developed and the general objectives, and an explanation of operational objectives. Part II is designed primarily for those directly involved in implementing the program. It contains a description of the operational objectives of each module.

In keeping with this broad approach, three accompanying documents will be provided: a teaching guide, an evaluation guide, and a planning guide.

GLOSSARY

Program Training Goals

Statements that describe the educational aims of a program. These goals are the general goals of vocational education adapted to a specific trade or occupation.

Operational Objectives

Statements of the educational aims of a program in practical terms. They serve as the basis for teaching, learning and evaluation.

Competency

A set of socio-affective behaviours, cognitive skills or psycho-sensori-motor skills that enable a person to correctly perform a role, function, activity or task.

Module of a Program

A component part of a program of study comprising a first-level operational objective and the related second-level operational objectives.

General Objectives

Instructional objectives that provide an orientation for leading the students to attain one or more related objectives.

Credit

A unit used for expressing quantitatively the value of the modules in a program of study. One credit corresponds to 15 hours of training. Students must accumulate a set number of credits to graduate from a program.

PART I

1. SYNOPTIC TABLE

Number of modules: 27
Duration in hours: 1590
Credits: 106

Automotive Body Repair and Repainting
CODE: 5717

CODE		TITLE OF THE MODULE	HOURS	CREDITS*
840 012	1.	The Trade and the Training Process	30	2
840 021	2.	Occupational Health and Safety	15	1
840 032	3.	Interpreting Plans and Drawing Patterns	30	2
840 044	4.	Doing General Body-Shop Work	60	4
840 052	5.	Explaining the Construction Features of Motor Vehicles	30	2
840 063	6.	Welding and Cutting Metals, Using the Oxyacetylene and Plasma-Arc Processes	45	3
840 076	7.	Making Replacement Parts	90	6
840 085	8.	Repairing Dented Panels	75	5
840 095	9.	MIG-Welding and Spot-Welding Different Metals	75	5
840 103	10.	Repairing Electric Circuits	45	3
840 114	11.	Repairing, Replacing and Reinstalling Accessories and Components	60	4
840 122	12.	Welding and Bonding Plastics	30	2
840 133	13.	Replacing and Repairing Windows, Windshields, and Interior and Exterior Trim	45	3
840 153	14.	Repairing Holes and Tears in Fibreglass Panels	45	3
840 154	15.	Repairing Dented Panels with Plastic and Lead	60	4
840 168	16.	Preparing a Vehicle for Painting	120	8
840 174	17.	Matching Paint Colours	60	4
840 188	18.	Painting Vehicles	120	8
840 192	19.	Preparing a Vehicle for Delivery	30	2
840 214	20.	Replacing Removable Body Parts	60	4
840 217	21.	Replacing, Removing and Reinstalling Mechanical Parts	105	7
840 222	22.	Removing and Installing Cooling and Air Conditioning Systems	30	2
840 235	23.	Repairing Perforated, Torn and Collision-Damaged Steel and Aluminium Panels	75	5
840 253	24.	Measuring and Checking Dimensions	45	3
840 258	25.	Repairing Welded Structural Components	120	8
840 261	26.	Using Job-Search Techniques	15	1
840 275	27.	Entering the Work Force	75	5

* 15 hours = 1 credit
This program leads to a DVS in Automotive Body Repair and Repainting.

2. PROGRAM TRAINING GOALS

The training goals of the *Automotive Body Repair and Repainting* program are based on the general goals of vocational education and take into account the specific nature of the trade. These goals are:

To develop effectiveness in the practice of a trade or an occupation.

- To teach students to perform automotive body repair and repainting tasks and activities correctly, at an acceptable level of competence for entry into the job market.

- To prepare students to perform satisfactorily on the job by fostering:
  - the intellectual and technological skills needed to select suitable work methods and products
  - a concern for ethical behaviour
  - a constant concern for occupational health and safety

To ensure integration into the working world.

- To familiarize students with the job market in general and the trade of automotive body repair in particular.

- To familiarize students with the rights and responsibilities of workers.

- To encourage students to respect the customers' rights and expectations.

- To foster independence and instill a sense of responsibility and a desire to succeed.

- To help students develop their ability to learn and acquire effective work methods.

- To help students understand the principles underlying various automotive body repair techniques.

- To help students develop the attitudes necessary for a successful professional life.

- To encourage students to strive for excellence.

To ensure job mobility.

- To help students develop a positive attitude toward technological change and new situations.

- To help students become more adept at learning, asking questions and doing research.

- To prepare students for a creative job search.

3. COMPETENCIES

The competencies to be developed in the *Automotive Body Repair and Repainting* program are shown in the grid of learning focuses on the following page. The grid lists general and specific competencies as well as the major steps in the work process.

General competencies involve activities common to several tasks or situations. They cover, for example, the technological or scientific principles that the students must understand to practise the trade or occupation. Specific competencies focus on tasks and activities that are of direct use in the trade or occupation. The work process includes the most important steps in carrying out the tasks and activities of the trade or occupation.

The grid of learning focuses shows the relationship between the general competencies on the horizontal axis and the specific competencies on the vertical axis. The symbol (△) indicates a correlation between a specific competency and a step in the work process. The symbol (○) indicates a correlation between a general and a specific competency.

The symbols (▲) and (●) indicate that these relationships have been taken into account in the formulation of objectives intended to develop specific competencies related to the trade or occupation.

The logic used in constructing the grid influences the course sequence. Generally speaking, this sequence follows a logical progression in terms of the complexity of the learning involved and the development of the students' autonomy. The vertical axis of the grid shows the competencies directly related to the practice of a specific trade or occupation. These competencies are arranged in a relatively fixed order; therefore, the modules should be taught, insofar as possible, in the order represented on the grid. The modules including the general competencies on the horizontal axis should be taught in relation to those on the vertical axis. This means that some modules are prerequisite to others, while other modules are taught concurrently.

GRID OF LEARNING FOCUSES

AUTOMOTIVE BODY REPAIR AND REPAINTING

NUMBER	SPECIFIC COMPETENCIES (directly related to the practice of the specific occupation)	FIRST-LEVEL OPERATIONAL OBJECTIVES	DURATION (IN HOURS)	WORK PROCESS (major steps): Wash and clean parts	Assess and plan the work	Consult reference manuals and technical data	Uninstall and remove parts	Repair parts and components	Install parts and components	Fit, adjust and align parts and components	Apply protective and finishing products	Check the quality of the work	Clean up the work area	GENERAL COMPETENCIES (technology, personal development, etc.): Apply occupational health and safety rules in a body shop	Interpret plans and draw patterns	Do general body-shop work	Explain the construction features of motor vehicles	Weld and cut metals, using the oxyacetylene and plasma-arc processes	Make replacement parts	MIG-weld and spot-weld different metals	Repair electric circuits	Weld and bond plastics	Repair dented panels with plastic and lead	Prepare a vehicle for painting	Match paint colours	Replace, remove and reinstall mechanical parts	Use job-search techniques	Drive an automobile	TOTALS: NUMBER OF OBJECTIVES	DURATION (IN HOURS)
	MODULES													2	3	4	5	6	7	9	10	12	15	16	17	21	25			
	FIRST-LEVEL OPERATIONAL OBJECTIVES	T												S	B	B	B	B	B	B	B	B	B	B	B	B	S	■	14	
	DURATION (IN HOURS)		h											15	30	60	30	45	90	75	45	30	60	120	60	105	15			780
1	Determine their suitability for the trade and the training process	S	30	△	△	△	△	△	△	△	△	△	△	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
8	Repair dented panels	B	75	△	▲	△	△	▲	▲	▲	▲	▲	▲	●	○	●	●	●			○		○			○				
11	Repair, replace and reinstall accessories and mechanical and electrical components	B	60	△	▲	▲	▲	▲	▲	▲	△	▲	▲	●	●	●	●	○		○		●		○						
13	Replace and repair windows, windshields, and interior and exterior trim	B	45	△	▲	▲	▲	▲	▲	▲	△	▲	▲	●	●	●	●	○			●	●		○						
14	Repair holes and tears in fibreglass panels	B	45	△	▲	△	△	▲	△	▲	△	▲	▲	●	●	●	●	●	●	●	○	●	●							
18	Paint vehicles	B	120	▲	▲	▲	△	△	△	△	▲	▲	▲	●	●	●								○	●					
19	Prepare a vehicle for delivery	B	30	▲	▲				▲	▲	▲	▲	▲	●	●	●					●									
20	Replace removable body parts	B	60	△	▲	▲	▲	△	▲	△	△	▲	▲	●	●	●	●	○	○		●	○								
22	Remove and install cooling and air conditioning systems	B	30	△	▲	▲	▲	▲	▲	▲	△	▲	▲	●	●	●	●	●	○	●	●						●			
23	Repair perforated, torn and collision-damaged steel or aluminium panels	B	75	△	▲	▲	▲	△	▲	▲	▲	▲	▲	●	●	●	●	●	○	●	●						○			
24	Measure and check vehicle frames and chassis	B	45	△	▲	▲	△	△	△	▲	△	▲	▲	●	●	●	●													
25	Repair welded structural components	B	120	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	●	●	●	●	○												
27	Enter the work force	S	75	△	△	△	△	△	△	△	△	△	△	○	○	○	○	○	○	○	○	○	○	○	○	○	○			
NUMBER OF OBJECTIVES		13																											27	
DURATION (IN HOURS)			810																											1 590

S: Situational objective
B: Behavioural objective
■: No particular objective

○ Correlation between a general and a specific competency
● Correlation to be taught and evaluated
△ Correlation between a step and a specific competency
▲ Correlation to be taught and evaluated

TABLE II

4. GENERAL OBJECTIVES

The general objectives of the *Automotive Body Repair and Repainting* program are presented below, along with the major statement of each corresponding first-level operational objective.

To develop in the students the competencies required to integrate harmoniously into the school and work environments.

- Determine their suitability for the trade and the training process.
- Use job-search techniques.
- Enter the work force.
- Apply occupational health and safety concepts in a body shop.

To develop in the students the basic competencies needed to practise the trade of automotive body repairer.

- Do general body-shop work.
- Interpret plans and draw patterns.
- Explain the construction features of motor vehicles.

To develop in the students the competencies needed to weld metals and plastics.

- Weld and cut metals, using the oxyacetylene and plasma-arc processes.
- MIG-weld and spot-weld different metals.
- Weld and bond plastics.

To develop in the students the competencies needed to repair dents, holes and tears in panels.

- Make replacement parts.
- Repair dented panels.
- Repair holes and tears in fibreglass panels.
- Repair dented panels with plastic and lead.

To develop in the students the competencies needed to repair electrical and mechanical accessories.

- Repair electric circuits.
- Repair, replace and reinstall accessories and mechanical and electrical components.

To develop in the students the competencies needed to paint a vehicle.

- Prepare a vehicle for painting.
- Match paint colours.
- Paint vehicles.
- Prepare a vehicle for delivery.

To develop in the students the competencies needed to replace and repair windows, windshields, interior and exterior trim, and removable body parts.

- Replace and repair windows, windshields, and interior and exterior trim.
- Replace removable body parts.

To develop in the students the competencies needed to repair body parts.

- Replace, remove and reinstall mechanical parts.
- Remove and install cooling and air conditioning systems.
- Repair perforated, torn and collision-damaged steel or aluminium panels.
- Measure and check vehicle frames and chassis.
- Repair welded structural components.

5. FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

5.1 DEFINITION

A first-level objective is defined for each competency to be developed. Competencies are organized into an integrated training program designed to prepare students to practise the trade or occupation. This systematic organization of competencies produces better overall results than training by isolated objectives. More specifically, it fosters a smooth progression from one objective to the next, saves teaching time by eliminating needless repetition, and integrates and reinforces learning material.

First-level operational objectives are the main, compulsory teaching/learning targets and they are specifically evaluated for certification. There are two kinds of operational objectives: behavioural and situational.

- **A behavioural objective** is a relatively closed objective that describes the actions and results expected of the student by the end of a learning step. Evaluation is based on expected results.

- **A situational objective** is a relatively open-ended objective that outlines the major phases of a learning situation. It allows for output and results to vary from one student to another. Evaluation is based on the student's participation in the activities of the learning context.

Second-level operational objectives are intermediate teaching/learning targets deemed prerequisite for attaining first-level objectives. They are grouped according to the specifications (see 5.2 A) or the phases (see 5.2 B) of the first-level objective.

The division of operational objectives into first- and second-level objectives is based on a clear distinction between the levels of learning:

- learning involving prerequisite knowledge

- learning involving competencies

Second-level operational objectives indicate prerequisite knowledge. They prepare the students to learn what is necessary to attain the first-level operational objectives, which collectively lead to the development of a competency. The objectives should always be adapted to meet the particular needs of the individual students or groups of students.

First-level operational objectives cover the learning that the students need to develop a competency:

- The specifications or the phases of the objective determine or guide specific learning, thereby allowing the competency to be developed step by step.

- The objective as a whole (i.e. the six components and in particular the last phase of a situational objective) determines or guides the overall learning and the integration and synthesis of this learning, allowing the competency to be developed fully.

To attain the objectives, the following learning activities may be prepared:

- specific learning activities for second-level objectives
- specific learning activities for the specifications or phases of first-level objectives
- general learning activities for first-level objectives

5.2 HOW TO READ FIRST-LEVEL OPERATIONAL OBJECTIVES

A. How to Read a Behavioural Objective

Behavioural objectives consist of six components. The first three provide an overview of the objective:

1. The **expected behaviour** states a competency in terms of the general behaviour that the students are expected to have acquired by the end of the module.

2. The **conditions for performance evaluation** define what is necessary or permissible to the students during evaluation designed to verify whether or not the students have attained the objective. This means that the conditions for evaluation are the same wherever and whenever the program is taught.

3. The **general performance criteria** define the requirements by which to judge whether or not the results obtained are generally satisfactory.

The last three components ensure that the objective is understood clearly and unequivocally:

4. The **specifications of the expected behaviour** describe the essential elements of the competency in terms of specific behaviours.

5. The **specific performance criteria** define the requirements for each of the specifications of behaviour. They ensure a more enlightened decision on the attainment of the objective.

6. The **field of application** defines the limits of the objective, where necessary. It indicates cases where the objective applies to more than one task, occupation or field.

B. How to Read a Situational Objective

Situational objectives consist of six components:

1. The **expected outcome** states a competency as an aim to be pursued throughout the course.

2. The **specifications** outline the essential aspects of the competency and ensure a better understanding of the expected outcome.

3. The **learning context** provides an outline of the learning situation designed to help the students develop the required competencies. It is normally divided into three phases of learning:

   - information
   - performance, practice or involvement
   - synthesis, integration and self-evaluation

4. The **instructional guidelines** provide suggested ways and means of teaching the course to ensure that learning takes place and that the same conditions apply wherever and whenever the course is taught. These guidelines may include general principles or specific procedures.

5. The **participation criteria** describe the requirements the students must fulfil, which are usually related to each phase of the learning context. They focus on how the students take part in the activities rather than on the results obtained. Participation criteria are normally provided for each phase of the learning context.

6. **The field of application** defines the limits of the objective, where necessary. It indicates cases where the objective applies to more than one task, occupation or field.

PART II

MODULE 1: THE TRADE AND THE TRAINING PROCESS

CODE: 840 012

Duration: 30 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

EXPECTED OUTCOME

By participating in the required activities of the learning context according to the indicated criteria, the students will be able to
determine their suitability for the trade and the training process.

SPECIFICATIONS

At the end of this module, the students will:

- Be familiar with the nature of the trade.
- Understand the training process.
- Confirm their career choice.

LEARNING CONTEXT

PHASE 1: **Information on the Trade**

- Learning about the job market in automotive body repair and repainting–potential work environments (types of establishments likely to hire automotive body repairers), job prospects, wages, opportunities for promotion or transfer, selection of candidates–through field trips, interviews, written material, and so on.
- Learning about the nature of, and the requirements for, the job–tasks, working conditions, evaluation criteria, rights and responsibilities of workers–through field trips, interviews, written material, and so on.
- Presenting, during a group discussion, the information gathered and discussing the students' views on the trade: advantages, disadvantages and requirements.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

LEARNING CONTEXT

PHASE 2: **Information on and Participation in the Training Process**

- Discussing the skills, aptitudes and knowledge required to practise the trade.
- Learning about the training project: program of study, training process, evaluation methods, certification of studies.
- Discussing the training program and how it relates to the work of an automotive body repairer.
- Discussing the students' initial reactions to the trade and the training process.

PHASE 3: **Evaluation and Confirmation of Career Choice**

- Producing a report in which they must:
  - describe their preferences, aptitudes, and interests with respect to the trade
  - assess their career choice by comparing the different aspects and requirements of the trade with their own preferences, aptitudes and interests

INSTRUCTIONAL GUIDELINES

The teacher should:

- Create a climate that is conducive to personal growth and to the students' integration into the job market.
- Encourage all the students to engage in discussions and to express themselves.
- Motivate the students to take part in the suggested activities.
- Help the students to acquire an accurate perception of the trade.
- Provide the students with the means to assess their career choice honestly and objectively.
- Organize field trips to companies that perform automotive body repair and repainting tasks.
- Make available all pertinent documentation (e.g. information on the trade, training programs, etc.).

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

INSTRUCTIONAL GUIDELINES (Cont'd)

The teacher should:

- Organize meetings with trade specialists.
- Provide students with guidance services should they wish to withdraw from the program.

PARTICIPATION CRITERIA

PHASE 1:

- Gather information on most of the topics to be dealt with.
- Express their views on the trade at a group meeting, interrelating the information they have gathered.
- Examine carefully the literature provided.
- Participate actively in the field trips to companies that perform automotive body repair and repainting tasks.

PHASE 2:

- Give their opinions on some of the requirements that they will have to meet in order to practise the trade.
- Examine carefully the literature provided.
- Listen carefully to the explanations.
- Give their impressions of the training program during a group meeting.
- Express their reactions.
- Express clearly their understanding of the training process.

PHASE 3:

- Write a report that:
  - sums up their preferences, interests and aptitudes
  - explains in detail how they arrived at their career choice
  - provides details on their participation in the training process
- Discuss their self-evaluations.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before undertaking the activities in each of the phases:

1. Be receptive to information about the trade and the training process.
2. Be willing to share their views on the trade with other members of the group.

Before undertaking the activities of Phase 1:

3. Find information.
4. Determine how to record and present information.
5. Differentiate between "task" and "job."
6. Give the meaning of "entry-level qualifications."
7. Explain the main rules governing group discussions.

Before undertaking the activities of Phase 2:

8. Identify the skills, aptitudes, work habits and knowledge required to practise the trade.
9. Describe the nature, purpose and content of the program of study and the learning activities.

Before undertaking the activities of Phase 3:

10. Differentiate among preferences, aptitudes and interests.
11. Describe the main parts of a report that confirms their career choice.
12. Describe the criteria found in a written self-evaluation.

MODULE 2: OCCUPATIONAL HEALTH AND SAFETY

CODE: 840 021 **Duration: 15 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

EXPECTED OUTCOME

By participating in the required activities of the learning context according to the indicated criteria, the students will
apply occupational health and safety concepts in a body shop.

SPECIFICATIONS

At the end of this module, the students will:

- Be aware of the need to observe occupational health and safety rules in a body shop.
- Be familiar with the laws and regulations governing occupational health and safety.
- Understand the roles and responsibilities of those involved in health and safety matters.
- Be able to explain the main preventive measures applicable to a body shop.
- Be able to explain the general first-aid techniques to apply in case of an accident in a body shop.

LEARNING CONTEXT

PHASE 1: **Information on Occupational Health and Safety**

- Learning about the health and safety standards that are generally applicable and those that apply specifically to a body shop, through written material, oral presentations and talks given by guest speakers.
- Learning about the means available to workers to prevent work accidents and occupational diseases, through field trips, talks with a health and safety committee, and so on.
- Learning about workers' rights and responsibilities.
- Learning about employers' rights and responsibilities.

FIRST-LEVEL OPERATIONAL OBJECTIVE

SITUATIONAL OBJECTIVE

LEARNING CONTEXT

PHASE 2: **Awareness of Occupational Health and Safety Criteria**

- Discussing the different work accidents and occupational diseases occurring in the trade of body repair and repainting, using statistical charts.
- Expressing their concerns about trade-related occupational diseases.
- Acknowledging the importance of occupational health and safety.
- Recognizing their rights and responsibilities with regard to personal and general occupational health and safety.

PHASE 3: **Evaluation of Their Ability to Detect Violations of Occupational Health and Safety Rules**

- Learning about the preventive measures to adopt in a body shop.
- Learning about the first-aid measures to take in case of an accident.
- Learning about the legal aspects (e.g. workers' and employers' rights and responsibilities, health and safety officers).

INSTRUCTIONAL GUIDELINES

The teacher should:

- Organize field trips to small and medium-sized companies associated with the trade.
- Make sure that all relevant literature is made available to students.
- Create a climate that places value on occupational health and safety.
- Encourage group discussions.
- Organize meetings with trade specialists.
- Provide students with accurate, up-to-date information on occupational health and safety in the trade.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PARTICIPATION CRITERIA

PHASE 1:

- Listen carefully to the explanations.
- Collect data on occupational health and safety.
- Examine with care the literature supplied by the teacher.

PHASE 2:

- Express a commitment to observe occupational health and safety rules.
- Express opinions on trade-related occupational diseases.
- Interpret in a positive light their rights and responsibilities as workers in the trade.
- Participate actively in the discussions to form a health and safety committee.

PHASE 3:

- Write a report describing:
  - the rights and responsibilities of workers and employers
  - the principal health and safety officials
  - preventive measures
- Discuss their self-evaluations.

FIELD OF APPLICATION

Automotive body repair and repainting

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before undertaking the activities in each of the phases:

1. Be receptive to information on occupational health and safety.
2. Be willing to share their views on trade-related work accidents and occupational diseases with other members of the group.

Before undertaking the activities of Phase 1:

3. Read information on occupational health and safety.
4. Describe the legal framework governing occupational health and safety in a body shop.
5. Distinguish between the rights and obligations of employers and workers.
6. Identify the organizations involved in occupational health and safety.
7. Describe the role and purpose of the health and safety committee in a body shop.

Before undertaking the activities of Phase 2:

8. Describe the causes and effects of work accidents and occupational diseases in a body shop.
9. Describe the main preventive measures applicable to a body shop.
10. Describe the different steps involved in setting up a health and safety committee.

