11 MECHANICAL MANUFACTURING

AIRCRAFT STRUCTURAL ASSEMBLY

PROGRAM OF STUDY
5697

VOCATIONAL and TECHNICAL EDUCATION

Québec

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The *Aircraft Structural Assembly* program leads to the
Diploma of Vocational Studies (DVS)
and prepares the student to practise the trade of

AIRCRAFT STRUCTURAL ASSEMBLER

Direction générale de la formation professionnelle et technique

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This program of study, *Aircraft Structural Assembly*, 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 *Education Act* (1988, chapter 84), the confessional committees of the Conseil supérieur de l'éducation have given their opinion on this program of study.

TABLE OF CONTENTS

INTRODUCTION

The *Aircraft Structural Assembly* program is based on the orientations for secondary school vocational education 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, which are organized into teaching blocks. 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.

The 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 975 hours, which includes 450 hours spent on the specific competencies required to practise the occupation and 525 hours on general competencies. The program of study is divided into 20 modules, which vary in length from 15 to 90 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.

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.

General Objectives

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

Operational Objectives

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

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.

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: 20
Duration in hours: 975
Credits: 65

Aircraft Structural Assembly
Code: 5697

CODE		TITLE OF THE MODULE	HOURS	CREDITS*
869 011	1.	The Trade and the Training Process	15	1
869 022	2.	Evolution of the Aerospace Industry	30	2
869 032	3.	Applied Mathematics	30	2
869 042	4.	Materials and Structures	30	2
869 054	5.	Reading Blueprints and Associated Documents	60	4
869 064	6.	Work Procedures and Computers	•60	4
869 083	7.	Occupational Health and Safety and Materials Handling	45	3
869 093	8.	Manual Machining	45	3
869 105	9.	Riveting and Deriveting	•75	5
869 112	10.	Mechanical Assembly	30	2
869 122	11.	Sealing and Bonding Agents	30	2
869 136	12.	Making Simple Parts	90	6
869 143	13.	Composites	45	3
869 155	14.	Subassemblies	•75	5
869 166	15.	Aircraft Structural Components	•90	6
869 172	16.	Aircraft Systems	30	2
869 183	17.	Installing Aircraft System Components	45	3
869 195	18.	Repairing Aircraft Structural Components	•75	5
869 201	19.	Job Search Techniques	15	1
869 214	20.	Entering the Work Force	60	4

• Ministry examination
* 15 hours = 1 credit

This program leads to a Diploma of Vocational Studies (DVS) in Aircraft Structural Assembly.

2. PROGRAM TRAINING GOALS

The training goals of the *Aircraft Structural Assembly* 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.

- To teach students to perform aircraft structural assembly tasks and activities correctly, at an acceptable level of competence for entry into the job market.

- To prepare students to progress satisfactorily on the job by fostering:
  - the skills required to interpret task-related standards and work methods;
  - a concern for effective communication with superiors and colleagues;
  - attentiveness and precision in the performance of various tasks;
  - order, neatness and speed in carrying out different activities;
  - a concern for total quality.

To ensure integration into the job market.

- To help students learn about the job market in general and that of aircraft structural assemblers in particular.

To foster personal development and the acquisition of trade-related knowledge.

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

- To help students understand the principles underlying the different tasks performed by aircraft structural assemblers.

- To help students develop the habit of inspecting and correcting their work.

- To help students develop work methods and a sense of discipline.

To ensure job mobility.

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

- To help students learn how to learn.

- To help students prepare for a creative job search.

3. COMPETENCIES

The competencies to be developed in the *Aircraft Structural Assembly* 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

AIRCRAFT STRUCTURAL ASSEMBLY

	SPECIFIC COMPETENCIES (directly related to the practice of the specific occupation)	FIRST-LEVEL OPERATIONAL OBJECTIVES	DURATION (IN HOURS)	WORK PROCESS (major steps)					GENERAL COMPETENCIES (related to technology, subjects, personal development, etc.)														TOTALS	
				Read the instructions, drawings, work procedures and standards	Plan the work and organize the work station	Do the work	Inspect the work	Tidy up the work area	Gain an overview of the evolution of the aerospace industry	Apply mathematical concepts	Associate materialwith various aircraft structures	Read and interpret drawings, diagrams and manuals, and produce sketches	use various work procedures and apply concepts of computer science	Apply occupational health and safety rules and materials handling techniques	Do manual machining tasks	Rivet and derivet aircraft structural pars	Perform mechanical assembly tasks	Apply sealing and bonding agents to assemble aircraft structural parts	Apply basic concepts and techniques related to the use of composites	Make connections between the different aircraft systems	Use job search techniques	Write in English	NUMBER OF OBJECTIVES	DURATION (IN HOURS)
MODULES	MODULES								2	3	4	5	6	7	8	9	10	11	13	16	19	*		
	FIRST-LEVEL OCCUPATIONAL OBJECTIVES								S	B	B	B	B	B	B	B	B	B	B	B	S		13	
	DURATION								30	30	30	60	60	45	45	75	30	30	45	30	15			525
1	Determine their suitability for the trade and the training process	S	15						○	○	○	○	○	○	○	○	○	○	○	○	○			
12	Make simple aircraft structural parts	B	90	▲	▲	▲	▲	▲	○	●	●	●	●	●	●	●	○	○	○					
14	Do a subassembly	B	75	▲	▲	▲	▲	▲	○	○	●	●	●	●	●	●	●	●	●	○				
15	Assemble aircraft structural components	B	90	▲	▲	▲	▲	▲	○	○	●	●	●	●	●	●	●	●	●	○	○			
17	Remove and install aircraft system components	B	45	▲	▲	▲	▲	▲	○	○	●	●	●	●	●	●	●	●	●	○	●			
18	Repair aircraft structural components	B	75	▲	▲	▲	▲	▲	○	○	●	●	●	●	●	●	●	●	●	●	○			
20	Enter the work force	S	60	△	△	▲	▲	▲	○	○	○	●	●	●	●	●	●	●	○	○	○			
NUMBER OF OBJECTIVES		7																					20	
DURATION (IN HOURS)			450																					975

