

Technical Training Program

243.B0

# Electrotechnology

Training Sector

9

Electrotechnology

Québec 





Technical Training Program

243.B0

# Electrotechnology

Training Sector

9

Electrotechnology

Formation professionnelle et technique  
et formation continue

Direction générale des programmes  
et du développement

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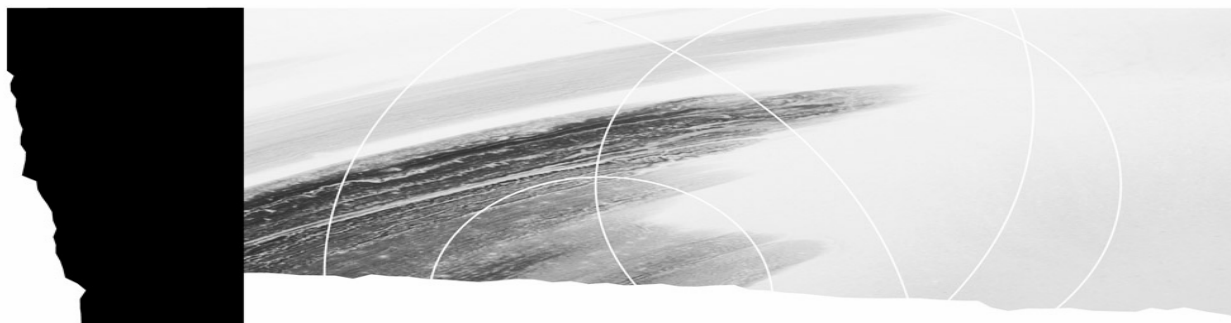
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243.B0

**Electrotechnology**

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Year of approval: 2007

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**Certification:** Diploma of College Studies

**Number of credits:** 91 2/3 credits

**Total duration:** Telecommunications: 2685 hours of instruction  
Computers and networks: 2700 hours of instruction  
Audiovisual: 2700 hours of instruction

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|                                       |      |                      |
|---------------------------------------|------|----------------------|
| General education components:         | 660  | hours of instruction |
| Program-specific component:           |      |                      |
| Telecommunications specialization:    | 2025 | hours of instruction |
| Computers and network specialization: | 2040 | hours of instruction |
| Audiovisual specialization:           | 2040 | hours of instruction |

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**Admission Requirements:**

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To be admitted to the program, a person must meet the general requirements for admission set out in section 2 of the *College Education Regulations*, as well as the following special conditions, where applicable:

- Mathematics 436
- Physical Science 436



# Introduction to the Program

The *Electrotechnology* program is in keeping with the aims and orientations of technical education that guide the Ministère de l'Éducation, du Loisir et du Sport. Designed in accordance with the framework for developing technical programs, this program is based on competencies, formulated in terms of objectives and standards.

The *Electrotechnology* program includes a general education component common to all programs (16 2/3 credits), a general education component adapted to this program (6 credits), a complementary general education component (4 credits) and a program-specific component of 65 credits for each specialization.

The program-specific component was also designed according to the framework for developing technical programs. This approach requires the participation of people working in the field and in education, and takes into account training needs, the job analysis and the general goals of technical education. The objectives and standards serve as the basis for the definition and the evaluation of learning activities, for which the colleges are responsible.

By successfully completing this program of study, students acquire not only the entry-level competencies required by the workplace to practise a trade or occupation, but also a range of knowledge, skills and attitudes that will ensure the students' versatility.

---

## General Education Component Common to All Programs

(16 2/3 credits)

- 0004 To analyze and produce various forms of discourse.
- 0005 To apply a critical approach to literary genres.
- 0006 To apply a critical approach to a literary theme.
- 00B2 To apply a logical analytical process to how knowledge is organized and used.
- 000G To apply a critical thought process to world-views.
- 0017 Appliquer les notions de base de la communication en français courant.
- or
- 000A Communiquer en français avec une certaine aisance.
- or
- 000B Communiquer avec aisance en français.
- or
- 000C Traiter d'un sujet culturel et littéraire.
- 0064 To establish the role that being physically active plays amongst the lifestyle behaviours which promote health.
- 0065 To improve one's effectiveness when practising a physical activity.
- 0066 To demonstrate one's responsibility for being physically active in a manner which promotes health.

**General Education Component Adapted to This Program****(6 credits)**

- 000L To communicate in the forms of discourse appropriate to one or more fields of study.
- 000U To apply a critical thought process to ethical issues relevant to the field of study.
- 0018 Appliquer des notions fondamentales de la communication en français, liées à un champ d'études.
- or
- 000Q Communiquer en français dans un champ d'études particulier.
- or
- 000R Communiquer avec aisance en français dans un champ d'études particulier.
- or
- 000S Dissserter en français sur un sujet lié au champ d'études.

**Complementary General Education Component****(4 credits)**

- 000V To estimate the contribution of the social sciences to an understanding of contemporary issues.
- 000W To analyze one of the major problems of our time using one or more social scientific approaches.
- 000X To explain the general nature of science and technology and some of the major contemporary scientific or technological issues.
- 000Y To resolve a simple problem by applying the basic scientific method.
- 000Z To communicate with limited skill in a modern language.
- 0010 To communicate on familiar topics in a modern language.
- 0067 To communicate with relative ease in a modern language.
- 0011 To recognize the role of mathematics or informatics in contemporary society.
- 0012 To use various mathematical or computer concepts, procedures and tools for common tasks.
- 0013 To consider various forms of art produced by aesthetic practices.
- 0014 To produce a work of art.

## Telecommunications specialization

- 041Q To process information about working in the field of electrotechnology.
- 041R To implement mathematical models related to electronics.
- 037E To diagnose an analog electronics problem.
- 037F To diagnose a digital electronics problem.
- 037C To process technical information.
- 041S To communicate in the workplace.
- 041T To replace electronic components.
- 041U To draw electronic schematic diagrams.
- 041V To diagnose a network-related problem.
- 041W To diagnose an analog electronics problem affecting telecommunications circuits.
- 041X To perform telecommunications network surveillance activities.
- 041Y To check the operation of a wired telecommunications system.
- 041Z To check the operation of a fibre-optic telecommunications system.
- 0421 To check the operation of a wireless telecommunications system.
- 0422 To provide quality control for the assembly and integration of a telecommunications system.
- 0423 To perform activities related to the installation and activation of a telecommunications system.
- 0424 To service a telecommunications system.
- 0425 To service a computer network system.
- 0426 To modify a telecommunications system.
- 0427 To provide technical assistance and support.

## Computers and networks specialization

- 041Q To process information about working in the field of electrotechnology.
- 041R To implement mathematical models related to electronics.
- 037E To diagnose an analog electronics problem.
- 037F To diagnose a digital electronics problem.
- 037C To process technical information.
- 041S To communicate in the workplace.
- 041T To replace electronic components.
- 041U To draw electronic schematic diagrams.
- 041V To diagnose a network-related problem.
- 0428 To install an operating system.
- 0429 To install a piece of computer hardware.
- 042A To service a piece of computer hardware.
- 042B To modify a piece of computer hardware.

- 042C To set up a local network.
- 042D To service a local network.
- 042E To plan the set-up of a local network.
- 042F To provide technical assistance.