Before undertaking the activities of Phase 3:

11. Describe the main parts of a report.

MODULE 3: INTERPRETING PLANS AND DRAWING PATTERNS

CODE: 840 032 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
interpret plans and draw patterns
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on:
  - the development of a funnel
  - the interpretation of mechanical, electrical and bodywork assembly drawings
- Using:
  - industrial design instruments
  - electric circuit diagrams for motor vehicles
  - views of automobile bodies and chassis
  - manufacturers' manuals
  - a mechanical assembly drawing

GENERAL PERFORMANCE CRITERIA

- Development in accordance with drawing
- Correct interpretation of data from the drawings
- Correct location of mechanical and electrical parts
- Proficient use of instrument-aided drawing techniques
- Clear, accurate drawings

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Draw lines and figures.	- Proper use of drawing technique and method
B. Interpret views of plans, orthographic projections and sectional views.	- Correct details and interpretations
C. Develop a piece of sheet metal from a plan.	- Clear, accurate drawing - Proper development in relation to plan
D. Draw a pattern from models of body parts.	- Use of correct method and techniques
E. Locate information in manufacturers' manuals.	- Correct selection of information
F. Interpret mechanical, electrical and bodywork assembly drawings.	- Correct location of mechanical and electrical parts - Correct interpretation of information found on plans

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to draw lines and figures (A):

1. Identify lines and strokes.
2. Describe different techniques for drawing free-hand and with instruments.
3. Use instruments correctly (e.g. pencils, rulers, compass, squares).

Before learning how to interpret views of plans, orthographic projections and sectional views (B):

4. Describe the different views in orthographic projection.
5. List the types of sectional views.
6. Describe the standard lines used in technical drawing.

Before learning how to develop a piece of sheet metal from a plan (C):

7. Describe the techniques for developing different geometric figures, such as:
   - cylinders
   - cones
   - truncated cones
8. Calculate, from plans:
   - circumferences
   - areas
   - angles

Before learning how to draw a pattern from models of body parts (D):

9. Describe the different materials used for patterns.
10. Select the patterns according to the anticipated development.
11. Locate the notations written on the patterns.
12. Describe the techniques for transferring lines to patterns.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to locate information in manufacturers' manuals (E):

13. Describe the techniques for finding information in manufacturers' manuals.

Before learning how to interpret mechanical, electrical and bodywork assembly drawings (F):

14. List the different symbols used in wiring diagrams.
15. List the different symbols used in mechanical and bodywork diagrams and drawings.

MODULE 4: DOING GENERAL BODY-SHOP WORK

CODE: 840 044 **Duration: 60 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
do general body-shop work
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions
- Using:
  - reference material
  - a manufacturing process sheet, including the drilling and tapping of two different threads and the fabrication of two bolts in a mild steel bar measuring 1" x 1" x 6" and the removal of a broken screw
  - body-shop tools and equipment
  - the required measuring instruments

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Proper selection and use of tools and equipment
- Knowledge of fasteners
- Systematic work method
- Clean, neat work
- Observance of time limits

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply the occupational health and safety rules applicable to general body repair.	- Proper use of tools and equipment - Observance of individual and group safety rules
B. Use the hand tools specific to body repair.	- Proper selection and use of tools - Proper care, use and maintenance of tools
C. Use machine tools, oils and machining equipment.	- Accurate description of oils - Proper use of tools, apparatus and equipment
D. Record measurements with various instruments.	- Correct choice of instrument - Careful handling - Correct interpretations - Accurate readings
E. Use fasteners.	- Rapid, error-free selection - Proper selection and use of tools
F. Use body-shop equipment.	- Observance of prescribed work method

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply the occupational health and safety rules applicable to general body repair (A):

1. Describe the rules applicable to the physical layout of a body shop.
2. Describe the health hazards involved in body repair.

Before learning how to use the hand tools specific to body repair (B):

3. Describe the hand tools found in a body repairer's tool box.
4. Select hand tools for different jobs.
5. Maintain the hand tools.

Before learning how to use machine tools, oils and machining equipment (C):

6. Describe machine tools.
7. Maintain machine tools.
8. Describe machining equipment.
9. Maintain machining equipment.

Before learning how to record measurements with various instruments (D):

10. Describe measuring instruments.
11. Describe measuring techniques.

Before learning how to use fasteners (E):

12. Describe selected fasteners.
13. Classify screws, bolts, nuts, clamps, clips, and so on.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to use body-shop equipment (F):

14. Describe lifting and handling equipment used in a body shop.
15. Maintain the lifting and handling equipment.
16. Describe the compressed-air system and its maintenance.
17. Describe pneumatic and electrical tools and equipment.
18. Describe cleaning equipment.
19. Maintain vises, bench grinders and other equipment.
20. Locate the control switches for the exhaust, dust and toxic vapour evacuation systems.

MODULE 5: EXPLAINING THE CONSTRUCTION FEATURES OF MOTOR VEHICLES

CODE: 840 052 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
explain the construction features of motor vehicles
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following the teacher's instructions
- Using:
  - technical material permitted by the teacher
  - drawing instruments (if required)

GENERAL PERFORMANCE CRITERIA

- Use of correct terminology
- Good understanding of the operation of the different body parts
- Correct location of parts
- Accurate description of bodywork assembly techniques
- Correct understanding of the indirect damage caused by the interaction of the various body parts, in relation to their specific degree of resistance

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Define the different terms used for body parts.	- Use of correct terminology
B. Describe the functions of the different body parts.	- Accurate description of the functions
C. Describe bodywork assembly techniques.	- Accurate description of assembly techniques - Clear understanding of the principles underlying these techniques
D. Determine the resistance of the different body parts.	- Accurate identification of materials - Clear understanding of relationships: • shape and resistance • resistance and composition • other
E. Solve collision-damage problems by analyzing the construction features of vehicles.	- Clear understanding of damage - Understanding of how body parts interact - Accurate interpretation of manufacturers' manuals

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to define the different terms used for body parts (A):

1. List the terms used to describe the construction features of motor vehicles.

Before learning how to describe the functions of the different body parts (B):

2. Describe the main body parts and their functions.
3. Determine the mounting locations of the mechanical components.
4. Describe the function of doorjambs, roof rails, inner fenders, bumper reinforcements, and so on.

Before learning how to describe bodywork assembly techniques (C):

5. Determine the historical stages in the development of body construction.
6. Determine the advantages and drawbacks of different types of assembly (e.g. welding, bonding, bolting, tacking).
7. Describe the different types and models of automotive bodies, according to the assembly methods.

Before learning how to determine the resistance of the different body parts (D):

8. Describe the different types of body parts shown in sectional views:
   - side rails
   - crossmembers
   - rocker panels
   - frames
   - chassis
   - other
9. Determine the location, resistance and composition of body parts, from manufacturers' manuals.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

10. Describe the ratios of resistance and elasticity, according to:
    - the shape of the structures
    - the assembly technique
    - the materials
    - the composition of the materials
    - the types of construction

Before learning how to solve collision-damage problems by analyzing the construction features of vehicles (E):

11. Describe the body construction techniques designed to protect the passenger compartment.
12. Determine the direction of frontal, rear, side and top impacts, on the basis of destructive tests carried out by various organizations.
13. Determine, from manufacturers' manuals, the high-resistance parts and those apt to be distorted for shock-absorption purposes.

MODULE 6: WELDING AND CUTTING METALS, USING THE OXYACETYLENE AND PLASMA-ARC PROCESSES

CODE: 840 063 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
weld and cut metals, using the oxyacetylene and plasma-arc processes
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on welding and braze-welding steel plates according to the type of joint made (e.g. butt joints, lap joints)
- Using:
  - strips of 20-gauge sheet metal measuring 5 cm x 20 cm
  - metal filler rods
  - an oxyacetylene welding unit

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Proper use of tools and equipment
- Mastery of welding and cutting techniques
- Quality of the welds
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules when using welding and cutting units.	- Understanding and systematic observance of safety measures
B. Set up the oxyacetylene welding unit.	- Quality of the setup - Correct choice of accessories - Correct adjustment of pressures
C. Select the filler rods.	- Choice of right type and diameter
D. Weld and braze-weld the following joints on sheet metal: • butt joints • lap joints	- Use of correct methods and techniques
E. Set up a plasma-arc cutting unit.	- Quality of the setup - Correct settings
F. Cut metals, using the oxyacetylene and plasma-arc cutting processes.	- Use of correct methods and techniques - Observance of evaluation criteria
G. Evaluate the welds.	- Use of proper techniques for shutting down the welding unit - Presence of main evaluation criteria - Correct decision
H. Clean up the work area.	- Correct storage of tools and equipment and cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules when using welding and cutting units (A):

1. Describe the hazards involved in oxyacetylene and plasma-arc welding and cutting.

Before learning how to set up the oxyacetylene welding unit (B):

2. Distinguish the components of an oxyacetylene welding unit.
3. List the start-up operations.
4. Explain the settings for the welding unit.
5. Describe the types of gas used.

Before learning how to select the filler rods (C):

6. Describe the various filler rods according to their:
   - use
   - type
   - diameter

Before learning how to weld and braze-weld the following joints on sheet metal:
- **butt joints**
- **lap joints (D):**

7. Describe the different types of joints and welding processes.
8. Describe the methods for preparing surfaces to be welded.
9. Explain the technique and procedures used in welding and braze-welding.
10. Apply occupational health and safety rules during the welding operations.

Before learning how to set up a plasma-arc cutting unit (E):

11. Describe the technique for setting up and installing a plasma-arc cutting unit.
12. Describe the settings for a plasma-arc cutting unit.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to cut metals, using the oxyacetylene and plasma-arc cutting processes (F):

13. Describe the oxyacetylene cutting process.
14. Describe the plasma-arc cutting process.
15. Describe the factors to bear in mind while cutting metals.

Before learning how to evaluate the welds (G):

16. Clean the welds and cuts.

Before learning how to clean up the work area (H):

17. List the operations for shutting down the welding and cutting units.
18. Describe the principles of cleaning and storing welding or cutting units.

MODULE 7: MAKING REPLACEMENT PARTS

CODE: 840 076 **Duration: 90 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
make replacement parts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Working on the front fender of a motor vehicle with the following: a bend, a crown, two right-angle flanges, a dented bumper
- Using:
  - the appropriate tools and equipment
  - a pattern
  - measuring and layout instruments

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Complete adherence to plans and patterns
- Use of proper layout techniques
- Use of proper forming techniques
- Proper use of tools and equipment
- Cleanliness of the work area

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct assessment and planning of the work
B. Apply occupational health and safety rules when forming and welding replacement parts.	- Understanding and systematic observance of safety measures
C. Select the tools and equipment.	- Correct choice of tools and equipment
D. Lay out sheet metal, according to the plans and patterns.	- Correct layout method and techniques
E. Form sheet metal, using procedures such as: • folding • bending • shrinking • stretching • stamping	- Work in accordance with plans, sketches and instructions - Correct folding lines - Correct shapes verified by means of jigs and squares and by feeling the surfaces - Quality control of finished product
F. Weld prefabricated parts.	- Good quality welds, good penetration, lack of holes and smooth weld beads
G. Clean up the work area.	- Proper storage of tools and equipment and cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the steps in planning the work.

Before learning how to apply occupational health and safety rules when forming and welding replacement parts (B):

2. Describe the hazards in forming and welding replacement parts.

Before learning how to select the tools and equipment (C):

3. Name the tools and equipment.

Before learning how to lay out sheet metal, according to the plans and patterns (D):

4. Describe the techniques and methods for laying out sheet metal.
5. Prepare sheet metal for layout work.

Before learning how to form sheet metal, using procedures such as:
- **folding**
- **bending**
- **shrinking**
- **stretching**
- **stamping (E):**

6. Describe the different sheet-metal forming techniques: folding, bending, shrinking, stretching and stamping.
7. Describe the physical characteristics of different sheet metals: steel, aluminium, galvanized steel.
8. Explain the different physical transformations that sheet metal undergoes during forming and welding.
9. Explain how to use different jigs: inside, outside, and assembly jigs.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to weld prefabricated parts (F):

10. Describe the importance of tack-welding parts with an oxyacetylene torch.
11. Describe the factors to bear in mind when welding the parts.