S: Situational objectives

B: Behavioural objective

△ Correlation between a step and a specific competency

▲ Correlation to be taught and evaluated

○ Correlation between a general and a specific competency

● Correlation to be taught and evaluated

4. GENERAL OBJECTIVES

The general objectives of the *Aircraft Structural Assembly* 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.
- Gain an overview of the evolution of the aerospace industry.
- Use job search techniques.
- Enter the work force.

To develop in the students the competencies required to perform specialized trade-related tasks.

- Do a subassembly.
- Assemble aircraft structural components.
- Repair aircraft structural components.

To develop in the students the competencies required to apply basic aircraft structural assembly techniques.

- Apply mathematical concepts.
- Associate materials with various aircraft structures.
- Read and interpret drawings, diagrams and manuals, and produce sketches.
- Use various work procedures and apply concepts of computer science.
- Apply occupational health and safety rules and materials handling techniques.
- Do manual machining tasks.
- Rivet and derivet aircraft structural parts.
- Perform mechanical assembly tasks.
- Apply sealing and bonding agents to assemble aircraft structural parts.
- Apply basic concepts and techniques related to the use of composites.

To develop in the students the competencies required to perform complementary tasks.

- Make simple aircraft structural parts.
- Make connections between the different aircraft systems.
- Remove and install aircraft system 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 compe-tency 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: 869 011 **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 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.
- Recognize the tasks involved in trades related to aircraft structural assembly.
- Understand the training process.
- Confirm their career choice.

LEARNING CONTEXT

PHASE 1: **Information on the Trade**

A. Learning about the job market in aircraft structural assembly.
B. Learning about the nature and the requirements of the job through field trips, interviews, written material, etc.
C. Comparing the tasks of the trade with those of related trades, in particular aircraft electrical and mechanical assembly.
D. Presenting the information gathered and discussing their views on the trade.

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

E. Discussing the skills, aptitudes and knowledge required to practise the trade.
F. Learning about the program and about the other two aircraft assembly programs.
G. Discussing the relevance of the program to the work environment of an aircraft structural assembler.
H. Discussing their initial reactions to the trade and the training program.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

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

I. Stating their preferences, aptitudes and expectations with respect to the trade.
J. Assessing their career choice by comparing the different aspects and requirements of the trade with their own preferences, aptitudes and expectations.
K. Presenting the result of their assessment in a report.

INSTRUCTIONAL GUIDELINES

The teacher should:

- Create a climate that is conducive to personal growth and to the students' integration into the job market.
- Encourage 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 of assessing their career choice honestly and objectively.
- Organize field trips to companies that are representative of the main work environments in the trade.
- Make available all pertinent documentation.
- Organize a meeting with specialists in the trade.
- Provide a report outline.

PARTICIPATION CRITERIA

PHASE 1:
- Gather information on most of the topics to be dealt with.
- Express their views on the trade in a group meeting, relating them to the information they have gathered.

PHASE 2:
- Give their opinions on some of the requirements that they will have to meet in order to practise the trade.
- Express their views on the training program in a group meeting.

PHASE 3:
- Write a report that:
  - sums up their preferences, expectations and aptitudes;
  - explains how they arrived at their career choice.

SECOND-LEVEL OPERATIONAL OBJECTIVES

SITUATIONAL OBJECTIVE

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

Before undertaking the activities of Phase 1:

1. Be receptive to information about the trade and the training program.
2. Be willing to share their views on the trade with other members of the group.
3. Find information.
4. Determine how to record and present information.
5. Give the meaning of "entry-level qualifications."
6. Explain the main rules governing group discussion.

Before undertaking the activities of Phase 2:

7. Define the terms "skill," "aptitude," "attitude" and "knowledge."
8. Describe the nature and purpose of a program of study.

Before undertaking the activities of Phase 3:

9. Differentiate among preferences, aptitudes and expectations.
10. Describe the main components of the report confirming their career choice.

MODULE 2: EVOLUTION OF THE AEROSPACE INDUSTRY

Code: 869 022 **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
gain an overview of the evolution of the aerospace industry.

SPECIFICATIONS

At the end of this module, the students will:

- Be familiar with the main events in the history of the aerospace industry.
- Be familiar with the role of the aerospace industry in the economies of Québec and Canada, as well as in the global market.
- Understand the impact of technological development and the globalization of markets on productivity and competitiveness in the aerospace industry.
- Be familiar with the quality standards associated with the aerospace industry.
- Be familiar with the new types of work organization in the industry and recognize the resulting new management techniques.