#### Audiovisual specialization

- 041Q To process information about working in the field of electrotechnology.
- 041R To implement mathematical models related to electronics.
- 037E To diagnose an analog electronics problem.
- 037F To diagnose a digital electronics problem.
- 037C To process technical information.
- 041S To communicate in the workplace.
- 042G To practise health and safety techniques related to audiovisual technology.
- 042H To ensure the distribution of electrical power.
- 042J To interconnect audiovisual system components.
- 042K To provide lighting.
- 042L To fit a hall or stage with a public address (PA) system.
- 042M To activate an audiovisual network.
- 042N To activate audiovisual control systems.
- 042P To present audiovisual documents.
- 042Q To make sound recordings.
- 042R To produce video recordings.
- 042S To edit audio or video documents.
- 042T To perform activities related to the broadcast of audiovisual documents.
- 042U To service audiovisual equipment.
- 042V To modify audiovisual systems.
- 042W To provide technical support for a production.
- 042X To provide technical direction for an audiovisual project.

# Glossary

## Program

A program is an integrated set of learning activities leading to the achievement of educational objectives based on set standards (*College Education Regulations*, section 1).

## Competency

In the program-specific component of a technical program: a competency is the ability to act successfully and evolve in order to adequately perform work-related tasks and activities based on an organized body of knowledge, skills in a variety of fields, perceptions, attitudes, etc. (*Élaboration des programmes d'études techniques, Cadre-général – Cadre technique 2002*, p. 15).

## Objective

An objective encompasses the competency, skills or knowledge to be acquired or mastered (*College Education Regulations*, section 1). It describes the competency to be acquired and includes the statement of the competency as well as the elements needed to understand it.

## Statement of the Competency

In the program-specific component of a technical program, a statement of the competency is derived from the job analysis, the general goals of technical education and, in certain cases, other determinants. In the general education components, the statement of the competency is the result of an analysis of general education needs.

## Elements of the Competency

In the program-specific component of a technical program, the elements of the competency include only what is necessary in order to understand the competency. They specify the major steps involved in carrying out a task or the main aspects of the competency.

In the general education components, the elements of the objective, formulated in terms of a competency, specify the main aspects of the competency. They include only what is necessary in order to understand and attain the competency.

## Standard

A standard is the level of performance at which an objective is considered to be achieved (*College Education Regulations*, section 1).

## Achievement Context

In the program-specific component of a technical program, the achievement context corresponds to the situation in which the competency is exercised at entry level on the job market. The achievement context does not specify the context for learning or evaluation.

## Performance Criteria

In the program-specific component of a technical program, the performance criteria define requirements by which to judge the attainment of each element of the competency and, consequently, of the competency itself. The performance criteria are based on the requirements at entry level on the job market. The performance criteria are not the evaluation instrument but, rather, they serve as a reference for the development of the evaluation instrument. Each element of the competency requires at least one performance criterion.

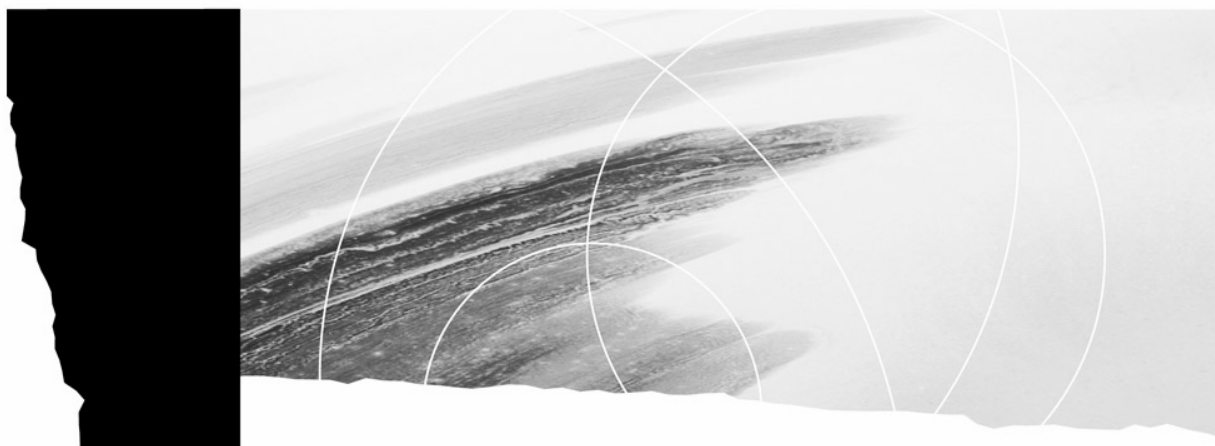
In the general education components, the performance criteria define the requirements for recognition of the attainment of the standard.

All the criteria must be respected for the objective to be recognized as having been attained.

### **Learning Activities**

In the program-specific component of a technical program, the learning activities are classes (or labs, workshops, seminars, practicums or other educational activities) designed to ensure the attainment of the targeted objectives and standards. Colleges are entirely responsible for defining the learning activities and organizing the way in which programs are offered.

In the general education components, the elements of the learning activities that may be determined in whole or in part by the Minister are the field of study, the discipline(s), the weightings, the total hours of instruction, the number of credits and any details deemed essential.



## **Part I**

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**Goals of the General Education  
Components**

**Educational Aims of the General  
Education Components**

**Objectives and Standards of the  
General Education Components**



# Goals of the General Education Components

In Québec, college is the next stage after the compulsory years of schooling in elementary and secondary school, during which students acquire basic knowledge and skills. It represents a major crossroads in that it places greater emphasis on the cultural content of education and leads directly to the job market or to university. The college system meets current needs with respect to technical and pre-university education. It allows students to further their education without narrowing their options, since they may switch from one type of program to the other. Finally, it provides students with a well-rounded, balanced education.

General education is an integral part of every program and comprises three components: a component common to all programs, a component adapted to the particular program and a complementary component. The aim of general education is threefold: to provide students with a common cultural core, to help them learn and develop generic skills, and to foster desirable qualities and attitudes. Its purpose is to educate students as individuals, to prepare them for their role as responsible members of society and to enable them to share in the common cultural heritage.

## Common Cultural Core

The common cultural core is intended to help students:

- master the language of instruction as a tool for communication and reflection
- master the basic rules of rational thought, discourse and argumentation
- communicate in another language, primarily French or English
- be open to the world and to cultural diversity
- appreciate the riches of our cultural heritage through awareness of the accomplishments of human civilization
- relate to major currents in the history of human thought
- think independently and critically
- develop personal and social ethics
- acquire the knowledge essential for their physical and intellectual well-being
- become aware of the need to develop habits conducive to good health

## Generic Skills

General education allows students to acquire and develop the following generic skills:

- conceptualization, analysis and synthesis
- coherent reasoning
- critical judgment
- articulate expression
- the ability to apply what they have learned to the analysis of situations
- the ability to apply what they have learned to decision making
- work methods
- the ability to reflect on what they have learned

## Desirable Qualities and Attitudes

The common cultural core and generic skills help students acquire and develop the following qualities and attitudes:

- autonomy
- a critical sense
- awareness of their responsibilities toward themselves and others
- open-mindedness

- creativity
- openness to the world

These goals apply to the three general education components:

- General education component common to all programs, which is allotted 16 2/3 credits distributed as follows:
  - language of instruction and literature: 7 1/3 credits
  - humanities or *philosophie*: 4 1/3 credits
  - physical education: 3 credits
  - second language: 2 credits
- General education component adapted to programs, which introduces tasks or learning situations that are relevant to the program-specific component of a program. The breakdown of credits, for a total of 6, is as follows:
  - language of instruction and literature: 2 credits
  - humanities or *philosophie*: 2 credits
  - second language: 2 credits
- Complementary general education component, which provides students with learning activities chosen to balance their training and complement the program-specific component. Students may choose courses for a total of 4 credits in the following areas:
  - social sciences
  - science and technology
  - modern languages
  - mathematics and computer literacy
  - art and aesthetics

The knowledge and skills acquired in the general education components should be emphasized and, whenever possible, applied in the program-specific component, and vice-versa. Thus, general education and the program-specific component of a program enhance each other as they contribute to the students' overall education.