Before learning how to clean up the work area (G):

12. List routine equipment maintenance operations.

MODULE 8: REPAIRING DENTED PANELS

CODE: 840 085

Duration: 75 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
repair dented panels
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Working on a dented panel requiring a maximum of three hours of repair work
- Following specific instructions
- Using:
  - dollies and hammers
  - an oxyacetylene welding unit
  - a sander and body files

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct work method
- Clean, careful work
- Mastery of metal finishing technique
- Quality of finishing
- Proper contours obtained

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	**SPECIFIC PERFORMANCE CRITERIA**
A. Assess and plan the work.	- Accurate assessment and planning of the work
B. Apply occupational health and safety rules when repairing dented panels.	- Understanding and systematic observance of safety measures
C. Repair steel or aluminium panels.	- Correct preparation of parts - Use of proper techniques for bumping and metal finishing - Assessment of the effectiveness of the heat shrinking
D. Check the alignment of the repaired panels, using gauges.	- Accurate fabrication of gauges - Correct use of verification techniques
E. Assess the finishing of the panels.	- Correct use of verification techniques: • by eye • by touch • using a file
F. Apply rustproofing and soundproofing products.	- Suitable choice of products - Correct use of spray equipment
G. Clean up the work area.	- Proper storage of tools and equipment and cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing the work.
2. Describe the steps in planning the work.

Before learning how to apply occupational health and safety rules when repairing dented panels (B):

3. Describe the occupational health and safety rules applicable to repairing dented panels.

Before learning how to repair steel or aluminium panels (C):

4. Describe the techniques for preparing damaged panels (e.g. cleaning, sanding, scraping sealers).
5. Describe the techniques for bumping damaged panels (e.g. use of pullers and spoons).
6. Describe the metal-finishing techniques.
7. Describe the techniques for heat-shrinking sheet metal.

Before learning how to check the alignment of repaired panels, using gauges (D):

8. Describe the methods for verifying the alignment of straightened panels.
9. Describe the techniques for temporarily clamping dented panels.

Before learning how to assess the finishing of the panels (E):

10. Describe the methods for evaluating the finishing:
    - by eye
    - by touch
    - using a file

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply rustproofing and soundproofing products (F):

11. Name the rustproofing and soundproofing products used in bodywork.
12. Describe the tools and equipment used for spraying the rustproofing and soundproofing products on the vehicle.
13. Describe the methods and techniques for applying the products.

Before learning how to clean up the work area (G):

14. Describe the principles of cleaning and tidying a work area.

MODULE 9: MIG-WELDING AND SPOT-WELDING DIFFERENT METALS

CODE: 840 095 **Duration: 75 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
MIG-weld and spot-weld different metals
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on:
  - MIG, MAG-welding lap joints and plug welds on sheet metal
  - electric resistance welding on steel and aluminium sheets
- Using:
  - 20-gauge mild steel plates measuring 5 cm x 15 cm
  - 22-gauge mild steel plates measuring 5 cm x 15 cm
  - 16-gauge aluminium plates measuring 5 cm x 15 cm
  - the appropriate tools, equipment and accessories
  - the necessary safety equipment

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Proper use of tools and equipment
- Mastery of welding techniques
- Quality of the welds
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules when welding different metals.	- Understanding and systematic observance of safety measures
B. Prepare the mild steel and aluminium sheets.	- Correct dimensions and angles - Cleanliness
C. Set up the different welding units: • MIG, MAG welding unit • electric resistance welding unit	- Correct choice of accessories - Quality of the setup - Correct settings
D. Select the filler wires, gases and electrodes.	- Correct choice of: • type • diameter • shape of electrode
E. Use the MIG, MAG welding process to make: • butt joints • lap joints • plug welds	- Use of correct methods and techniques - Quality of the welds
F. Spot-weld steel and aluminium sheets.	- Correct installation of electrodes - Quality of the electrode tips - Correct pressure settings - Quality of the welds
G. Clean up the work area.	- Proper storage of tools and equipment and cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules when welding different metals (A):

1. Describe the hazards involved in MIG, MAG-welding and spot-welding different metals.

Before learning how to prepare the mild steel and aluminium sheets (B):

2. List the operations involved in preparing the plates and sheet metal.
3. Describe the techniques for using the tools and equipment.

Before learning how to set up the different welding units:
- **MIG, MAG welding unit**
- **electric resistance welding unit (C):**

4. Distinguish the various components of MIG welder from those of a MAG welder.
5. Describe the different possibilities for combining electrodes for electric resistance welding.
6. List the start-up procedure for both types of welding units.

Before learning how to select the filler wires, gases and electrodes (D):

7. Describe the main types of electrodes and filler wires.

Before learning how to use the MIG, MAG welding process to make:
- **butt joints**
- **lap joints**
- **plug welds (E):**

8. Describe the factors to bear in mind when making the welds.
9. Recognize incorrect settings.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to spot-weld steel and aluminium sheets (F):

10. Describe the settings for a spot welder.
11. Select the electrodes for a spot welder.

Before learning how to clean up the work area (G):

12. List routine equipment maintenance operations.

MODULE 10: REPAIRING ELECTRIC CIRCUITS

CODE: 840 103 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
repair electric circuits
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Using:
  - experimental panels and assemblies
  - standard automotive electric circuit components
  - electric circuit diagrams
  - the appropriate tools and equipment

GENERAL PERFORMANCE CRITERIA

- Correct explanations
- Use of correct terminology
- Accurate calculations
- Correct use of measuring instruments and correct interpretation of readings
- Work done in accordance with diagrams
- Proper functioning of electrical assemblies
- Observance of time limits

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Explain electricity and its properties.	- Correct explanation
B. Make electrical connections (solders, splices and terminals).	- Splices conforming to criteria - Electrical and mechanical properties of wire terminals installed
C. Draw and mount series, parallel and series-parallel circuits.	- Diagram correctly drawn or completed - Operation of mounted circuit
D. Use measuring instruments such as voltmeters, ammeters, and ohmmeters.	- Correct connections - Correct readings and interpretations - Careful handling of instruments
E. Calculate the parameters of electric circuits: • power • voltage • amperage • resistance	- Accurate calculations
F. Explain the functions and operation of the main electronic modules in a vehicle.	- Accurate description of the interrelationship between electric and electronic components - Correct location of electronic components on plans - Correct explanation of the functions of the main electronic components

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to explain electricity and its properties (A):

1. List the applications of electricity in a vehicle.
2. Describe the construction, function and operation of an automobile battery.
3. Describe the atomic structure of the elements.
4. Differentiate among conductors, semi-conductors and insulators.
5. Apply Ohm's Law to simple circuits.

Before learning how to make electrical connections (solders, splices and terminals) (B):

6. Differentiate among the various wires according to their size and uses.
7. Describe terminals, identifying their uses.

Before learning how to draw and mount series, parallel and series-parallel circuits (C):

8. Interpret electric circuit symbols.
9. Explain series, parallel and series-parallel circuits on selected drawings and in a vehicle.

Before learning how to use measuring instruments such as voltmeters, ammeters and ohmmeters (D):

10. Describe electrical measuring instruments.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to calculate the parameters of electric circuits:

- **power**
- **voltage**
- **amperage**
- **resistance (E):**

11. Apply Ohm's Law to series, parallel and series-parallel circuits (single source).
12. Determine the power of an electric circuit from its voltage and amperage.

Before learning how to explain the functions and operation of the main electronic modules in a vehicle (F):

13. Name the main electronic modules.
14. Describe the functions and operation of the main electronic modules.

MODULE 11: REPAIRING, REPLACING AND REINSTALLING ACCESSORIES AND COMPONENTS

CODE: 840 114 **Duration: 60 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must **repair, replace and reinstall accessories and mechanical and electrical components** in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on removing, reinstalling and adjusting accessories
- Using:
  - a recent model of vehicle with misaligned accessories and simulated electrical problems
  - the appropriate tools and equipment
  - manufacturers' manuals

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct interpretation of technical data
- Careful, safe work
- Proper work method
- Speed in diagnosing electrical problems
- Observance of time limits
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Accurate assessment and planning of work - Planning in conformity with criteria
B. Consult reference manuals and technical data.	- Correct interpretation of manufacturers' manuals - Correct location of mechanical and electrical components - Suitable choice of manuals
C. Apply occupational health and safety rules.	- Understanding and systematic observance of safety measures
D. Repair accessories and mechanical and electrical components.	- Use of proper repair methods and techniques - Proper use of tools and equipment
E. Replace and install accessories; mechanical, electrical and electronic components; and air bags.	- Use of correct removal and installation methods and techniques - Proper use of tools and equipment
F. Fit, adjust and align accessories and mechanical and electrical components.	- Use of correct fitting, adjustment and alignment techniques - Proper use of tools and equipment
G. Clean the accessories and components.	- Quality of the cleaning

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
H. Check the quality of the work.	- Application of tests to check seal - Verification of the solidity of the fasteners and of the working order of the accessories
I. Clean up the work area.	- Application of the principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing and planning the work.

Before learning how to consult reference manuals and technical data (B):

2. Describe the construction features of motor vehicles.
3. Describe the procedure for removing and reinstalling accessories and mechanical and electrical components.
4. Describe the procedure for installing new accessories and mechanical and electrical components.

Before learning how to apply occupational health and safety rules (C):

5. Interpret the occupational health and safety rules applicable to repairing, removing and reinstalling accessories and mechanical and electrical components.

Before learning how to repair accessories and mechanical and electrical components (D):

6. Describe the oils and greases used for mechanical components.
7. Describe the methods for repairing accessories and mechanical and electrical components:
   - welding
   - splicing
   - removing screws
   - thread cutting
   - tapping
   - other

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to replace and install accessories; mechanical, electrical and electronic components; and air bags (E):

8. Describe the methods for removing and reinstalling accessories; mechanical, electrical and electronic components; and air bags.
9. Describe the methods and techniques for installing new accessories and mechanical, electrical and electronic components.

Before learning how to fit, adjust and align accessories and mechanical and electrical components (F):

10. Describe the techniques for fitting, adjusting and aligning accessories and mechanical and electrical components.

Before learning how to clean the accessories and components (G):

11. Describe the techniques for cleaning accessories and mechanical and electrical components.

Before learning how to check the quality of the work (H):

12. Describe the techniques for verifying the seal of the newly installed or replaced accessories:
    - sunroof
    - tail-lights
    - windshield wipers
13. Describe the techniques for verifying the solidity and working order of the accessories and components.

Before learning how to clean up the work area (I):

14. Describe the principles of cleaning and tidying a work area.

MODULE 12: WELDING AND BONDING PLASTICS

CODE: 840 122 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
weld and bond plastics
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on welding two torn thermoplastic body parts (thermoplastic polyurethane and polypropylene)
- Using:
  - filler rods
  - a hot-air welder
  - reference manuals
  - different adhesives

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct use of tools
- Accurate identification of parts
- Use of proper technique for holding the two edges in alignment
- Observance of prescribed time limit
- Work done in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	**SPECIFIC PERFORMANCE CRITERIA**
A. Describe the different types of plastics used in automobiles.	- Correct classification of plastics
B. Select the plastic welding rods and adhesives.	- Accurate identification of different adhesives - Correct choice of welding rods
C. Prepare the plastic surfaces.	- Use of proper preparation technique (sanding and bevelling)
D. Weld thermoplastics.	- Quality of the machine setup - Correct choice of accessories - Use of proper technique - Safe handling of tools and equipment
E. Sand welded surfaces.	- Use of proper sanding technique - Correct choice of sanding paper and tools
F. Check the quality of the welds.	- Presence of main evaluation criteria - Sound judgment
G. Clean up the work area.	- Correct storage of tools and equipment - Cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to describe the different types of plastics used in automobiles (A):

1. Know the physical properties of thermoplastics and thermosetting plastics.
2. Identify the different plastics by means of destructive testing (i.e. burn and smoke tests).
3. Describe the plastics according to their uses in an automobile.