LEARNING CONTEXT

PHASE 1: **Information on the Evolution of the Aerospace Industry**

A. Learning about the major events in the history of the aerospace industry.
B. Learning about the current aerospace markets and the role of the industry in the Québec, Canadian and world economies.
C. Learning about the development of new aerospace technologies and identifying their impact on other sectors of activity.
D. Learning about the globalization of markets and its impact on competitiveness and productivity in the industry.
E. Learning about military and non-military quality standards and certification systems associated with the aerospace industry.
F. Learning about the new types of work organization and their impact on the work situation and environment in the industry.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PHASE 2: **Participation in a Process of Reflection**

G. Considering the importance of being familiar with the evolution of the aerospace industry and the means used by companies to attain their objectives with respect to quality, productivity and competitiveness in the context of a world economy.
H. Participating in discussions in which they:
   - establish a parallel between the main stages in the evolution of the aerospace industry and the development of new technologies;
   - identify current trends on which to base predictions about the future of the industry;
   - identify factors that may contribute to the success of the aerospace industry;
   - determine that conforming with standards is the only way to attain quality objectives in the industry;
   - associate companies' adoption of new technologies and new types of work organization with the requirements of quality, productivity and competitiveness;
   - demonstrate how the new technologies and management techniques influence workers' tasks, their level of responsibility, their relationships with colleagues and superiors and their need for continuing education.
I. Participating in a suggested activity, for example, attending a conference given by a representative of the aerospace industry or visiting a company.
J. Taking notes.

PHASE 3: **Evaluation**

K. Synthesizing the information gathered.
L. Identifying the advantages of having this new knowledge about the evolution of the aerospace industry.
M. Presenting their thoughts in a report.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

INSTRUCTIONAL GUIDELINES

The teacher should:

- Kindle an interest in the history and evolution of the aerospace industry.
- Create a climate that is conducive to research and reflection.
- Make available all the necessary documentation.
- Encourage the students to engage in discussions and to express themselves.
- Underline the need for workers in the aerospace industry to adopt new ways of thinking.
- Provide a report outline.

PARTICIPATION CRITERIA

PHASE 1: Gather information on most of the topics to be dealt with.

PHASE 2: Participate in the suggested activities.
Show an interest and express their opinion.

PHASE 3: Write a report that:
- synthesizes the topics dealt with in the learning context;
- explains the importance of being familiar with the evolution of the aerospace industry.

SECOND-LEVEL OPERATIONAL OBJECTIVES
SITUATIONAL OBJECTIVE

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

Before undertaking the activities of Phase 1:

1. Be open to new knowledge.
2. Adopt a research method.
3. Recognize the main Québec and Canadian companies that build aircraft.
4. Define the concepts of productivity, competitiveness and total quality.

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MODULE 3: APPLIED MATHEMATICS

Code: 869 032 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
apply mathematical concepts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - theoretical problems and data related to shop work
  - data in international and imperial units of measurement
- Using:
  - formulas, charts and tables
  - a calculator
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of procedure
- Accurate calculations
- Concern for method and logic
- Proper use of English and French terminology

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Show concern for neatness and the logical presentation of solutions.	
2. Do basic mathematical calculations.	
3. Recognize units of measurement in the international and imperial systems.	
A. Convert units of measurement from the international to the imperial system and vice versa.	- Appropriate choice and use of conversion factors - Proper use of units of measurement - Proper use of symbols and abbreviations
4. Explain the basic principles of trigonometry.	
B. Interpret tables and charts.	- Observance of methods for using tables and charts - Accurate interpretation of information contained in the tables and charts
5. Use a calculator.	
C. Do mathematical calculations related to aircraft structural assembly using the imperial and international systems of measurement.	- Proper choice of formulas and units of measurement - Proper transformation of formulas, if applicable - Proper use of formulas
D. Check the calculations.	- Proper choice of verification techniques - Proper use of verification techniques

MODULE 4: MATERIALS AND STRUCTURES

Code: 869 042 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
associate materials with various aircraft structures
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - reference materials
  - tables and charts
  - illustrations
- Using:
  - structural parts
  - samples of materials
  - demonstration panels
  - course notes

GENERAL PERFORMANCE CRITERIA

- Relevant associations of materials with aircraft structures
- Accurate interpretation of information contained in the tables and charts
- Proper use of English and French terminology

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Describe the materials used in aircraft structures.	- Appropriate identification of materials according to their characteristics and properties - Accurate interpretation of standardized terminology
B. Differentiate among the components of an aircraft structure.	- Recognition of structural components in the different sections of the aircraft and their functions
1. Describe the different types of stress to which aircraft materials and structures are subject.	
2. Describe the conditions under which corrosion occurs.	
3. Describe the factors that contribute to corrosion.	
4. Describe the consequences of the corrosion of materials in aircraft.	
C. Identify the types of corrosion that can affect aircraft structures.	- Recognition of the types of corrosion - Appropriate identification of the effects of corrosion on the structures
5. Recognize the advantages of applying preservatives to materials.	
D. Associate materials with types of treatment.	- Accurate differentiation among the types of treatment - Proper choice of preservatives for each type of material - Recognition of the methods used to: . eliminate corrosion . treat alloys
E. Associate materials with aircraft structural components.	- Proper associations of materials with structural components

MODULE 5: READING BLUEPRINTS AND ASSOCIATED DOCUMENTS

Code: 869 054 **Duration: 60 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
read and interpret drawings, diagrams and manuals, and produce sketches
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - detail and assembly drawings
  - manufacturers' manuals
- Using course notes

GENERAL PERFORMANCE CRITERIA

- Observance of conventions
- Concern for detail and method
- Speed
- Neat, careful work
- Proper use of English and French terminology