Each college-level institution must provide general education through learning activities that are consistent with its educational project, in keeping with the aims, subject areas and ministerial guidelines provided.

The objectives and standards in the general education components were developed according to the provisions of the *College Education Regulations* (R.S.Q., c. C-29, s. 18).

# Educational Aims of the General Education Components

The educational aims describe how each field of study in the common, adapted and complementary components of general education contributes to achieving the goals of general education. For the common and adapted components, the educational aims include a general statement of the role of each field of study; the principles underlying this role; the expected outcomes that define, in terms of cultural knowledge, generic skills, and qualities and attitudes, the contribution of each field to the achievement of the goals of general education; and an explanation of the sequence of objectives and standards.

## General Education Common to All Programs and General Education Adapted to Programs

### English, Language of Instruction and Literature

#### General Education Common to All Programs

The three sets of objectives and standards in English, Language of Instruction and Literature, pursue two general goals: mastery of the language of instruction and exploration of the riches of the literary heritage. Achievement of these goals is intended to bring the students to a college level of proficiency in the areas of reading, writing, listening and speaking. Building on the skills developed by students on completion of secondary school, the English program places a marked emphasis on written production and reading comprehension while at the same time consolidating listening and speaking skills.

The mastery of language skills will be achieved through regular and ongoing observance of the rules of correct writing and speaking and the production of texts, supported by reading and the study of literature. Students will also be encouraged to develop an appreciation of literature by becoming acquainted with a number of significant literary works representative of various genres and periods and expressing a variety of literary themes. Both the aesthetic and cultural value of these texts and their formal aspects will be the objects of study.

All students entering college will begin their English studies with an introductory set of objectives and standards. This set has two possible formats. While both provide a range of reading, writing and literary activities, one includes additional reinforcement of reading and writing skills.

#### General Education Adapted to Programs

The set of objectives and standards for English, Language of Instruction and Literature, is placed in the context of general education and is a complement to the general education common to all programs. Students will develop the skills required in order to communicate in the forms of discourse appropriate to their field of study.

#### Expected Outcomes

Students, who have achieved the general education objectives in English, Language of Instruction and Literature, will be able to:

- demonstrate a college level of proficiency in the areas of reading, writing, listening and speaking
- develop their own ideas into arguments and theses, organize them and edit their work
- understand basic vocabulary and terminology used when discussing literature
- analyze literary works

## Humanities

Humanities, as part of the core curriculum, is intended to promote personal and social development and to give students a foundation that will help them understand their roles in contemporary society as members of the labour force, citizens and individuals. The three sets of objectives and standards in Humanities propose common frameworks for understanding the experiences, ideas and values of human beings and their diversity. They are aimed at developing critical thinking, reinforcing the ancillary skills involved in careful reading, organized writing, and well-developed oral presentations, and, where appropriate, improving media and computer literacy. Once students have mastered the three-stage process of analysis, synthesis and evaluation, they will be able to reflect in an informed manner and to communicate what they have learned in an organized and coherent fashion.

## Principles

- 1) Humanities constitutes a thematic, multidisciplinary, at times transdisciplinary, exploration of the human experience, including its accomplishments, failures, abilities, creations, ideas and values.
- 2) Humanities helps students to recognize, define and classify information and provides them with common frameworks for diverse methods of analyzing, synthesizing and evaluating conceptions of society, knowledge and values.
- 3) Humanities aims to prepare students for common civic responsibilities and the exercise of rights.
- 4) Humanities pursues the general goal of developing critical thought, valuing it and recognizing its limitations.

## Expected Outcomes

Students who have achieved the general education objectives in Humanities will be able to:

- describe, explain and organize main elements, ideas, values and implications of a world-view in a coherent fashion
- compare world-views
- recognize the basic elements in a specific example of the organization, transmission and use of knowledge
- define the dimensions, limits, and uses of knowledge in appropriate historical contexts
- identify, organize and synthesize the salient elements of a particular example of knowledge
- situate important ethical and social issues in their appropriate historical and intellectual contexts
- explain, analyze and debate ethical issues in a personal and professional context

## Sequence of Objectives and Standards

The first two sets of objectives and standards in Humanities, which are part of the general education component common to all programs, develop similar skills in a recursive fashion.

In the first set the emphasis is on how knowledge is defined, acquired, classified, transmitted and applied. Students examine both messages and media to identify the strengths and limitations of each. Students learn to situate knowledge in a social, historical and personal context, a skill they will need in order to become lifelong learners.

The second set focuses on how individuals, groups, societies or nations organize ideas, perceptions and values into explanatory patterns. Students explore major ideas and value systems by which diverse individuals, groups, societies or nations seek to explain the world and their place in it.

The third set, which is part of the general education component adapted to programs, is aimed at deepening and reinforcing the critical thinking skills developed in the first two sets. It is, therefore, sequenced so that students can build on the critical skills, knowledge and insights developed in the first two sets. By situating these issues in their appropriate world-view and knowledge contexts, students

develop a critical and autonomous approach to ethical values in general and to the values involved in their own fields of interest in particular. This final set also provides students with an opportunity to consolidate personal and social values.

### **Français, langue seconde**

L'enseignement du français, langue seconde, contribue à la formation fondamentale de la personne, en même temps qu'il a pour objet de lui permettre de communiquer efficacement avec ses concitoyens et concitoyennes.

### **Principes**

- 1) La maîtrise du français, langue seconde, est essentielle pour quiconque veut participer pleinement à la vie de la société québécoise, dont le français est la langue officielle. En conséquence, la formation générale en français, langue seconde, a pour finalité de rendre les étudiants et les étudiantes aptes à utiliser de façon efficace les moyens dont dispose la langue pour communiquer en société. À cette fin, ils devront acquérir des connaissances en vue de les déployer dans les formes de discours qu'il leur faudra pratiquer.
- 2) À leur arrivée au collégial, les étudiants et les étudiantes ont déjà acquis des compétences dans les quatre habiletés langagières, à savoir : parler, lire, écouter et écrire, mais sont, de façon générale, plus compétents en matière d'expression orale. En conséquence, la formation porte sur le développement des quatre habiletés langagières tout en mettant l'accent sur la lecture et l'écriture.
- 3) En tant que partie intégrante de la formation générale, le français, langue seconde, contribue au développement de la pensée critique et de l'expression structurée.