Before learning how to select the plastic welding rods and adhesives (B):

4. Describe the plastic filler rods according to their colours.
5. Describe the properties of different adhesive bonds.

Before learning how to prepare the plastic surfaces (C):

6. Describe the techniques for preparing plastic surfaces.
7. Describe the techniques for using the tools and materials.

Before learning how to weld thermoplastics (D):

8. List the steps in assembling a hot-air welder.
9. Explain the principle underlying the welding of thermoplastics.
10. Describe the applicable health and safety rules.
11. Describe the factors to bear in mind when welding and bonding plastics.
12. Describe how to weld plastics with a hot-air welder.

Before learning how to sand welded surfaces (E):

13. Describe the paper and tools used for sanding thermoplastics.
14. Describe the techniques for sanding plastics.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to check the quality of the welds (F):

15. Describe the different weld defects.
16. Test the resistance of the weld mechanically.

Before learning how to clean up the work area (G):

17. List routine equipment maintenance operations.

MODULE 13: REPLACING AND REPAIRING WINDOWS, WINDSHIELDS, AND INTERIOR AND EXTERIOR TRIM

CODE: 840 133

Duration: 45 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must **replace and repair windows, windshields, and interior and exterior trim** in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on removing and fitting window glass (window removed from door)
- Working on a recent model of vehicle with finished doors (pre-installed interior trim)
- Using:
  - the proper tools and equipment
  - manufacturers' manuals

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Accurate interpretation of technical data
- Careful, clean work
- Use of correct work method
- Observance of time limit
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct evaluation and planning of work - Planning conforming to criteria
B. Consult reference manuals and technical data.	- Suitable choice of manuals - Accurate interpretation of manufacturers' manuals - Correct location of mechanical and electrical components - Clear understanding of adjustment and alignment of components
C. Apply occupational health and safety rules.	- Understanding and systematic observance of safety measures
D. Repair interior and exterior trim.	- Use of proper repair methods and techniques: • adhesives • staples • screws • other - Correct use of tools and instruments
E. Replace windows and windshields.	- Use of correct window and windshield removal and installation techniques - Correct use of tools and equipment

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
F. Fit, adjust and align windows, windshields and trim.	- Use of correct fitting, adjustment and alignment techniques
G. Clean windows, windshields and trim.	- Quality of the cleaning
H. Check the quality of the work.	- Application of tests to check seal - Verification of the solidity of the fasteners, respective allowances, and the working order of the accessories
I. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing and planning the work.

Before learning how to consult reference manuals and technical data (B):

2. Describe the procedure for removing and installing windows, windshields, and interior and exterior trim.
3. Describe the procedure for replacing windows.

Before learning how to apply occupational health and safety rules (C):

4. Interpret the occupational health and safety rules applicable to replacing and repairing windows, windshields, and interior and exterior trim.

Before learning how to repair interior and exterior trim (D):

5. Describe the methods for repairing interior and exterior trim.

Before learning how to replace windows and windshields (E):

6. Describe the techniques for removing and installing windows, windshields and door mechanisms.
7. Identify different oils and greases.
8. Grease and lubricate the mechanical components.

Before learning how to fit, adjust and align windows, windshields and trim (F):

9. Describe the techniques for fitting, adjusting and aligning windows, windshields and trim.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to clean windows, windshields and trim (G):

10. Describe the techniques for cleaning windows, windshields and trim.

Before learning how to check the quality of the work (H):

11. Describe the techniques for verifying the seal of installed windows.
12. Describe the techniques for verifying the allowances, solidity and working order of the window-regulator systems.

Before learning how to clean up the work area (I):

13. Describe the principles of cleaning and tidying a work area.

MODULE 14: REPAIRING HOLES AND TEARS IN FIBREGLASS PANELS

CODE: 840 153

Duration: 45 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
repair holes and tears in fibreglass panels
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Working on an SMC panel with a hole measuring roughly 100 cm^2
- Using:
  - resins, fillers, catalysts, etc.
  - suitable tools and equipment
  - the required safety equipment

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct work method
- Careful, clean work
- Mastery of techniques for preparing and applying fibreglass
- Correct use of tools
- Results in accordance with requirements

FIELD OF APPLICATION

Because sandblasting is not allowed in the schools, the techniques used in the industry are to be described and the necessary safety equipment and occupational health and safety rules are to be explained.

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct evaluation and planning of the work
B. Apply occupational health and safety rules during the repair.	- Understanding and systematic observance of safety measures
C. Prepare torn or perforated panels.	- Impeccable cleaning of surfaces - Correct use of sanding and featheredging techniques
D. Align panels and body parts.	- Correct alignment of panels and parts
E. Repair torn or perforated fibreglass panels.	- Correct resin-catalyst ratios - Quality of lamination - Observance of health and safety rules
F. Check the quality of the work.	- Verification of the contour and resistance of the surfaces
G. Clean up the work area.	- Proper cleaning and storage of tools and equipment - Cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing the work.
2. Describe the steps in planning the work.

Before learning how to apply occupational health and safety rules during the repair (B):

3. Describe the occupational health and safety rules applicable to working with fibreglass.

Before learning how to prepare torn or perforated panels (C):

4. Select the equipment, tools and materials to use for preparing the panels.
5. Describe the techniques for preparing the surfaces:
   - cleaning
   - sawing
   - featheredging
   - sanding
   - sandblasting
   - other

Before learning how to align panels and body parts (D):

6. Explain the techniques for aligning panels and body parts.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to repair torn or perforated fibreglass panels (E):

7. Describe the physical properties and purpose of materials suitable for repairing fibreglass.
8. Describe the technique of patching sheet metal plates using fibreglass.
9. Reinforce perforated panels, using:
   - rivetted sheet metal
   - self-adhesive tape
   - fibreglass patches
   - screws and clamps
10. Align the torn fibreglass panels.
11. Explain the techniques for filling joints in torn fibreglass panels.

Before learning how to check the quality of the work (F):

12. Describe the techniques for checking the quality of the work.

Before learning how to clean up the work area (G):

13. Describe the principles of cleaning and tidying a work area.

MODULE 15: REPAIRING DENTED PANELS WITH PLASTIC AND LEAD

CODE: 840 154 **Duration: 60 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
repair dented panels with plastic and lead
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Working on a dented panel requiring a maximum of two and a half hours of plastic repair work
- Using:
  - plastic-thermoset body filler
  - the proper tools, equipment and accessories
  - the required safety equipment

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct work method
- Careful, clean work
- Mastery of techniques for preparing and applying plastic
- Quality of the surface finish
- Correct contours obtained

FIELD OF APPLICATION

Because sandblasting is not allowed in the schools, the techniques used in the industry are to be described and the necessary safety equipment and occupational health and safety rules are to be explained.

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	**SPECIFIC PERFORMANCE CRITERIA**
A. Assess and plan the work.	- Accurate assessment and planning of the work
B. Apply occupational health and safety rules.	- Understanding and systematic observance of safety measures
C. Prepare the dented panels.	- Impeccable cleaning of surfaces - Correct use of sanding technique - Observance of safety rules during procedure
D. Tin the dented surfaces preparatory to applying the lead.	- Correct use of tinning technique - Complete covering of tinned surface
E. Repair the dented panels with plastic.	- Correct plastic-catalyst ratio • type of catalyst • quantity • homogeneity - Careful, clean work - Quality of the plastic finish • filing • sanding
F. Repair the dented panels with lead.	- Correct use of lead application technique - Quality of the surface finish • filing • sanding
G. Clean up the work area.	- Proper storage of machine, equipment and tools - Cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing the work.
2. Describe the stages in planning the work according to the type of filler to be used.

Before learning how to apply occupational health and safety rules (B):

3. Describe the occupational health and safety rules applicable to preparing surfaces and working with plastic and lead.

Before learning how to prepare the dented panels (C):

4. Select the equipment, tools, materials and products for preparing the panels:
   - sanders
   - sanding paper and disks
   - solvents
   - other
5. Describe the techniques for preparing the surfaces:
   - cleaning
   - sanding
   - sandblasting
   - other

Before learning how to tin the dented panels preparatory to applying the lead (D):

6. Select the equipment, accessories, products and materials used to tin surfaces:
   - torch
   - slip-on soldering tip
   - flux
   - tin
   - other
7. Describe the techniques for tinning surfaces.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to repair the dented panels with plastic (E):

8. Describe the different thermoset plastics used for body filling:
   - types of resins
   - purpose of compounds
   - purpose of additives
   - other
9. Describe the techniques for applying plastic with a spatula.
10. Describe the techniques for filing and sanding plastic.

Before learning how to repair the dented panels with lead (F):

11. Select the tools, materials and products used to apply and finish body filler.
12. Describe the techniques for applying lead alloys.
    - temperature
    - plasticity
    - use of spatulas
    - lubrication
    - other
13. Describe the techniques for filing, sanding and washing surfaces filled with lead.

Before learning how to clean up the work area (G):

14. Describe the principles of cleaning and tidying a work area.

MODULE 16: PREPARING A VEHICLE FOR PAINTING

CODE: 840 168

Duration: 120 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
prepare a vehicle for painting
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on sandblasting, treating, undercoating and sanding a door panel with wet #600 sand paper
- Working on:
  - a prefabricated door panel
  - the proper tools and equipment
  - paint products and materials
  - manufacturers' instruction manuals

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct interpretation of technical data
- Precise measurements: volume, weight and proportions
- Correct work procedure
- Meticulous, clean work
- Suitable choice of compatible products
- Results in accordance with requirements

FIELD OF APPLICATION

Because sandblasting is not allowed in the schools, the techniques used in the industry are to be described and the necessary safety equipment and occupational health and safety rules are to be explained.

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules when preparing surfaces.	- Understanding and systematic observance of safety measures
B. Wash and clean the body parts and panels before painting.	- Accurate description of washing and cleaning products - Correct use of products and tools
C. Assess and plan the work.	- Correct examination of surfaces: • cracking • blistering • lifting • scratches • other - Planning in conformity with criteria
D. Consult reference manuals and technical data.	- Correct interpretation of manufacturers' manuals - Clear understanding of chemical reactions of products - Accurate calculations of weights and proportions
E. Apply undercoats to damaged surfaces.	- Correct use of tools and equipment - Correct use of methods and techniques for applying undercoats
F. Prepare the vehicle for painting.	- Correct use of preparation methods and techniques: • sanding • masking • other

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	**SPECIFIC PERFORMANCE CRITERIA**
G. Check the quality of the work.	- Verification of the quality of prepared surfaces: • holes • scratches • ripples • other
H. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules when preparing surfaces (A):

1. Interpret the occupational and safety rules applicable to preparing surfaces.

Before learning how to wash and clean the body parts and panels before painting (B):

2. Describe the different products used for washing and cleaning surfaces.
3. Describe the techniques for washing and cleaning surfaces.

Before learning how to assess and plan the work (C):

4. Describe the techniques for examining surfaces.
5. Determine the different steps in planning surface preparation work.