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Consult technical drawing standards.	
2. List the types of drawings used in structural assembly.	
3. Recognize the different types of lines.	
A. Locate and interpret complementary information related to aircraft drawings and diagrams.	- Accurate interpretation of: . information . symbols . abbreviations
4. Recognize the importance of handling drawings with care.	
5. Identify the orientation of the views of an aircraft.	
B. Interpret drawings and diagrams containing: **. projections** **. sections** **. views** **. dimensions** **. symbols**	- Accurate interpretation of: . projections . sections . views . dimensions . symbols
C. Locate and interpret information contained in aircraft drawings and diagrams.	- Accurate location of information - Accurate interpretation of information about: . components and parts . fasteners . tolerances . parameters . dimensions - Recognition of datum lines

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
6. Reproduce lines.	
D. Sketch parts and assemblies.	- Proper choice of views - Proper use of freehand drawing technique - Observance of: . layout of views . proportions - Neatness and clarity of sketch
E. Dimension sketches.	- Proper choice of dimensions and symbols - Observance of layout of dimensions - Accurate dimensioning - Relevant notes
F. Locate and interpret information contained in the manufacturers' manuals.	- Accurate location of information - Accurate interpretation of information about: . components and parts . specifications . tolerances . recommendations

MODULE 6: WORK PROCEDURES AND COMPUTERS

Code: 869 064 **Duration: 60 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
use various work procedures and apply concepts of computer science
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - work procedures
  - drawings or diagrams
- Using:
  - a microcomputer and peripherals
  - software
  - a French-English lexicon
  - course notes

GENERAL PERFORMANCE CRITERIA

- Accurate interpretation of information contained in the documents
- Proper use of documentation
- Proper use of English and French terminology
- Proper use of equipment and materials

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Understand the role and nature of work procedures. 2. Identify different departments that support production in a company. 3. Define the goals of communication. 4. Recognize the main documents related to work procedures.	
A. Associate work procedures with aircraft assembly tasks.	- Appropriate distinction of procedures according to their: . role . content . use - Proper association of procedures with the job to be done
B. Locate and interpret relevant information contained in the work procedures.	- Proper selection of documents according to the job to be done - Observance of methods of using documents - Accurate interpretation of: . instructions . drawings and diagrams . information . abbreviations
5. Recognize different ways of making technical notes in English.	

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
C. Note the relevant information in the work procedures.	- Clear and accurate information - Accurate notes - Inclusion of all the necessary information
6. Describe the different types of microcomputers.	
7. Handle the microcomputer and peripherals with care.	
8. Describe the specific characteristics of different types of computers.	
9. Recognize the elements that make up a microcomputer environment.	
10. Identify the input and output connections of a microcomputer.	
D. Connect different peripherals to the microcomputer.	- Observance of procedure - Observance of manufacturers' recommendations
11. List the main operating systems.	
E. Perform operations on a microcomputer using: **. an operating system** **. a software program**	- Observance of methods of: . using commands . finding information . inputting data - Accurate interpretation of codes - Appropriate use of software program

MODULE 7: OCCUPATIONAL HEALTH AND SAFETY AND MATERIALS HANDLING

Code: 869 083 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
apply occupational health and safety rules and materials handling techniques
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - learning contexts or case studies
  - an emergency response plan
  - manufacturers' manuals
- Using:
  - aircraft structural components
  - handling accessories and equipment
  - tools
  - materials
  - charts and tables
  - the relevant documentation
  - course notes

GENERAL PERFORMANCE CRITERIA

- Relevant association of risks of industrial accidents and occupational diseases with preventive measures
- Appropriate use of documentation
- Appropriate use of equipment

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Be familiar with the main organizations associated with occupational health and safety.	
2. Understand the importance of raising employers' awareness of occupational health and safety.	
3. Be familiar with possible recourse in matters of occupational health and safety.	
A. Associate laws and regulations respecting occupational health and safety with the situation of an aircraft structural assembly plant.	- Relevant association of laws and regulations with the tasks performed - Appropriate explanation of the rights and obligations of employers and employees as stipulated in the legislation
4. Become aware of the dangers related to automatic controls.	
5. Recognize various dangerous situations in the workplace.	
B. Associate the main health and safety risks with the tasks performed in an aircraft structural assembly plant.	- Proper association with respect to: . equipment . materials . products . procedures . methods . the work environment . the work organization
6. State the advantages of prevention and describe methods of promoting it.	

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
7. Identify the items on a WHMIS data sheet for products used in aircraft structural assembly.	
8. List various methods for the environmentally safe elimination of pollutants.	
C. Explain the preventive measures to be taken in an aircraft structural assembly plant.	- Accurate explanation of preventive measures
D. Explain the main measures to be taken in case of emergency.	- Accurate explanation of measures to be taken
9. Define "hoisting" and "handling."	
10. Define "centre of gravity."	
E. Determine the centre of gravity and estimate loads.	- Accurate location of centre of gravity - Accurate calculations - Appropriate estimate of loads
11. Define the safety factor.	
12. Recognize signalling methods.	
F. Sling, lift and move materials and equipment safely.	- Proper use of technique - Materials and equipment solidly fastened - Consideration of the capacity of the accessories - Appropriate protection of accessories or slings - Observance of manufacturers' recommendations - Balanced and stable load in accordance with volume, size and weight - Observance of health and safety rules