### **Résultats attendus**

Tout étudiant ou toute étudiante qui a atteint les objectifs de formation générale en français, langue seconde, pourra, selon son niveau de compétence, montrer :

- que, sur le plan des connaissances, il ou elle :
  - sait faire une présentation orale structurée;
  - connaît les différentes formes du discours;
  - connaît les différentes techniques de lecture et d'écriture;
- que, sur le plan des habiletés, il ou elle :
  - est capable de questionner, d'analyser, de juger, et d'argumenter en français;
  - est apte à entretenir des rapports sociaux et à partager la vie culturelle du Québec;
  - est apte à établir, à poursuivre et à pratiquer des rapports professionnels en français;
- que, sur le plan des qualités et des attitudes à développer, il ou elle :
  - fait preuve d'ouverture par rapport aux différents aspects de la culture québécoise;
  - a conscience des différences et des similitudes entre sa culture d'origine et la culture québécoise francophone;
  - a la préparation voulue pour s'insérer dans la vie sociale et économique.

### **Séquence des objectifs et des standards**

Pour répondre aux divers besoins d'apprentissage des étudiants et des étudiantes du collégial, les ensembles en français, langue seconde, sont répartis selon quatre niveaux. Chacun de ces niveaux permet d'amener les étudiants et les étudiantes à interpréter et à produire des textes de plus ou moins grande complexité.

La formation générale en français, langue seconde, comporte deux ensembles prévus en séquence. Le premier, qui fait partie de la formation générale commune à tous les programmes, a pour objet de

consolider les connaissances linguistiques déjà acquises et de les développer pour amener les étudiants et les étudiantes à communiquer de façon plus précise sur le plan tant du vocabulaire et de la syntaxe que de l'organisation textuelle.

Le second ensemble, qui fait partie de la formation générale propre aux programmes, s'appuie sur les acquis développés dans le premier ensemble en les enrichissant d'éléments de compétence liés aux champs d'études de l'étudiant ou de l'étudiante. On cherche à développer la précision de l'expression dans des situations de communication particulières qui relèvent du champ d'études de l'étudiant ou de l'étudiante.

## **Physical Education**

Physical Education is aimed at promoting the development of the whole person and encouraging students to acquire responsible behaviours with respect to their health and quality of life.

### **Principles**

- 1) Physical Education introduces students to different ways of being physically active with a view to making them aware that they are responsible for their health. Students learn concepts and acquire knowledge drawn from research, and methodically apply them to physical activities that will lead them to adopt healthy lifestyle practices.
- 2) Physical Education enables students to improve their efficiency in an activity and, in doing so, serves to increase their motivation and perseverance to remain physically active, and makes them aware of the contributing factors. To this end, students use a learning process designed to enhance their aptitudes (i.e. their skills and attitudes) for a given physical activity.
- 3) Physical Education helps students take responsibility for their own health through the maintenance and improvement of their physical fitness and through the sensible practice of physical activity. Students learn to combine being physically active in an effective manner with other factors that promote health.
- 4) Physical Education makes students aware of the importance of sharing the knowledge and behaviours they have acquired. The pleasure and sense of well-being students get out of Physical Education classes motivate them to encourage others to be physically active and to adopt healthy practices.

### **Expected Outcomes**

Students who have achieved the general education objectives in Physical Education will be able to demonstrate:

- their knowledge of:
  - the relationship between physical activity, lifestyle and health based on the findings of scientific research
  - the scientific principles for improving or maintaining physical fitness
  - ways to assess their abilities and needs with respect to activities that can improve their health
  - the rules, techniques and conditions involved in different types of physical activity
  - a method for setting goals
  - the factors that help make physical activity part of their lifestyle
- the skills that will enable them to:
  - choose physical activities on the basis of their motivation, abilities and needs
  - establish relationships between lifestyle and health
  - apply the rules, techniques and conditions involved in different types of physical activity
  - set goals that are realistic, measurable, challenging, and situated within a specific time frame

- improve their mastery of the basic techniques, tactics and strategies associated with sports, outdoor and expression-oriented activities
  - use their creative and communication skills, particularly in group activities
  - evaluate their skills, attitudes and progress with respect to different forms of physical activity
  - maintain or increase their level of physical activity and fitness on their own
  - manage a personal physical activity program and assume responsibility in the organization of physical activities
- the attitudes and qualities that will enable them to:
    - understand the importance of taking responsibility for their health
    - be aware of the need to evaluate and respect their abilities and the conditions for carrying out an activity, before undertaking the activity
    - recognize the importance of self-confidence, self-control, respect for others and cooperation, through knowledge they have acquired and through participation in physical activity
    - respect the environment in which the activities are held
    - appreciate the aesthetic and play value of physical activity
    - promote a balanced and active lifestyle as a social value

### **Sequence of Objectives and Standards**

The three sets of objectives and standards in Physical Education are designed in a learning sequence. The first two are prerequisites for the third.

The first set focuses on the relationship between health and physical activity as related to a healthy lifestyle. Students are required to try one or more activities and to relate them to their abilities, needs, motivation, lifestyle and knowledge of health prevention. This enables them to make an appropriate and justified choice of activities.

The second set looks at the improvement of effectiveness through the use of a goal-oriented approach in a sports, outdoor or expression-oriented activity. After making an initial assessment of their abilities and attitudes, students are called upon to evaluate them with respect to a physical activity, to set goals and to interpret their progress.

The third set is aimed at helping students integrate physical activity into their lifestyle, more particularly through more effective management of factors that facilitate such integration. During the hours of instruction, students apply the knowledge they have acquired in the first two sets of objectives. This is done through the safe and effective practice of physical activity and through the development, realization and evaluation of a personal physical activity program, which students follow and validate under their teacher's supervision. The hours allotted for individual work enable students to complete their personal programs.

### **Complementary General Education**

#### **Social Sciences**

The two sets of objectives and standards aim to familiarize students with the social sciences and their particular approach to the human condition.

The first set supports learning activities that allow students to look at one or more of the social sciences in relation to major contemporary issues: subjects studied in the social sciences; contribution of the social sciences to an understanding of contemporary issues; issues facing the social sciences in the future.

The second set supports learning activities in the social sciences that allow students to rigorously analyze one of the major problems of our time, using one or more social scientific approaches.

## **Science and Technology**

In Science and Technology, the educational aim is to present science and technology as a specific approach to reality in order to familiarize students with this field of knowledge. This general intention can take several forms, such as helping students gain experience with the scientific method or study the evolution, challenges and consequences of scientific and technological discoveries.

The first set of objectives and standards emphasizes the general nature and scope of science and technology. The second set emphasizes using the scientific method.

## **Modern Languages**

The three sets of objectives and standards in Modern Languages introduce students to the basic language structures and vocabulary of a third language while making them aware of the culture of the people who speak the language.

Because some modern languages use different structures and writing systems, the three sets of objectives and standards have been designed accordingly. The degree of competency acquisition will therefore vary according to how distant the language is from our own language or system of thought. Furthermore, awareness of the culture of the people using a modern language does not figure as an element of competency, since learning a modern language necessarily implies developing such awareness.

## **Mathematics and Literacy Computer Science**

In Mathematics and Literacy Computer Science, the two sets of objectives and standards are based on the aim of developing mathematical and computer culture.

The educational aim of the first set is to lead students to consider the place, role and evolution of this knowledge and these tools in our society and to describe their different uses. It consists of general education about the language of mathematics or computers, and does not include specialized training.

The second set targets the understanding and use of the language of mathematics or computers for everyday purposes. This intention refers mainly to the concepts, tools and general uses of mathematical or computer language in daily life.