Before learning how to consult reference manuals and technical data (D):

6. Interpret manufacturers' technical instructions.

Before learning how to apply undercoats to damaged surfaces (D):

7. Describe the products and materials used for undercoating.
8. Select the products and materials for different types of paint.
9. Describe the techniques for using the tools, equipment and products.
10. Describe methods and techniques for preparing surfaces:
    - stripping
    - sandblasting
    - sanding
    - featheredging
    - other

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to prepare the vehicle for painting (F):

11. Describe the different materials and equipment used for masking vehicles, such as:
    - masking tape
    - masking paper
    - different size cloth
    - wheel covers
12. Describe the techniques for masking vehicles according to the job, such as:
    - complete masking
    - partial masking
    - temporary masking
    - interior masking
13. Select the abrasive paper according to the paint to be applied.
14. Describe the techniques for cleaning a vehicle before painting:
    - the passenger compartment
    - the engine compartment
    - the trunk

Before learning how to check the quality of the work (G):

15. Describe the different masking problems:
    - folds
    - covering over the paint
    - loose paper
    - unglued tape
16. Describe the techniques for examining the surface preparation:
    - by touch
    - by eye
    - using a squeegee and a trouble light

Before learning how to clean up the work area (H):

17. Describe the principles of cleaning and tidying a work area.

MODULE 17: MATCHING PAINT COLOURS

CODE: 840 174

Duration: 60 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
match paint colours
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on applying a colour matched by the student on part of a vehicle or on half a panel that has been pre-painted according to an existing manufacturer's code
- Using:
  - reference manuals and specifications sheets
  - colour samples
  - the proper tools and equipment
  - a paint laboratory equipped with all the base colours
  - part of a vehicle

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct interpretation of technical data
- Correct assessment of colour required
- Precise measurements: volume, weight and proportions
- Proper colour matching procedure as used in colorimetry
- Careful, clean work
- Suitable choice of compatible products
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules.	- Understanding and systematic observance of safety measures
B. Wash and polish pre-painted bodywork parts.	- Accurate description of cleaning and polishing products - Correct use of products and tools - Correct use of polishing techniques
C. Assess and plan the work.	- Accurate assessment of colour to be matched - Planning in accordance with criteria
D. Consult reference manuals and technical data.	- Accurate interpretation of manufacturers' manuals - Clear understanding of paint components - Accurate calculation of weight, volume and proportions
E. Match and apply the paint on a sample.	- Correct use of colour-matching procedure as used in colorimetry - Suitable choice of compatible products - Observance of occupational health and safety rules - Correct use of tools, paint laboratory and spraying equipment - Correct use of paint spraying techniques

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
F. Check the quality of the work.	- Verification of the colour that was matched • from different angles • in different lighting
G. Clean up the work area.	- Application of the principles of cleaning the paint laboratory, tools and spraying equipment

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules (A):

1. Interpret the occupational health and safety rules applicable to preparing paint products.

Before learning how to wash and polish pre-painted bodywork parts (B):

2. Describe the different products used to wash and polish surfaces.
3. Describe the techniques for washing and polishing surfaces.

Before learning how to assess and plan the work (C):

4. Describe the techniques for evaluating the colours to be matched.
5. Describe the different steps in planning to match the colour to be used.

Before learning how to consult reference manuals and technical data (E):

6. Interpret manufacturers' technical instructions.

Before learning how to match and apply the paint on a sample (E):

7. Describe the four components of paint and their technical characteristics: binder, thinner, pigment, and additive.
8. Describe the phenomena of colorimetry, such as:
   - lighting
   - metamerism
   - pigmentation
   - migration

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

9. Determine the reactions of different elements on the colour, such as:
   - viscosity
   - spray pressure
   - temperature
   - thickness of the coat
   - humidity
10. Describe the techniques for using the tools, equipment and products.
11. Describe the techniques for spraying the products.

Before learning how to check the quality of the work (F):

12. Describe the equipment used to check the quality of the colours.
13. Describe the techniques for checking the quality of the colours.

Before learning how to clean up the work area (G):

14. Describe the principles of cleaning and tidying a work area:
    - paint laboratory
    - tools
    - spraying equipment

MODULE 18: PAINTING VEHICLES

CODE: 840 188 **Duration: 120 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
paint vehicles
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on applying a basecoat/clearcoat to the entire side of a vehicle, matching it with the two fenders
- Working on a vehicle that belongs to the school and from which the main mechanical components have been removed
- Using:
  - the proper tools and equipment
  - paint products and materials
  - reference manuals and specification sheets

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct interpretation of technical data
- Accurate measurements (volume, weight, proportions)
- Correct work method
- Correct use of spraying techniques
- Clean, careful work
- Choice of compatible products
- Correct maintenance of tools and spraying equipment
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules when painting.	- Understanding and systematic observance of safety measures
B. Clean the surfaces to be painted, using solvents.	- Accurate description of cleaning products - Correct use of cleaning solvents
C. Assess and plan the work.	- Accurate assessment of extent of repairs - Correct decision regarding the cuts for the partial applications - Correct decision regarding the quantity of paint to be prepared
D. Consult reference manuals and technical data.	- Accurate interpretation of manufacturers' manuals - Clear understanding of measurements (weight, volume and proportions)
E. Maintain the spraying tools and equipment.	- Correct location of parts and areas to be cleaned and maintained, such as: • paint booth • compressor • spray gun • paint laboratory - Correct maintenance and cleaning

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	**SPECIFIC PERFORMANCE CRITERIA**
F. Paint entire vehicles or parts of vehicles.	- Correct use of tools and equipment - Correct use of paint application methods and techniques - Perfect matching of colours
G. Check the quality of the work.	- Verification of the finish: • orange peel • haze • runs • underspray • other
H. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules when painting (A):

1. Describe the occupational health and safety rules applicable to painting.

Before learning how to clean the surfaces to be painted, using solvents (B):

2. Describe the different products used for cleaning surfaces to be painted.
3. Describe the techniques for cleaning surfaces to be painted.

Before learning how to assess and plan the work (C):

4. Determine the quantities of paint to be prepared, according to the extent of the work.
5. Determine the most suitable locations for blending (spot-spraying) new paint.
6. Identify the different steps in applying paint.

Before learning how to consult reference manuals and technical data (D):

7. Interpret manufacturers' technical instructions.

Before learning how to maintain the spraying tools and equipment (E):

8. List the parts and components of the spraying tools and equipment that require routine maintenance.
9. Describe the techniques and methods for cleaning and maintaining spraying tools and equipment.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to paint entire vehicles or parts of vehicles (F):

10. Describe the products and materials to be applied before painting:
    - sealers
    - gravel guard
    - varnishes
    - other
11. Describe the techniques for applying products and materials before painting.
12. Describe the techniques for preparing paint in a paint laboratory.
13. Describe the techniques for matching colours.
14. Determine the most suitable method for applying paint based on the type of paint used, such as:
    - urethane
    - alkyd
    - basecoat/clearcoat
    - epoxy
15. Describe the methods and techniques for full or spot spray painting.

Before learning how to check the quality of the work (G):

16. Describe paint problems.
17. Describe the quality control techniques for factors such as:
    - colours
    - matching colours
    - paint problems

Before learning how to clean up the work area (H):

18. Describe the principles of cleaning and tidying a work area.

MODULE 19: PREPARING A VEHICLE FOR DELIVERY

CODE: 840 192 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
prepare a vehicle for delivery
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- By:
  - removing the masking from the vehicle
  - cleaning the interior and the exterior of the vehicle
  - polishing a light scratch on the vehicle
  - reinstalling some of the accessories and trim
- Using:
  - a vehicle belonging to the school
  - the appropriate tools and equipment
  - paint products and materials
  - reference manuals and instruction sheets

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct work method
- Correct choice of products
- Clean, careful work
- Correct use of cleaning and polishing techniques
- Correct installation of accessories
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Remove the masking from a vehicle.	- Correct use of masking removal technique
B. Apply occupational health and safety rules.	- Understanding and systematic observance of safety measures
C. Wash and clean paint overspray.	- Accurate description of washing and cleaning products - Correct use of products and equipment
D. Assess and plan the work.	- Accurate assessment and planning of the work
E. Reinstall accessories, interior and exterior trim, and lighting and turn-signal systems.	- Correct installation of accessories, trim and systems: • solid fastenings • care taken with finish • systems in good working order
F. Polish light paint scratches.	- Quality of the polish
G. Install protective bands and pinstriping.	- Quality of the alignment of the bands and pinstriping - Observance of rules of aesthetics: • positioning • colours
H. Check the quality of the work.	- Verification of paint overspray on trim and the solidity and working order of accessories and systems
I. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to remove the masking from a vehicle (A):

1. Describe the techniques for removing the masking from a vehicle.

Before learning how to apply occupational health and safety rules (B):

2. Interpret the occupational health and safety rules applicable to using the required products and tools.

Before learning how to wash and clean paint overspray (C):

3. Describe the different products used to wash and clean paint overspray.
4. Describe the washing and cleaning techniques.

Before learning how to assess and plan the work (D):

5. Determine the different steps in reinstalling accessories, trim, systems, protective bands, pinstriping, and so on.

Before learning how to reinstall accessories, interior and exterior trim, and lighting and turn-signal systems (E):

6. Describe the techniques for removing the rust from and waxing accessories and systems before installation.
7. Describe the methods and techniques for reinstalling accessories, systems, and interior and exterior trim.

Before learning how to polish light paint scratches (F):

8. Describe the sand paper, polishing compounds and liquid polishes used to eliminate paint scratches.
9. Describe the sanding and polishing methods and techniques.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to install protective bands and pinstriping (G):

10. Select the bands and pinstriping according to the vehicle model and colour.
11. Describe the techniques for installing the bands and pinstriping.

Before learning how to check the quality of the work (H):

12. List the different points to examine.
13. Describe the techniques for checking the quality of the work.

Before learning how to clean up the work area (I):

14. Describe the principles of cleaning and tidying a work area.

MODULE 20: REPLACING REMOVABLE BODY PARTS

CODE: 840 214

Duration: 60 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
replace removable body parts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on removing and reinstalling removable body parts
- Using:
  - the proper tools and equipment
  - manufacturers' manuals
  - audio-visual material

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct interpretation of technical data
- Correct work method
- Careful, safe work
- Correct allowances and tolerances
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct planning and assessment of work
B. Consult reference manuals and technical data.	- Correct interpretation of manufacturers' manuals - Correct location of parts on a plan - Suitable choice of manual
C. Apply occupational health and safety rules when replacing removable parts.	- Understanding and systematic observance of individual and group safety measures
D. Disconnect and disengage the electrical connections.	- Correct dismantling sequence - Correct identification of wires and connections - Precise location of connections
E. Remove removable body parts.	- Correct dismantling sequence - Suitable arrangement of parts - Precautions taken
F. Reinstall removable body parts and connect the electrical accessories.	- Correct installation sequence - Correct allowances and tolerances - Precautions taken - Correct connections made

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
G. Check the quality of the work.	- Verification that electrical accessories operate properly and that parts are sealed correctly - Verification that parts are properly cleaned
H. Clean up the work area.	- Proper cleaning and tidying of work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing and planning the work.
2. Describe the technical construction characteristics of motor vehicles.
3. Describe the procedure for removing and reinstalling removable body parts.

Before learning how to apply occupational health and safety rules when replacing removable parts (C):

4. Describe the occupational health and safety rules applicable to removing and reinstalling removable body parts.

Before learning how to disconnect and disengage the electrical connections (D):

5. Describe the methods for disconnecting wire terminals and connections.
6. Identify on each part the connections and terminals linked to the electrical system.