MODULE 8: MANUAL MACHINING

Code: 869 093 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
do manual machining tasks
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - metal pieces
  - tools
  - equipment
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of procedure
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Accurate calculations
- Speed
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Machining in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings and symbols . abbreviations . information . instructions . standards
1. List the advantages of effectively planning and organizing work.	
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . equipment . instruments . materials . products - Conformity with instructions
2. Become aware of the need for precision.	
C. Perform tasks preliminary to machining: **. examine the part** **. measure** **. mark out** **. punch**	- Accurate observation of the condition of the parts - Proper choice of instruments for the measurements to be taken - Accurate readings - Accurate interpretation of readings - Accurate location of points of the part to be punched - Accurate marking out

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
3. Recognize a defective tool.	
D. Do machining tasks such as: **. drilling** **. countersinking** **. counterboring** **. reaming** **. tapping** **. thread cutting** **. filing** **. sawing** **. sharpening**	- Proper use of the appropriate machining techniques - Observance of tolerances - No burrs - Clean parts
E. Inspect the work.	- Complete inspection of conformity of machined parts with requirements - Detection of defects - Observance of tolerances
F. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . equipment . instruments . materials . products - Neat work station

MODULE 9: RIVETING AND DERIVETING

Code: 869 105 **Duration: 75 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
rivet and derivet aircraft structural parts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - structural parts of different thicknesses
  - tools
  - equipment
  - measuring and testing instruments
  - materials
  - products
  - charts and tables
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of procedure
- Observance of manufacturers' recommendations
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Speed
- Neat, careful work
- Proper use of English and French terminology
- Riveted and deriveted parts in conformity with requirements specified in the drawings, diagrams and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Differentiate among the types of rivets used in the aerospace industry.	
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings and symbols . codification . information . instructions
2. List the advantages of effectively planning and organizing work.	
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . instruments . materials - Conformity with instructions
3. Become aware of the need for precision.	
C. Assemble the parts to be riveted.	- Accurate positioning of parts to be assembled - Appropriate positioning of temporary fasteners - Assembly in conformity with specifications
D. Rivet aircraft structural parts using: **. percussion riveting** **. compression riveting** **. traction riveting**	- Proper use of techniques for the type of rivet to be installed - Observance of dimensions - Solid riveting - Clean parts

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
E. Derivet parts: **. on a workbench** **. in an aircraft**	- Proper use of deriveting techniques according to the type of rivet - Hole sizes in conformity with specifications - No burrs - Clean parts
F. Inspect the work.	- Accurate inspection of conformity of riveted and deriveted parts with requirements - Detection of defects - Observance of tolerances
G. Tidy up the work area.	- Proper cleaning and storage of: . tools . equipment . instruments . materials . products - Neat work station

MODULE 10: MECHANICAL ASSEMBLY

Code: 869 112 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
perform mechanical assembly tasks
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - standards
  - manufacturers' manuals
- Using:
  - aircraft components, structural parts and equipment
  - threaded and unthreaded fasteners
  - tools
  - equipment
  - measuring instruments
  - products
  - personal and group safety equipment
  - course notes

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of work methods
- Observance of manufacturers' recommendations
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Observance of tolerances
- Speed
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Conformity with standards and requirements specified in the drawings, diagrams and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Describe the different types of fasteners.	
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings and symbols . information . instructions . standards
B. Select the necessary tools, equipment, instruments, materials and products.	- Conformity with instructions - Proper selection of the appropriate tools, equipment, instruments, materials and products
C. Do assemblies using threaded fasteners.	- Accurate positioning of parts to be assembled - Proper use of techniques for assembling with threaded fasteners - Observance of torquing and locking techniques - Application of products at the appropriate locations
D. Do assemblies using unthreaded fasteners.	- Accurate positioning of parts to be assembled - Proper use of techniques for assembling with unthreaded fasteners - Lockwiring and installation of cotter pins per standard practice - Proper use of fasteners - Observance of torquing and locking techniques
E. Disassemble an assembly.	- Observance of disassembly sequence - Proper use of disassembly techniques

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
F. Inspect the assembly.	- Observance of testing methods - Proper choice of corrective measures, if applicable - Complete inspection of conformity of assembly with requirements
G. Tidy up the work area.	- Proper cleaning and storage of: . tools . equipment . instruments . materials . products - Neat work station

MODULE 11: SEALING AND BONDING AGENTS

Code: 869 122 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
apply sealing and bonding agents to assemble aircraft structural parts
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - aircraft structural parts
  - products and glues
  - tools
  - measuring and testing instruments
  - materials
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of procedure
- Proper use of tools, instruments and materials
- Careful handling of products
- Accurate measurements
- Proper use of English and French terminology
- All information noted in work procedures
- Sealing and bonding in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Differentiate among the products used to clean and strip aircraft structural parts. 2. Differentiate among the sealing agents used on aircraft structural parts. 3. Differentiate among the glues used on aircraft structural parts.	
A. Locate relevant information in the drawings, work procedures and manufacturers' manuals.	- Complete list of information necessary for: . sealing . gluing - Accurate interpretation of: . drawings and symbols . information . instructions . standards
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . materials . products - Conformity with instructions or standards
4. Explain the advantages of good surface preparation.	
C. Prepare the parts and surfaces to be treated.	- Accurate location of the area or part to be treated - Proper use of stripping technique - Observance of techniques for applying cleaning and degreasing agents - Observance of treatment times - Parts and surfaces kept completely clean until treated