Since the objectives and standards for the field of mathematics literacy and computer science are quite general, they can be used to define various learning activities that foster the development of competencies in mathematics or computer science, or in a combination of these two areas.

## **Art and Aesthetics**

The educational aim of Art and Aesthetics is to help students to acquire general cultural knowledge by exploring various forms of art in one or more artistic fields. This basic education is intended to develop an artistic sensibility through exposure to works of art or experimentation in an artistic medium. Furthermore, it aims to teach the basic elements of the language of art and to enable students to make connections between those elements.

Through the first set of objectives and standards, students are introduced to works of art from contemporary culture and from other periods. This allows them to develop an appreciation for the dynamics of the imagination in art and to learn methods of analyzing artistic production.

Through the second set, students engage in creative or interpretive activities in a given artistic medium. As well, students are introduced to artistic works in that medium so that they may learn to recognize its primary forms of expression.

Language of Instruction and Literature

Code: 0004

**Objective****Standard****Statement of the Competency**

To analyze and produce various forms of discourse.

**Elements of the Competency****Performance Criteria**

- |                                                                                  |                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. To identify the characteristics and functions of the components of discourse. | <ul style="list-style-type: none"> <li>• Accurate explanation of the denotation of words</li> <li>• Adequate recognition of the appropriate connotation of words</li> <li>• Accurate definition of the characteristics and function of each component</li> </ul> |
| 2. To determine the organization of facts and arguments of a given discourse.    | <ul style="list-style-type: none"> <li>• Clear and accurate recognition of the main idea and structure</li> <li>• Clear presentation of the strategies employed to develop an argument or thesis</li> </ul>                                                      |
| 3. To prepare ideas and strategies for a projected discourse.                    | <ul style="list-style-type: none"> <li>• Appropriate identification of topics and ideas</li> <li>• Adequate gathering of pertinent information</li> <li>• Clear formulation of a thesis</li> <li>• Coherent ordering of supporting material</li> </ul>           |
| 4. To formulate a discourse.                                                     | <ul style="list-style-type: none"> <li>• Appropriate choice of tone and diction</li> <li>• Correct development of sentences</li> <li>• Clear and coherent development of paragraphs</li> <li>• Formulation of a 750-word discourse</li> </ul>                    |
| 5. To edit the discourse.                                                        | <ul style="list-style-type: none"> <li>• Thorough revision of form and content</li> </ul>                                                                                                                                                                        |

**Learning Activities**

|             |                |
|-------------|----------------|
| Discipline: | English        |
| Weighting:  | 2-2-4 or 1-3-4 |
| Credits:    | 2 2/3          |

Language of Instruction and Literature

Code: 0005

**Objective****Standard****Statement of the Competency**

To apply a critical approach to literary genres.

**Elements of the Competency****Performance Criteria**

- |                                                                          |                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. To distinguish genres of literary discourse.                          | <ul style="list-style-type: none"> <li>• Clear recognition of the formal characteristics of a literary genre</li> </ul>                                                                                           |
| 2. To recognize the use of literary conventions within a specific genre. | <ul style="list-style-type: none"> <li>• Accurate recognition of the figurative communication of meaning</li> <li>• Adequate explanation of the effects of significant literary and rhetorical devices</li> </ul> |
| 3. To situate a discourse within its historical and literary period.     | <ul style="list-style-type: none"> <li>• Appropriate recognition of the relationship of a text to its period</li> </ul>                                                                                           |
| 4. To explicate a discourse representative of a literary genre.          | <ul style="list-style-type: none"> <li>• Selective use of appropriate terminology</li> <li>• Effective presentation of a 1000-word integrated response to a text</li> </ul>                                       |

**Learning Activities**

|             |         |
|-------------|---------|
| Discipline: | English |
| Weighting:  | 2-2-3   |
| Credits:    | 2 1/3   |

**Objective****Standard****Statement of the Competency**

To apply a critical approach to a literary theme.

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. To recognize the treatment of a theme within a literary text.</li> <li>2. To situate a literary text within its cultural context.</li> <li>3. To detect the value system inherent in a literary text.</li> <li>4. To explicate a text from a thematic perspective.</li> </ol> | <ul style="list-style-type: none"> <li>• Clear recognition of elements within the text which define and reinforce a theme and its development</li> <li>• Adequate demonstration of the effects of significant literary and rhetorical devices</li> <li>• Appropriate recognition of a text as an expression of cultural context</li> <li>• Adequate demonstration of the effects of significant literary and rhetorical devices</li> <li>• Appropriate identification of expression (explicit/implicit) of a value system in a text</li> <li>• Selective use of appropriate terminology</li> <li>• Effective presentation of a 1000-word integrated response to a text</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|             |         |
|-------------|---------|
| Discipline: | English |
| Weighting:  | 2-2-3   |
| Credits:    | 2 1/3   |

Humanities

Code: 00B2

**Objective****Standard****Statement of the Competency**

To apply a logical analytical process to how knowledge is organized and used.

**Elements of the Competency****Performance Criteria**

- |                                                                                 |                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. To recognize the basic elements of a field of knowledge.                     | <ul style="list-style-type: none"> <li>• Appropriate description of the basic elements</li> <li>• Appropriate use of terminology relevant to fields of knowledge</li> </ul>                                                                                                                                                                   |
| 2. To define the modes of organization and utilization of a field of knowledge. | <ul style="list-style-type: none"> <li>• Adequate definition of the dimensions, limits and uses of fields of knowledge</li> </ul>                                                                                                                                                                                                             |
| 3. To situate a field of knowledge within its historical context.               | <ul style="list-style-type: none"> <li>• Accurate identification of the main components in the historical development of fields of knowledge</li> <li>• Accurate description of the effects of historical development and societal milieu on the limitations and uses of a field of knowledge</li> </ul>                                      |
| 4. To organize the main components into coherent patterns.                      | <ul style="list-style-type: none"> <li>• Coherent organization of the main components</li> </ul>                                                                                                                                                                                                                                              |
| 5. To produce a synthesis of the main components.                               | <ul style="list-style-type: none"> <li>• Appropriate analysis of the components</li> <li>• Coherent synthesis of the main components</li> <li>• Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of the organization and uses of knowledge</li> </ul> |

**Learning Activities**

|             |            |
|-------------|------------|
| Discipline: | Humanities |
| Weighting:  | 3-1-3      |
| Credits:    | 2 1/3      |

Humanities

Code: 000G

**Objective****Standard****Statement of the Competency**

To apply a critical thought process to world-views.

**Elements of the Competency****Performance Criteria**

- |                                                                                          |                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. To describe world-views.                                                              | <ul style="list-style-type: none"> <li>• Accurate description of a society or group with a distinctive world-view</li> <li>• Appropriate use of terminology relevant to these societies or groups</li> </ul>                                                             |
| 2. To explain the major ideas, values and implications of a world-view.                  | <ul style="list-style-type: none"> <li>• Adequate explanation of the salient components of a world-view</li> </ul>                                                                                                                                                       |
| 3. To organize the ideas, values and experiences of a world-view into coherent patterns. | <ul style="list-style-type: none"> <li>• Coherent organization of ideas about a world-view</li> <li>• Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of world-views</li> </ul> |
| 4. To compare world-views.                                                               | <ul style="list-style-type: none"> <li>• Comparative analysis of these world-views</li> <li>• Appropriate inclusion of central elements, relationships and organizational principles of the societies or groups in the analysis</li> </ul>                               |

**Learning Activities**

|             |            |
|-------------|------------|
| Discipline: | Humanities |
| Weighting:  | 3-0-3      |
| Credits:    | 2          |

Langue seconde (niveau I)

Code: 0017

**Objective****Standard****Statement of the Competency**

Appliquer les notions de base de la communication en français courant.