Before learning how to remove removable body parts (E):

7. Describe the methods for removing parts such as:
   - fenders
   - hoods
   - liftgates
   - doors
   - trunk lids
   - bumpers
8. Describe the methods for organizing parts that have been removed.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to reinstall removable body parts and connect the electrical accessories (F):

9. Describe the methods for reinstalling removable body parts.
10. Describe the methods for aligning and adjusting removable body parts.
11. Describe the methods for connecting the electrical accessories and putting the electrical connections back into place.

Before learning how to check the quality of the work (G):

12. Describe the methods for checking the operating condition of the electrical accessories.
13. Describe the methods for checking the seal of the reinstalled parts.
14. Describe the methods for cleaning the interior and exterior parts that have been reinstalled.
15. Describe the methods used to eliminate air leakage and noise.

Before learning how to clean up the work area (H):

16. Describe the principles of cleaning and tidying a work area.

MODULE 21: REPLACING, REMOVING AND REINSTALLING MECHANICAL PARTS

CODE: 840 217

Duration: 105 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
replace, remove and reinstall mechanical parts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone except when bleeding the brakes
- Following specific instructions on removing and reinstalling a MacPherson strut front suspension with steering linkage, suspension arm and brake-line hose
- Using:
  - a recent model of a front-wheel drive vehicle that belongs to the school and that can be easily dismantled
  - manufacturers' manuals
  - the proper tools and equipment

GENERAL PERFORMANCE CRITERIA

- Correct work procedure
- Observance of occupational health and safety rules
- Careful, clean work
- Correct work methods
- Proper operating condition of mechanical parts
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct verification procedure - Accurate assessment - Correct planning
B. Consult reference manuals and technical data.	- Suitable choice of manuals - Correct interpretation of manufacturers' manuals
C. Apply occupational health and safety rules when replacing, removing and reinstalling mechanical parts.	- Understanding and systematic observance of individual and group safety measures
D. Remove mechanical parts.	- Correct choice and use of tools - Correct removal sequence - Proper arrangement and cleanliness of components and vehicle - Precautions taken during removal procedure
E. Reinstall mechanical parts.	- Accurate determination of components to be replaced - Cleanliness of components handled - Correct procedure - Correct application of specifications - Correct use of tools - Obligatory use of nut-locking devices and other fastening devices

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
F. Check the quality of the work.	- Correct detection and interpretation of malfunctions: • while the vehicle is idle • during a road test - Correct test sequence
G. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Determine the collision-damaged mechanical parts that need to be either replaced or removed and reinstalled.
2. Determine the removal sequence for the mechanical parts.
3. Interpret repair orders.

Before learning how to consult reference manuals and technical data (B):

4. Interpret diagrams, plans and views in manufacturers' manuals.
5. Describe how mechanical parts are fastened together.
6. Describe the different adjustments and safety systems used for mechanical parts.
7. Describe the methods and techniques for removing and reinstalling mechanical parts.

Before learning how to apply occupational health and safety rules when replacing, removing and reinstalling mechanical parts (C):

8. Learn the occupational health and safety rules applicable to replacing or removing and reinstalling mechanical parts.

Before learning how to remove mechanical parts (D):

9. Select the tools and equipment for removing mechanical parts.
10. Describe the methods and techniques for removing mechanical parts.

Before learning how to reinstall mechanical parts (E):

11. Select suitable greases, oils and lubricants when replacing, removing or reinstalling mechanical parts.
12. Select the tools and equipment required for replacing or removing and reinstalling mechanical parts.
13. Describe the methods and techniques for installing mechanical parts.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to check the quality of the work (F):

14. Determine the location of the different checkpoints on mechanical parts.
15. Describe the test sequence during a road test.
16. Describe the techniques for checking the installation of mechanical parts and components.

Before learning how to clean up the work area (G):

17. Describe the principles of cleaning and tidying a work area.

MODULE 22: REMOVING AND INSTALLING COOLING AND AIR CONDITIONING SYSTEMS

CODE: 840 222

Duration: 30 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
remove and install cooling and air conditioning systems
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on filling cooling and air conditioning systems
- Using:
  - a recent model of a vehicle in good working condition that belongs to the school and that is equipped with air conditioning
  - manufacturers' manuals
  - the proper tools and equipment

GENERAL PERFORMANCE CRITERIA

- Correct work procedure
- Observance of occupational health and safety rules
- Careful, clean work
- Correct work methods
- Leak tightness of systems
- Good operation of systems
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Correct verification procedure - Accurate assessment - Correct planning
B. Consult reference manuals and technical data.	- Suitable choice of manuals - Correct interpretation of manufacturers' manuals
C. Apply occupational health and safety rules when replacing, removing and installing cooling and air conditioning systems.	- Understanding and systematic observance of individual and group safety measures
D. Remove mechanical parts.	- Correct choice and use of tools - Correct removal sequence - Respect for the environment - Proper arrangement and cleanliness of parts and vehicle
E. Reinstall mechanical parts.	- Accurate determination of parts to be replaced - Cleanliness of parts handled - Correct procedure - Observance of specifications - Correct filling method

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
F. Check the quality of the work.	- Detection of leaks in the radiator and condenser
G. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Determine the collision-damaged mechanical parts of the cooling and air conditioning systems that need to be either replaced or removed and reinstalled.
2. Determine the removal sequence for the mechanical parts.
3. Interpret repair orders.

Before learning how to consult reference manuals and technical data (B):

4. Explain the four steps in the refrigeration cycle.
5. Explain how cooling and heating systems work.
6. Recognize and describe the role of components of coolant, heating and air conditioning circuits.
7. Interpret diagrams, drawings and views in manufacturers' manuals.
8. Describe the methods and techniques for removing and installing systems.

Before learning how to apply occupational health and safety rules when replacing, removing and installing cooling and air conditioning systems (C):

9. Describe the occupational health and safety rules applicable to replacing or removing and reinstalling systems.

Before learning how to remove mechanical parts (D):

10. Select the tools and equipment for removing systems.
11. Describe the procedure for retrieving and recycling the refrigerants R-12 and CFC 134a.
12. Describe the methods and techniques for removing systems.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to reinstall mechanical parts (E):

13. Select suitable greases, oils and lubricants when reinstalling the mechanical parts of cooling and air conditioning systems.
14. Select the fluids and refrigerants for the systems.
15. Describe the methods and techniques for reinstalling the systems.
16. Describe the methods of filling the systems.

Before learning how to check the quality of the work (F):

17. Determine the location of the different checkpoints of the systems.
18. Describe the techniques for checking the installation and leak tightness of the systems.

Before learning how to clean up the work area (G):

19. Describe the principles of cleaning and tidying a work area.

MODULE 23: REPAIRING PERFORATED, TORN AND COLLISION-DAMAGED STEEL OR ALUMINIUM PANELS

CODE: 840 235 **Duration: 75 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must **repair perforated, torn and collision-damaged steel or aluminium panels** in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- On a vehicle door whose shape allows the fabrication of a scuff plate
- Using:
  - an electric resistance welding unit
  - MIG, MAG welding unit
  - the proper tools and equipment for forming sheets
  - the required safety equipment

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Correct work method
- Careful, clean work
- Mastery of techniques for forming panels
- Mastery of welding techniques
- Correct use of tools and equipment
- Quality of smoothing after welding
- Results in accordance with requirements

FIELD OF APPLICATION

Because sandblasting is not allowed in the schools, the techniques used in the industry are to be described and the necessary safety equipment and occupational health and safety rules are to be explained.

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Assess and plan the work.	- Accurate assessment and planning
B. Apply occupational health and safety rules during the repair.	- Understanding and systematic observance of safety measures
C. Prepare the perforated, torn and collision-damaged panels.	- Impeccable cleaning of surfaces - Correct use of sanding techniques
D. Align the parts and panels.	- Precise alignment of parts and panels
E. Repair the torn and collision-damaged metal panels.	- Quality of weld beads - Proper use of reforming technique - Conformity with original contour
F. Repair perforated panels by welding and braze-welding patches.	- Correct sequence of tack welding - Quality of the weld bead - Conformity with original contour
G. Check the quality of the work.	- Verification of the correct contour and resistance of the surfaces
H. Clean up the work area.	- Proper storage of welding unit, equipment and tools - Cleanliness of the work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to assess and plan the work (A):

1. Describe the techniques for assessing the work.
2. Describe the steps in planning the work.

Before learning how to apply occupational health and safety rules during the repair (B):

3. Describe the occupational health and safety rules applicable to working with fibreglass and oxyacetylene welding.

Before learning how to prepare the perforated, torn and collision-damaged panels (C):

4. Select the equipment, tools and materials for preparing the panels.
5. Describe the techniques for preparing the surfaces:
   - cleaning
   - sawing
   - featheredging
   - sanding
   - sandblasting
   - other

Before learning how to align the parts and panels (D):

6. Explain the techniques for aligning panels and body parts.

Before learning how to repair the torn and collision-damaged metal panels (E):

7. Describe the techniques for repairing steel or aluminium panels: tack welding, welding, forming.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to repair perforated panels by welding and braze-welding patches (F):

8. Select the equipment, accessories, tools and filler metals used for preparing panels.
9. Describe the techniques for lap welding and butt welding patches:
   - order of tack welding
   - controlling expansion
10. Describe the techniques for finishing patches that have been lap welded and butt welded.

Before learning how to check the quality of the work (G):

11. Describe the techniques for checking the quality of the work.

Before learning how to clean up the work area (H):

12. Describe the principles of cleaning and tidying a work area.

MODULE 24: MEASURING AND CHECKING DIMENSIONS

CODE: 840 253

Duration: 45 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
measure and check vehicle frames and chassis
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on the installation of measuring systems
- Working on a unibody vehicle
- Using:
  - an optical measuring system
  - a mechanical measuring system
  - specialized manuals (Mitchell)
  - manufacturer's manuals

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Accurate interpretation of technical data
- Precise calculations and measurements
- Correct system installation process
- Careful, clean work
- Results in accordance with manufacturer's tolerances

FIRST-LEVEL OPERATIONAL OBJECTIVE

BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules during the installation of vehicles and systems.	- Understanding and systematic observance of safety measures
B. Assess and plan the work.	- Accurate assessment of work - Correct planning
C. Consult reference manuals and technical data.	- Accurate interpretation of manufacturers' manuals - Understanding of techniques for installing measuring systems - Accurate interpretation of drawings, plans and dimensions
D. Measure and check frames and chassis using: • an optical (laser) measuring system; • a mechanical measuring system (gauges); • a straightening device (templates).	- Correct vehicle installation techniques - Correct use of measuring and control systems - Accurate calculations and measurements
E. Check the quality of the work.	- Verification of installation of checkpoints, based on manufacturers' measurements
F. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules during the installation of vehicles and systems (A):

1. Describe the occupational health and safety rules applicable to the installation of vehicles and systems.

Before learning how to assess and plan the work (B):

2. Describe the techniques for assessing and planning the work to be done.
3. Interpret manufacturers' specifications.

Before learning how to consult reference manuals and technical data (C):

4. Describe the procedure for installing measuring and control systems.
5. Interpret manufacturers' drawings and plans.

Before learning how to measure and check frames and chassis using:
- **an optical (laser) measuring system;**
- **a mechanical measuring system (gauges);**
- **a straightening device (templates) (D):**

6. Describe the tools and equipment used to measure and check frames and chassis.
7. Describe the techniques for using devices and systems.