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
5. Become aware of the need to observe manufacturers' standards and recommendations.	
D. Prepare the sealing and bonding agents.	- Accurate measurement of quantities - Homogeneous mixture
E. Apply sealing agents: **. faying surface** **. injection**	- Proper use of techniques - Observance of application and drying times - Conformity of application with respect to: . the condition of the beads . the size of the beads
F. Bond aircraft structural parts: **. apply bonding agents** **. assemble the parts**	- Application of bonding agents to the appropriate locations - Proper use of bonding technique - Accurate positioning of parts to be bonded - Observance of established conditions - Solid assembly
G. Inspect the work.	- Complete inspection of conformity of sealing and bonding with requirements - Complete list of defects
H. Tidy up the work area.	- Proper cleaning and storage of: . tools . instruments . materials . products - Neat work station

MODULE 12: MAKING SIMPLE PARTS

Code: 869 136 **Duration: 90 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

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

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - shapes and sheets
  - tools
  - equipment
  - measuring instruments
  - materials
  - personal safety equipment
  - a calculator
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Consideration of characteristics of materials
- Observance of procedure
- Observance of standards and tolerances
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Observance of time limits
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Parts in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings . symbols . abbreviations . information . instructions . standards - Conformity with instructions
1. Describe the characteristics of a punching machine.	
2. Describe the characteristics of a bending machine.	
3. Describe the characteristics of a press brake.	
4. Describe the characteristics of crimping machines.	
5. Describe the characteristics of a notching press.	
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . equipment . instruments . materials - Conformity with instructions
C. Calculate the dimensions of a part to be made.	- Proper choice of formulas - Proper use of formulas - Accurate calculations

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
D. Mark out the part to be made.	- Proper use of marking out technique - Proper use of templates - Precise, clear lines - Clean part
E. Cut out the part.	- Observance of sequence of operations - Proper use of cutting techniques - Consideration of shape and size of part - No burrs or other surface defects
F. Punch the part.	- Accurate location of holes - Proper use of punching technique - Proper hole sizes - Observance of tolerances
G. Form a simple aircraft structural part using techniques such as:	
. rolling	- Proper use of rolling technique - Rolled part in conformity with requirements
. bending	- Proper use of bending technique - Observance of angles and tolerances - Bent part in conformity with requirements
. stretching and shrinking	- Proper use of stretching and shrinking techniques - Regular, precise curves - Part in conformity with requirements
H. Notch an aircraft structural part.	- Proper use of notching technique - Notches in conformity with requirements

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
I. Inspect the work.	- Accurate verification of conformity of part with the requirements specified in the drawings and work procedures - Detection of defects - Relevant corrective measures suggested, if applicable
J. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . equipment . instruments . materials . products - Appropriate identification and storage of formed part - Neat work station

MODULE 13: COMPOSITES

Code: 869 143 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
apply basic concepts and techniques related to the use of composites
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - aircraft structural parts
  - tools
  - equipment
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of procedure
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Speed
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Composite in conformity with requirements specified in the work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
1. Define "composite."	
2. Explain polymerization.	
A. Differentiate among the materials that make up a composite.	- Recognition of the materials and their respective roles - Accurate distinction among gel coats, reinforcements and resins, according to their: . type . appearance . characteristics . physical and chemical properties - Identification of all the necessary information
B. Locate relevant information in the drawings, work procedures and manufacturers' manuals.	- Accurate interpretation of: . drawings . symbols . information . instructions . standards
C. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . equipment . instruments . materials . products - Conformity with instructions
3. Explain the advantages of good surface preparation.	

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
D. Prepare the surfaces to be worked on.	- Accurate delimitation of the area to be repaired - Proper use of stripping technique - Observance of treatment time - Surfaces and parts kept perfectly clean
E. Prepare the matrix and reinforcements.	- Accurate measurement of quantities - Homogeneous mixture - Fabric to be prepared in conformity with requirements
4. Become aware of the need to observe manufacturers' recommendations and standards.	
5. Recognize the importance of removing air bubbles after impregnating each ply.	
F. Do a minor repair on a composite surface.	- Proper use of wet lay up techniques - Orientation of fibres in conformity with requirements - Quality of new structure identical to that of the entire part - Observance of cure time - Perfect adhesion of reinforcements around the damaged area
G. Contact mould a laminate. .	- Proper use of contact moulding technique - Adjustments in conformity with instructions - Observance of cure time - Moulded part in conformity with requirements - No damage to the moulded part

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
H. Inspect the work.	- Observance of inspection techniques - Complete inspection of conformity of repaired and moulded parts with requirements - Complete list of defects - Observance of tolerances
I. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . equipment . instruments . materials . products - Neat work station

MODULE 14: SUBASSEMBLIES

Code: 869 155 **Duration: 75 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
do a subassembly
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
- Using:
  - structural parts
  - tools
  - equipment
  - assembly jigs
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of standards and tolerances
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Observance of time limits
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Subassembly in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings . symbols and abbreviations . information . instructions . standards
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . instruments . materials . products - Conformity with instructions
1. List the most common defects found in subassembly parts. 2. Describe the risks associated with the use of defective parts.	
C. Inspect and prepare the parts to be assembled.	- Accurate inspection of the location and size of holes - Relevant choice of type of preparation - Proper use of appropriate preparation techniques

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
D. Drill a part.	- Accurate positioning of part in jig - Observance of fastening techniques - Proper use of drilling and deburring techniques - Clean part
E. Assemble the parts of the subassembly in a jig.	- Observance of assembly sequence - Accurate positioning of parts in jig - Observance of fastening techniques
F. Rivet the parts of the subassembly.	- Proper use of techniques for riveting with and without a jig - Clean part
G. Inspect the subassembly.	- Observance of inspection techniques - Complete inspection of conformity of subassembly with requirements: . drilling . riveting . assembly - Complete list of defects
H. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . instruments . materials . products . subassembly - Neat work station