**Elements of the Competency****Performance Criteria**

- |                                              |                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Dégager le sens d'un message oral simple. | <ul style="list-style-type: none"> <li>• Repérage précis des difficultés de compréhension du message.</li> <li>• Utilisation pertinente des techniques d'écoute choisies.</li> <li>• Distinction précise du sens général et des idées essentielles du message.</li> <li>• Description précise du sens général et des idées essentielles du message.</li> </ul> |
| 2. Émettre un message oral simple.           | <ul style="list-style-type: none"> <li>• Repérage précis des difficultés d'expression.</li> <li>• Utilisation pertinente des techniques d'expression orales choisies.</li> <li>• Emploi pertinent du vocabulaire courant.</li> <li>• Expression intelligible du propos.</li> </ul>                                                                             |
| 3. Dégager le sens d'un texte.               | <ul style="list-style-type: none"> <li>• Repérage précis des difficultés de compréhension du texte.</li> <li>• Utilisation pertinente des techniques de lecture choisies.</li> <li>• Distinction claire des principaux éléments du texte.</li> <li>• Description précise du sens général et des idées essentielles d'un texte de 500 mots.</li> </ul>          |
| 4. Rédiger un texte simple.                  | <ul style="list-style-type: none"> <li>• Repérage précis des difficultés d'écriture.</li> <li>• Utilisation pertinente des techniques d'écriture choisies.</li> <li>• Emploi pertinent du vocabulaire courant.</li> <li>• Formulation claire et cohérente d'un texte de 100 mots.</li> </ul>                                                                   |

**Learning Activities**

|             |                          |
|-------------|--------------------------|
| Discipline: | Français, langue seconde |
| Weighting:  | 2-1-3                    |
| Credits:    | 2                        |

Langue seconde (niveau II)

Code: 000A

**Objective****Standard****Statement of the Competency**

Communiquer en français avec une certaine aisance.

**Elements of the Competency****Performance Criteria**

- |                                                                           |                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Interpréter un texte oral simple de trois minutes en français courant. | <ul style="list-style-type: none"> <li>• Distinction claire des principaux éléments du texte oral.</li> <li>• Explication précise du sens des mots dans le texte.</li> <li>• Repérage précis des idées et des sujets traités dans le texte.</li> </ul>                                                                          |
| 2. Produire un texte oral planifié de cinq minutes en français courant.   | <ul style="list-style-type: none"> <li>• Emploi pertinent du vocabulaire courant.</li> <li>• Respect du niveau de langue, du code grammatical et des règles de la prononciation.</li> <li>• Formulation claire et cohérente du propos.</li> </ul>                                                                               |
| 3. Interpréter un texte écrit en français courant.                        | <ul style="list-style-type: none"> <li>• Distinction claire des principaux éléments du texte.</li> <li>• Explication précise du sens des mots dans le texte.</li> <li>• Repérage précis des idées principales et de la structure d'un texte de 700 à 1000 mots.</li> </ul>                                                      |
| 4. Rédiger un texte simple en français courant.                           | <ul style="list-style-type: none"> <li>• Respect du code grammatical et orthographique.</li> <li>• Utilisation judicieuse des principaux éléments du corpus.</li> <li>• Formulation claire et cohérente des phrases.</li> <li>• Articulation cohérente des paragraphes.</li> <li>• Rédaction d'un texte de 200 mots.</li> </ul> |

**Learning Activities**

|             |                          |
|-------------|--------------------------|
| Discipline: | Français, langue seconde |
| Weighting:  | 2-1-3                    |
| Credits:    | 2                        |

Langue seconde (niveau III)

Code: 000B

**Objective****Standard****Statement of the Competency**

Communiquer avec aisance en français.

**Elements of the Competency****Performance Criteria**

- |                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Produire un texte oral planifié de cinq minutes de complexité moyenne. | <ul style="list-style-type: none"> <li>• Emploi pertinent du vocabulaire courant.</li> <li>• Adaptation à l'interlocuteur ou à l'interlocutrice</li> <li>• Respect du niveau de langue, du code grammatical et des règles de la prononciation.</li> <li>• Formulation claire et cohérente du propos.</li> <li>• Agencement pertinent des idées.</li> </ul>                                                             |
| 2. Commenter un texte écrit de complexité moyenne.                        | <ul style="list-style-type: none"> <li>• Distinction claire des principaux éléments d'un texte comprenant entre 2500 et 3000 mots.</li> <li>• Explication précise du sens des mots dans le texte.</li> <li>• Distinction précise des idées principales et secondaires, des faits et des opinions.</li> <li>• Formulation d'éléments implicites.</li> </ul>                                                             |
| 3. Rédiger un texte de complexité moyenne.                                | <ul style="list-style-type: none"> <li>• Respect du code grammatical et orthographique.</li> <li>• Adaptation au lecteur ou à la lectrice.</li> <li>• Utilisation judicieuse des principaux éléments du corpus.</li> <li>• Formulation claire et cohérente des phrases, dont au moins trois sont complexes.</li> <li>• Articulation cohérente des paragraphes.</li> <li>• Rédaction d'un texte de 350 mots.</li> </ul> |

**Learning Activities**

|             |                          |
|-------------|--------------------------|
| Discipline: | Français, langue seconde |
| Weighting:  | 2-1-3                    |
| Credits:    | 2                        |

Langue seconde (niveau IV)

Code: 000C

**Objective****Standard****Statement of the Competency**

Traiter d'un sujet culturel et littéraire.

**Elements of the Competency****Performance Criteria**

- |                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Analyser un texte culturel ou littéraire.             | <ul style="list-style-type: none"> <li>• Formulation personnelle des éléments principaux du texte.</li> <li>• Inventaire des thèmes principaux.</li> <li>• Relevé d'indices qui permettent de situer le texte dans son contexte socioculturel et historique.</li> <li>• Repérage des valeurs véhiculées.</li> <li>• Repérage juste de la structure du texte.</li> <li>• Articulation claire d'un point de vue personnel.</li> </ul> |
| 2. Rédiger un texte sur un sujet culturel ou littéraire. | <ul style="list-style-type: none"> <li>• Respect du sujet.</li> <li>• Respect du code grammatical et orthographique.</li> <li>• Adaptation au lecteur ou à la lectrice.</li> <li>• Utilisation judicieuse des principaux éléments du corpus.</li> <li>• Formulation claire et cohérente d'un texte de 500 mots.</li> <li>• Articulation claire d'un point de vue personnel.</li> </ul>                                              |

**Learning Activities**

|             |                          |
|-------------|--------------------------|
| Discipline: | Français, langue seconde |
| Weighting:  | 3-0-3                    |
| Credits:    | 2                        |

Physical Education

Code: 0064

**Objective****Standard****Statement of the Competency**

To establish the role that being physically active plays amongst the lifestyle behaviours which promote health.