Before learning how to check the quality of the work (E):

8. Describe the techniques for checking the dimensions of frames and chassis.

Before learning how to clean up the work area (F):

9. Describe the techniques for cleaning and storing measuring systems.

MODULE 25: REPAIRING WELDED STRUCTURAL COMPONENTS

CODE: 840 258

Duration: 120 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
repair welded structural components
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Working alone
- Following specific instructions on the sectioning of an upper or lower body
- Working on a vehicle or parts of a vehicle
- Using:
  - the proper tools and equipment
  - manufacturers' manuals

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Accurate interpretation of technical data
- Correct work procedure
- Correct assessment of work to be done
- Clean, careful work
- Correct allowances and tolerances
- Results in accordance with requirements

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
A. Apply occupational health and safety rules when replacing welded body parts.	- Understanding and systematic observance of safety measures
B. Examine and assess the work to be done.	- Correct examination and assessment of the damage
C. Consult reference manuals and technical data.	- Accurate interpretation of manufacturers' manuals - Correct location of welded body parts - Correct location of body parts composed of HLE or HSLA sheet metal
D. Remove welded body parts.	- Correct dismantling of wiring, interior trim, and so on - Correct use of cutting tools and equipment - Correct use of methods and techniques
E. Install welded body parts.	- Suitable choice of welding material - Good welds - Correct allowances, tolerances and parts alignment
F. Reinstall interior trim, electrical connections and electrical accessories.	- Quality of the reinstallation of trim and electrical connections
G. Apply rustproofing and soundproofing products.	- Suitable choice of products - Correct use of spraying tools and equipment

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

SPECIFICATIONS OF THE EXPECTED BEHAVIOUR	SPECIFIC PERFORMANCE CRITERIA
H. Clean the interior trim.	- Correct cleaning of interior trim - Accurate determination of material composition
I. Check the quality of the work.	- Verification of the working order of the electrical accessories and application of tests to check the seal - Observance of precise measurements given in manufacturers' manuals - Verification of cleanliness of parts
J. Clean up the work area.	- Application of principles of cleaning and tidying a work area

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to apply occupational health and safety rules when replacing welded body parts (A):

1. Describe the occupational health and safety rules applicable to replacing welded body parts.

Before learning how to examine and assess the work to be done (B):

2. Describe the techniques for examining and assessing the damage.

Before learning how to consult reference manuals and technical data (C):

3. Describe motor vehicle construction features.
4. Describe the procedure for removing and reinstalling welded body parts.
5. Determine which parts of the vehicle are made of high-carbon steel.

Before learning how to remove welded body parts (D):

6. Locate the parts that must be disengaged in order to replace the welded parts, such as:
   - trim
   - electrical connections
   - accessories
7. Describe the methods for removing welded parts:
   - oxyacetylene cutting
   - plasma-arc cutting
   - using an air hammer
   - sanding
8. Determine, for the type of vehicle construction, the most suitable places to cut the parts.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to install welded body parts (E):

9. Describe the methods and techniques for preparing new or used parts, such as:
   - cutting
   - drilling
   - hammering
   - sanding
10. Describe the methods for preparing surfaces to be joined.
11. Describe the methods for aligning, adjusting and tack-welding new parts.
12. Describe the welding techniques used for body parts.

Before learning how to reinstall interior trim, electrical connections and electrical accessories (F):

13. Describe the methods for connecting electrical accessories and putting the electrical connections back into place.
14. Describe the methods for reinstalling interior trim.

Before learning how to apply rustproofing and soundproofing products (G):

15. Describe the different products used to rustproof, seal and soundproof welded parts.
16. Describe the application techniques for different products, such as:
    - paint brush
    - aerosol spray
    - pressure feed gun

Before learning how to clean the interior trim (H):

17. Describe the cleaning methods for interior trim.
18. Describe the composition of the interior trim materials.

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before learning how to check the quality of the work (I):

19. Describe the techniques for checking the seal of the welded parts.
20. Describe the techniques for checking the alignment of the welded parts.

Before learning how to clean up the work area (J):

21. Describe the principles of cleaning and tidying a work area.

MODULE 26: USING JOB-SEARCH TECHNIQUES

CODE: 840 261

Duration: 15 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

EXPECTED OUTCOME

By participating in the required activities of the learning context according to the indicated criteria, the students will learn how to
use job-search techniques.

SPECIFICATIONS

During this module, the students will:

- Describe the steps involved in planning a job search.
- Collect the data required to write a résumé.
- Identify the attitudes and behaviour to adopt and to avoid during an interview.
- Discover the importance of producing high-quality résumés and letters when looking for a job.
- Produce a résumé and letter of introduction.

LEARNING CONTEXT

PHASE 1: **Learning How to Plan a Job Search**

- Learning about the local resources available for a job search.
- Learning about the steps involved in a job search: planning, identifying potential employers, sending job applications, going for interviews, following up applications.
- Establishing a real or fictitious timetable for each of the steps in the job search.
- Determining which books provide the best information on the different aspects of a job search.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

LEARNING CONTEXT

PHASE 2: **Developing the Means for Conducting a Job Search**

- Developing the technical means for a job search (e.g. index cards, follow-up).
- Identifying the attitudes and behaviour to adopt when preparing a résumé and letter of introduction.
- Developing the component parts of a résumé and letter of introduction.
- Identifying the attitudes and behaviour to adopt during an interview.
- Participating in mock interviews.

PHASE 3: **Evaluating the Means Selected for the Job Search**

- Recognizing their strengths and weaknesses at each step of the job search and discussing them at a group meeting.
- Evaluating the résumé and letter of introduction, bearing in mind the essential parts of these two job-search tools.

INSTRUCTIONAL GUIDELINES

The teacher should:

- Create a climate that places value on developing high-quality job-search tools.
- Provide students with all the necessary literature to produce the documents required for a job search.
- Promote group discussion.
- Arrange mock interviews.
- Arrange a visit to an employment centre.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PARTICIPATION CRITERIA

PHASE 1:

- Examine carefully the literature provided by the teacher.
- Listen carefully to explanations.
- Prepare a realistic timetable including all the steps in a job search.

PHASE 2:

- At a group meeting (4 to 7 persons):
  - discuss the information that should and should not be included in a résumé and letter of introduction
  - discuss the attitudes and behaviour to adopt or to avoid when producing a résumé and a letter of introduction and when going for an interview
  - prepare a résumé and letter of introduction
  - show concern for the format of the documents and the quality of the written language
  - participate in real or mock interviews

PHASE 3:

- At a group meeting (4 to 7 persons):
  - discuss their strengths and weaknesses with respect to each step in the job search
  - describe the means that can be used to compensate for their weaknesses
  - discover the means that suit them best

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before undertaking the activities of Phase 1:

1. List the steps involved in a job search.
2. Name the resources and means that are helpful in a job search (employment centres).
3. Describe effective data-collection tools (e.g. books, index cards, personal calendars).
4. Select books of possible use in writing job-search materials.

Before undertaking the activities of Phase 2:

5. Describe the fundamental qualities that a person must have when developing the means for conducting a job search.
6. Describe the technical means used for a job search.
7. List different résumé models.
8. List the information required in a résumé.
9. List the information required in a letter of introduction accompanying a résumé.
10. List the documents accompanying a résumé (e.g. diplomas, reference letters).

Before undertaking the activities of Phase 3:

11. Describe the steps involved in a job interview.
12. Identify the attitudes and behaviour suitable for a job interview.
13. Distinguish the importance of having good job-search tools and methods.
14. Describe the evaluation criteria for the means prepared.

MODULE 27: ENTERING THE WORK FORCE

CODE: 840 275

Duration: 75 hours

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

EXPECTED OUTCOME

By participating in the required activities of the learning context according to the indicated criteria, the students will prepare to
enter the work force.

SPECIFICATIONS

During this module, the students will:

- Find a practicum position.
- Become familiar with consumer-protection regulations.
- Carry out trade-related activities in the host company.

LEARNING CONTEXT

PHASE 1: **Collecting Information on the Practicum**

- Becoming familiar with available information and the terms and conditions of the practicum.
- Searching for a practicum position: requesting an interview, verifying practicum opportunities, applying for the position, and following up the application.

PHASE 2: **Observing and Carrying out Trade-Related Activities in the Workplace**

- Describing the activities involved in a practicum.
- Applying for authorization to do the practicum.
- Learning about the *Consumer Protection Act*.
- Observing different aspects related to working in a body shop: occupational health and safety, quality of work, task distribution, schedules, etc.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

LEARNING CONTEXT

PHASE 2 (Cont'd):

- Participating in routine maintenance operations (e.g. cleaning and storing equipment).
- Helping to carry out parts of the occupational tasks (e.g. preparing material).
- Maintaining a personal journal that lists the main tasks and operations carried out during the practicum.

PHASE 3: **Comparing Their Training with Their Work Experience**

- Producing and presenting a report describing the tasks and operations they carried out in the workplace.
- Producing an oral self-evaluation report.
- Evaluating the relevance of their training with respect to the requirements of the practicum position.
- Specifying their future training needs.
- Discussing with the teacher their personal reports and the reports provided by the practicum supervisor.

INSTRUCTIONAL GUIDELINES

The teacher should:

- Inform students of the terms and conditions of their practicums.
- Distribute and explain the literature on consumer protection.
- Provide formal supervision before, during and after the practicum by:
  - helping students find a host company
  - ensuring on-site pedagogical support and supervision of the student-trainees
  - ensuring close collaboration between the school and the host company (in the event of problems or difficulties)
- Create a climate that is conducive to the students' personal and professional integration and growth during the entire practicum.
- Co-operate with the practicum supervisors in evaluating the trainees' participation.
- Explain how to complete the observation checklists.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PARTICIPATION CRITERIA

PHASE 1:

- Show enthusiasm during the preparatory stages.
- Request information on the terms and conditions of the practicum.
- Be persuasive during practicum interviews.
- Show concern for a neat appearance while searching for a practicum position.

PHASE 2:

- Observe rules applicable to working in a body shop.
- Participate actively in assigned tasks.
- Show interest throughout the practicum.
- Exhibit the following attitudes: initiative, marked and sustained interest, flexibility, availability, sociability, etc.

PHASE 3:

- Write a practicum report that takes into consideration:
  - the criteria supplied by the school
  - the occupational activities carried out during the practicum
- Give an oral presentation on the tasks and operations carried out during the practicum, including:
  - the strong and weak points of the training received
  - a written self-evaluation report of their participation in the practicum

SECOND-LEVEL OPERATIONAL OBJECTIVES

IN ORDER TO ACHIEVE THE FIRST-LEVEL OBJECTIVE, THE STUDENTS SHOULD HAVE PREVIOUSLY ATTAINED SECOND-LEVEL OBJECTIVES, SUCH AS:

Before undertaking the activities of Phase 1:

1. Name the sources providing information on the practicum positions.
2. Describe the types of activities carried out in different companies.
3. Describe the steps in planning a practicum search, bearing in mind the dates planned for the practicum and the different procedures to follow.

Before undertaking the activities of Phase 2:

4. Describe the legal forms to complete to participate in the practicum.
5. Make a list of the tasks and operations they would like to carry out.
6. Describe the contents of the *Consumer Protection Act* concerning automobile repairs.
7. Describe the observation methods to develop to benefit the most from the practicum.
8. Name the factors inherent in practising the trade.
9. Describe the facts and events to record during the practicum with a view to preparing a practicum report and participating in future discussions.

Before undertaking the activities of Phase 3:

10. Describe the main parts of a practicum report.
11. Describe the rules for presenting an oral report.
12. Describe the self-evaluation criteria.
13. Compare the training received with the actual work experience.

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