MODULE 15: AIRCRAFT STRUCTURAL COMPONENTS

Code: 869 166 **Duration: 90 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

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

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
- Using:
  - structural parts and subassemblies
  - tools
  - equipment
  - assembly jigs
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of standards and tolerances
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Observance of time limits
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Assembly in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings . symbols and abbreviations . information . instructions . standards
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . instruments . materials . products - Conformity with instructions
1. List the most common defects found in parts.	
C. Inspect and prepare the parts and subassemblies to be assembled.	- Accurate identification of parts and subassemblies - Accurate observation of the condition of the parts - Proper use of the appropriate preparation techniques
D. Inspect and prepare the assembly jig.	- Accurate identification of the parts of the jig - Complete inspection of their assembly
E. Assemble the parts and subassemblies in a jig.	- Observance of assembly sequence - Accurate positioning of parts in the jig - Observance of fastening techniques

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
F. Rivet the parts and subassemblies.	- Proper use of techniques - Leak-tight, clean and solid assembly
G. Inspect the work.	- Observance of inspection techniques - Complete inspection of conformity of riveting and assembly with requirements - Complete list of defects
H. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . instruments . materials . products . assembly - Neat work station

MODULE 16: AIRCRAFT SYSTEMS

Code: 869 172 **Duration: 30 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
make connections between the different aircraft systems
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - drawings and diagrams
  - reference materials
  - illustrations
- Using:
  - actual aircraft system components
  - mock-ups
  - course notes

GENERAL PERFORMANCE CRITERIA

- Relevant connections made between aircraft systems, their components, their roles and their operating principles
- Proper use of English and French terminology

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Differentiate among the systems of an aircraft.	- Recognition of systems - Correct location of systems on the airframe
B. Explain the operating principles of the different aircraft systems.	- Accurate explanations
C. Interpret diagrams of simple hydraulic and pneumatic circuits.	- Accurate interpretation of symbols - Accurate interpretation of operation of circuit
D. Associate mechanical, hydraulic and pneumatic elements with aircraft system components.	- Relevant associations

MODULE 17: INSTALLING AIRCRAFT SYSTEM COMPONENTS

Code: 869 183 **Duration: 45 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

To demonstrate the required competency, the students must
remove and install aircraft system components
in accordance with the following conditions, criteria and specifications.

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings, diagrams and work procedures
  - manufacturers' manuals
- Using:
  - system components
  - actual aircraft equipment or mock-ups
  - tools
  - equipment
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of standards and tolerances
- Proper use of tools, equipment, instruments and materials
- Observance of time limits
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Removal and installation of components in conformity with requirements specified in the drawings, diagrams and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings, diagrams and work procedures.	- Identification of all the necessary information - Accurate interpretation of: . drawings . symbols and abbreviations . information . instructions
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . equipment . instruments . materials . products - Conformity with instructions
1. Describe situations in which a structural assembler would remove and install aircraft system components.	
C. Remove mechanical, hydraulic and pneumatic aircraft system components.	- Observance of removal sequence - Proper use of techniques - Appropriate protection of elements and components
2. List defects in aircraft components that can be detected visually or by touch.	
D. Examine the components to be installed.	- Proper use of inspection techniques - Accurate identification of parts - Detection of all defects

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
E. Install mechanical, hydraulic and pneumatic aircraft system components.	- Observance of installation sequence - Proper use of the appropriate techniques - Accurate and leak-tight connections - Solid installation
F. Inspect the work.	- Complete inspection of conformity of installation with requirements - Accurate observations with respect to the quality of the installation
G. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . equipment . instruments . materials . products - Neat work station

MODULE 18: REPAIRING AIRCRAFT STRUCTURAL COMPONENTS

Code: 869 195 **Duration: 75 hours**

FIRST-LEVEL OPERATIONAL OBJECTIVE
BEHAVIOURAL OBJECTIVE

EXPECTED BEHAVIOUR

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

CONDITIONS FOR PERFORMANCE EVALUATION

- Given:
  - instructions
  - drawings and work procedures
  - manufacturers' manuals
- Using:
  - structural components
  - tools
  - actual aircraft equipment or mock-ups
  - measuring instruments
  - materials
  - products
  - personal and group safety equipment
  - course notes

GENERAL PERFORMANCE CRITERIA

- Observance of occupational health and safety rules
- Observance of standards and tolerances
- Consideration of characteristics of materials
- Proper use of tools, equipment, instruments and materials
- Accurate measurements
- Observance of time limits
- Neat, careful work
- Proper use of English and French terminology
- All information noted in work procedures
- Repairs in conformity with requirements specified in the drawings and work procedures

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES

BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
A. Locate relevant information in the drawings, work procedures and manufacturers' manuals.	- Appropriate choice of documentation for the job to be done - Identification of all the necessary information - Accurate interpretation of: . drawings . symbols and abbreviations . codes . information . instructions . standards
B. Plan the work.	- Logical sequence of operations - Appropriate selection of: . tools . instruments . materials . products - Conformity with instructions
1. List the most common repairs made to aircraft components.	
C. Examine the structural component to be repaired.	- Observance of inspection techniques - Accurate identification of defects - Relevant determination of work to be done
2. Explain the advantages of organizing the parts as they are removed.	

FIRST- AND SECOND-LEVEL OPERATIONAL OBJECTIVES
BEHAVIOURAL OBJECTIVE

(First-level objectives appear in bold.)