**Elements of the Competency****Performance Criteria**

- | Elements of the Competency                                                                                 | Performance Criteria                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. To establish a relationship between their lifestyle and their health.                                   | <ul style="list-style-type: none"> <li>• Appropriate use of documentation</li> <li>• Appropriate connections between their lifestyle and their health</li> </ul>                                                                                                                    |
| 2. To be physically active in a manner that promotes health.                                               | <ul style="list-style-type: none"> <li>• Observance of the rules involved in physical activities, including safety rules</li> <li>• Respect for their abilities when engaging in physical activities</li> </ul>                                                                     |
| 3. To recognize their needs, abilities and motivational factors with respect to regular physical activity. | <ul style="list-style-type: none"> <li>• Appropriate use of quantitative and qualitative physical data</li> <li>• Statement of their main physical needs and abilities</li> <li>• Statement of their main motivational factors with respect to regular physical activity</li> </ul> |
| 4. To propose physical activities that promote health.                                                     | <ul style="list-style-type: none"> <li>• Appropriate and justified choice of physical activities according to their needs, abilities, and motivational factors</li> </ul>                                                                                                           |

**Learning Activities**

|             |                    |
|-------------|--------------------|
| Discipline: | Physical Education |
| Weighting:  | 1-1-1              |
| Credits:    | 1                  |

Physical Education

Code: 0065

**Objective****Standard****Statement of the Competency**

To improve one's effectiveness when practising a physical activity.

**Element of the Competency****Performance Criteria**

1. To use a process designed to improve their effectiveness during a physical activity.

- Initial assessment of their skills and attitudes in relation to a physical activity
- Statement of their expectations and needs with respect to their ability to carry out the activity
- Appropriate formulation of personal objectives
- Statement of the means selected to achieve their objectives
- Observance of the rules involved in the physical activity, including safety rules
- Periodic evaluation of their skills and attitudes in relation to the activity
- Meaningful interpretation of the progress achieved and the difficulties experienced during the activity
- Appropriate, periodic adjustments of their objectives or the means used to achieve them
- Appreciable improvement of the motor skills required by the activity

**Learning Activities**

|             |                    |
|-------------|--------------------|
| Discipline: | Physical Education |
| Weighting:  | 0-2-1              |
| Credits:    | 1                  |

Physical Education

Code: 0066

**Objective****Standard****Statement of the Competency**

To demonstrate one's responsibility for being physically active in a manner which promotes health.

**Elements of the Competency****Performance Criteria**

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|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. To make physical activity part of a healthy lifestyle.</li> <li>2. To manage a personal physical activity program.</li> </ol> | <ul style="list-style-type: none"> <li>• Practice of a physical activity while maintaining a balance between effectiveness and the factors promoting health</li> <li>• Statement of their priorities according to their needs, skills, and motivational factors in relation to regular physical activity</li> <li>• Proper formulation of the objectives for their personal programs</li> <li>• Appropriate choice of activity or activities for their personal programs</li> <li>• Appropriate planning of the conditions in which the activity or activities in their personal programs are carried out</li> <li>• Appropriate choice of criteria for measuring the attainment of their personal programs</li> <li>• Periodic assessment of the time invested and the activities carried out during the program</li> <li>• Meaningful interpretation of the progress achieved and difficulties experienced during the activities</li> <li>• Appropriate, periodic adjustment of their objectives or the means used to attain them</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|             |                    |
|-------------|--------------------|
| Discipline: | Physical Education |
| Weighting:  | 1-1-1              |
| Credits:    | 1                  |

Language of Instruction and Literature

Code: 000L

**Objective****Standard****Statement of the Competency**

To communicate in the forms of discourse appropriate to one or more fields of study.

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. To identify the forms of discourse appropriate to given fields of study.</li> <li>2. To recognize the discursive frameworks appropriate to given fields of study.</li> <li>3. To formulate a discourse.</li> </ol> | <ul style="list-style-type: none"> <li>• Accurate recognition of specialized vocabulary and conventions</li> <li>• Accurate recognition of the characteristics of the form of discourse</li> <li>• Clear and accurate recognition of the main ideas and structure</li> <li>• Appropriate distinction between fact and argument</li> <li>• Appropriate choice of tone and diction</li> <li>• Correctly developed sentences</li> <li>• Clearly and coherently developed paragraphs</li> <li>• Appropriate use of program-related communication strategies</li> <li>• Formulation of a 1000-word discourse</li> <li>• Thorough revision of form and content</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |         |
|-----------------------|---------|
| Discipline:           | English |
| Hours of instruction: | 60      |
| Credits:              | 2       |

Humanities

Code: 000U

**Objective****Standard****Statement of the Competency**

To apply a critical thought process to ethical issues relevant to the field of study.

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. To situate significant ethical issues in appropriate world-views and fields of knowledge.</li> <li>2. To explain the major ideas, values, and social implications of ethical issues.</li> <li>3. To organize the ethical questions and their implications into coherent patterns.</li> <li>4. To debate the ethical issues.</li> </ol> | <ul style="list-style-type: none"> <li>• Accurate recognition of the basic elements of ethical issues</li> <li>• Appropriate use of relevant terminology</li> <li>• Adequate identification of the main linkages with world-views and fields of knowledge</li> <li>• Adequate description of the salient components of the issues</li> <li>• Coherent organization of the ethical questions and their implications</li> <li>• Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of the issues</li> <li>• Adequate development of substantiated argumentation including context and diverse points of view</li> <li>• Clear articulation of an individual point of view</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |            |
|-----------------------|------------|
| Discipline:           | Humanities |
| Hours of instruction: | 45         |
| Credits:              | 2          |

**Objective****Standard****Statement of the Competency**

Appliquer des notions fondamentales de la communication en français, liées à un champ d'études.

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Dégager le sens d'un message oral simple lié à un champ d'études.</li> <br/> <li>2. Dégager le sens et les caractéristiques d'un texte lié à un champ d'études.</li> <br/> <li>3. Émettre un message oral simple lié à un champ d'études.</li> </ol> | <ul style="list-style-type: none"> <li>• Repérage précis des difficultés de compréhension du message.</li> <li>• Distinction juste des caractéristiques du message.</li> <li>• Repérage juste du vocabulaire spécialisé.</li> <li>• Utilisation pertinente des techniques d'écoute choisies.</li> <li>• Distinction claire des principaux éléments du message.</li> <li>• Description précise du sens général et des idées essentielles du message.</li> <br/> <li>• Repérage précis des difficultés de compréhension du texte.</li> <li>• Distinction juste des caractéristiques du texte.</li> <li>• Repérage précis du vocabulaire spécialisé.</li> <li>• Utilisation pertinente des techniques de lectures choisies.</li> <li>• Distinction claire des principaux éléments du texte.</li> <li>• Description précise du sens général et des idées essentielles du texte.</li> <br/> <li>• Repérage précis des difficultés d'expression orale.</li> <li>• Utilisation pertinente des techniques d'expression orale choisies.</li> <li>• Utilisation pertinente du vocabulaire courant et spécialisé.</li> <li>• Expression intelligible du propos.</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Langue seconde (niveau I)

Code: 0018

4. Rédiger un court texte lié à un champ d'études.
- Repérage précis des difficultés d'écrire.
  - Utilisation pertinente des techniques d'écriture choisies.
  - Utilisation pertinente du vocabulaire courant et spécialisé.
  - Formulation claire et cohérente du texte.