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

Specifications of the expected behaviour and second-level objectives	**Specific performance criteria**
D. Remove and disassemble aircraft structural components.	- Observance of removal and disassembly sequences - Proper use of the appropriate techniques - Accurate identification of each part removed - No damage done to part
E. Do repairs: **. replace parts** **. move parts** **. make minor changes**	- Observance of sequence of operations - Proper use of the appropriate techniques with respect to: . the type of repair . the nature of the materials - No foreign objects - Finishing of repair in conformity with requirements
F. Reassemble the structural component.	- Observance of assembly sequence - Assembly in conformity with requirements
G. Inspect the work.	- Complete inspection of the conformity of the repaired component with requirements - Complete list of defects - Observance of tolerances
H. Tidy up the work area.	- Appropriate cleaning and storage of: . tools . equipment . instruments . materials . products . component - Neat work station

MODULE 19: JOB SEARCH TECHNIQUES

Code: 869 201 **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 be able to
use job search techniques.

SPECIFICATIONS

During this module, the students will:

- Consult various sources of information.
- Prepare documents for their job search.
- Plan a job search.
- Contact prospective employers.

LEARNING CONTEXT

PHASE 1: **Preparing the Job Search**

A. Becoming familiar with various sources of information that can be used before and while preparing documents for the job search.
B. Writing a résumé and a cover letter.
C. Participating in a simulated job interview.

PHASE 2: **Preparing and Following a Job Search Plan**

D. Determining the types of establishments that correspond to their expectations and values.
E. Planning the steps involved in the job search plan.
F. Carrying out the steps of the job search plan.
G. Keeping a log on the various steps of the job search and the procedure followed.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PHASE 3: **Evaluating Job Search Techniques**

H. Presenting the results of the techniques used at a group meeting, referring to their log.

INSTRUCTIONAL GUIDELINES

The teacher should:

- Provide the students with the material resources and examples that will help them with their work.
- Explain to the students how to use reference materials.
- Put the students in touch with resource persons who can help them with their job search.
- Allot enough time and provide the necessary means for the students to try out their job search plan.
- Follow up the steps taken by the students.
- Encourage discussion and cooperation among the students.
- Organize simulation activities and provide the students with support.

PARTICIPATION CRITERIA

PHASE 1:
- Write a résumé and a cover letter containing information on their work experience, training and qualifications, as well as personal information, in accordance with the rules of presentation.
- Participate in activities.

PHASE 2:
- List three types of establishments that could meet their expectations.
- Submit a log containing information on each of the steps in their job search plan, as well as a description of the job search itself.

PHASE 3:
- Give a brief presentation on the relevance of the reference materials used in their job search and the effectiveness of their approach.

SECOND-LEVEL OPERATIONAL OBJECTIVES
SITUATIONAL OBJECTIVE

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

Before undertaking the activities of Phase 1:

1. Identify various types of selection interviews.

Before undertaking the activities of Phase 2:

2. Describe job search techniques.
3. Explain the extent to which characteristics of the job market can influence their job search.
4. Indicate the attitudes and behaviour that make it easier to approach prospective employers.

MODULE 20: ENTERING THE WORK FORCE

Code: 869 214 **Duration: 60 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
enter the work force.

SPECIFICATIONS

During this module, the students will:

- Become familiar with the workplace.
- Obtain a position in a workplace.
- Become aware of how their practicum will affect their perception of the work environment, trade practices, aptitudes, preferences, expectations and training.

LEARNING CONTEXT

PHASE 1: **Looking for a Practicum Position**

A. Becoming familiar with information and terms and conditions of the practicum.
B. Looking for information on possible practicum positions.

PHASE 2: **Observing and Practising the Trade in the Workplace**

C. Observing the work environment.
D. Observing structural assemblers at work.
E. Performing or helping perform various trade-related tasks.
F. Producing a brief report describing their observations of the work environment and of the tasks performed in the establishment.

FIRST-LEVEL OPERATIONAL OBJECTIVE
SITUATIONAL OBJECTIVE

PHASE 3: **Comparing Initial Perceptions with the Actual Work Environment**

G. Identifying aspects of the trade that are similar to and that differ from their training.
H. Comparing their perception of the trade before and after the practicum.
I. Determining how their experiences will affect their career choice.
J. Commenting on their experience in each practicum position.

INSTRUCTIONAL GUIDELINES

The teacher should:

- Provide the students with the necessary sources of information.
- Suggest two or three practicum positions for each student.
- Maintain close ties between the school and the establishment.
- Make sure that the establishments provide the students with conditions favourable to the performance of practicum-related activities.
- Make sure that the trainees are supervised by a responsible employee of the company.
- Ensure regular support and supervision of the students.
- Intervene if difficulties or problems arise.
- Encourage the students to engage in discussions and to express themselves.

PARTICIPATION CRITERIA

PHASE 1:
- Consult sources of information at their disposal.

PHASE 2:
- Observe the establishment's work schedules, policies concerning the activities they are authorized to carry out as trainees, professional ethics and occupational health and safety rules.
- Produce a report containing their observations on at least five aspects of the work environment and the tasks carried out during the practicum.

PHASE 3:
- Discuss with their classmates their experiences in the workplace.

SECOND-LEVEL OPERATIONAL OBJECTIVES
SITUATIONAL OBJECTIVE

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

Before undertaking the activities of Phase 2:

1. Describe the points to record during a practicum.
2. Describe the behaviour to adopt in the workplace.

Before undertaking the activities of Phase 3:

3. List their aptitudes, preferences and expectations.

Éducation

Québec

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