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**Learning Activities**

|                       |                          |
|-----------------------|--------------------------|
| Discipline:           | Français, langue seconde |
| Hours of instruction: | 45                       |
| Credits:              | 2                        |

Langue seconde (niveau II)

Code: 000Q

**Objective****Standard****Statement of the Competency**

Communiquer en français dans un champ d'études particulier.

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Distinguer les types de textes propres au champ d'études.</li> <li>2. Interpréter des textes représentatifs du champ d'études.</li> <li>3. Utiliser des techniques de production de textes appropriées au champ d'études.</li> </ol> | <ul style="list-style-type: none"> <li>• Distinction précise des caractéristiques formelles de chacun des principaux types de textes et des conventions utilisées.</li> <li>• Distinction claire des principaux éléments du texte.</li> <li>• Interprétation claire du vocabulaire spécialisé.</li> <li>• Repérage précis des idées et des sujets traités.</li> <li>• Utilisation pertinente des techniques de lecture et d'écoute.</li> <li>• Emploi pertinent du vocabulaire spécialisé et des conventions.</li> <li>• Respect du niveau de langue et du code grammatical.</li> <li>• Formulation claire et cohérente du propos.</li> <li>• Utilisation pertinente des techniques d'expression.</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |                          |
|-----------------------|--------------------------|
| Discipline:           | Français, langue seconde |
| Hours of instruction: | 45                       |
| Credits:              | 2                        |

Langue seconde (niveau III)

Code: 000R

**Objective****Standard****Statement of the Competency**

Communiquer avec aisance en français dans un champ d'études particulier.

**Elements of the Competency****Performance Criteria**

1. Commenter des textes propres au champ d'études.

- Distinction précise des caractéristiques formelles des principaux types de textes et des conventions utilisées.
- Explication précise du sens des mots dans le texte.
- Repérage précis de la structure du texte.
- Reformulation juste des idées principales et secondaires, des faits et des opinions.
- Emploi juste du vocabulaire spécialisé.

2. Produire un texte sur un sujet lié au champ d'études.

- Respect du sujet.
- Emploi pertinent du vocabulaire spécialisé et des conventions.
- Respect du niveau de langue et du code grammatical.
- Formulation claire et cohérente du propos.
- Agencement pertinent des idées.
- Adéquation entre forme et fond.

**Learning Activities**

|                       |                          |
|-----------------------|--------------------------|
| Discipline:           | Français, langue seconde |
| Hours of instruction: | 45                       |
| Credits:              | 2                        |

Langue seconde (niveau IV)

Code: 000S

**Objective****Standard****Statement of the Competency**

Dissserter en français sur un sujet lié au champ d'études.

**Elements of the Competency****Performance Criteria**

1. Analyser un texte lié au champ d'études.

- Distinction précise des caractéristiques formelles des types particuliers de textes.
- Formulation personnelle des éléments principaux.
- Inventaire des thèmes principaux.
- Repérage juste de la structure du texte.
- Relevé d'indices qui permettent de situer le texte dans son contexte.
- Articulation claire d'un point de vue personnel, s'il y a lieu.
- Association juste des éléments du texte au sujet traité.

2. Rédiger un texte sur un sujet lié au champ d'études.

- Respect du sujet.
- Emploi pertinent du vocabulaire spécialisé et des conventions.
- Choix judicieux des principaux éléments du corpus en fonction du type de texte.
- Formulation claire et cohérente du texte.
- Respect du code grammatical et orthographique.
- Articulation claire d'un point de vue personnel, s'il y a lieu.

**Learning Activities**

Discipline: Français, langue seconde  
 Hours of instruction: 45  
 Credits: 2

Social Sciences

Code: 000V

**Objective****Standard****Statement of the Competency****Achievement Context**

To estimate the contribution of the social sciences to an understanding of contemporary issues.

- Working alone
- In an essay of approximately 750 words on the contribution of the social sciences to an understanding of contemporary issues
- Using documents and data from the social sciences

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Recognize the focus of one or more of the social sciences and their main approaches.</li> <li>2. Identify some of the issues currently under study in the social sciences.</li> <li>3. Demonstrate the contribution of one or more of the social sciences to an understanding of contemporary issues.</li> </ol> | <ul style="list-style-type: none"> <li>• Formulation of the focus specific to one or more of the social sciences</li> <li>• Description of the main approaches used in the social sciences</li> <li>• Association of these issues with the pertinent areas of research in the social sciences</li> <li>• Presentation of contemporary issues by emphasizing the interpretation of the social sciences</li> <li>• Illustration of the interaction between certain social changes and the contribution of the social sciences</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |    |
|-----------------------|----|
| Hours of instruction: | 45 |
| Credits:              | 2  |

Social Sciences

Code: 000W

**Objective****Standard****Statement of the Competency**

To analyze one of the major problems of our time using one or more social scientific approaches.

**Achievement Context**

- Working alone
- In an essay of approximately 750 words on a topic related to human existence
- Using reference materials from one or more disciplines in the social sciences

**Elements of the Competency****Performance Criteria**

1. Formulate a problem using one or more social scientific approaches.

- Presentation of the background to the problem
- Use of appropriate concepts and language
- Brief description of individual, collective, spatiotemporal and cultural aspects of the problem

2. Deal with an issue using one or more social scientific approaches.

- Clear formulation of an issue
- Selection of pertinent reference materials
- Brief description of historical, experimental and survey methods

3. Draw conclusions.

- Appropriate use of the selected method
- Determination of appropriate evaluation criteria
- Identification of strengths and weaknesses of the conclusions
- Broadening of issue studied

**Learning Activities**

Hours of instruction: 45  
Credits: 2

## Science and Technology

Code: 000X

**Objective****Standard****Statement of the Competency**

To explain the general nature of science and technology and some of the major contemporary scientific or technological issues.

**Achievement Context**

- Working alone
- Given a written commentary on a scientific discovery or technological development
- In an essay of approximately 750 words

**Elements of the Competency****Performance Criteria**

1. Describe scientific thinking and the standard method.
2. Demonstrate how science and technology are complementary.
3. Explain the context and the stages related to several scientific and technological discoveries.
4. Deduce different consequences and questions resulting from certain recent scientific and technological innovations.

- Brief description of the essential characteristics of scientific thinking, including quantification and demonstration
- Organized list and brief description of the essential characteristics of the main steps in the standard scientific method
- Definition of terms and description of the primary ways in which science, techniques and technology are interrelated: logical and temporal connections, and mutual contributions
- Pertinent and coherent explanation of the relationship between the determining contexts of several scientific and technological discoveries
- List of the main stages of scientific and technological discoveries
- Brief description of important consequences (of different types) and the current major challenges resulting from several scientific and technological discoveries
- Formulation of relevant questions and credibility of responses to the questions formulated

**Learning Activities**

Hours of instruction: 45  
Credits: 2

## Science and Technology

Code: 000Y

**Objective****Standard****Statement of the Competency****Achievement Context**

To resolve a simple problem by applying the basic scientific method.

- Working alone or in groups
- Given a simple scientific and technological problem that can be resolved by applying the standard scientific method
- Using common scientific instruments and reference materials (written or other)

**Elements of the Competency****Performance Criteria**

- |                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Describe the main steps of the standard scientific method.                                   | <ul style="list-style-type: none"> <li>• Organized list and brief description of the characteristics of the steps of the standard scientific method</li> </ul>                                                                                                                                                                                                                                               |
| 2. Formulate a hypothesis designed to solve a simple scientific and technological problem.      | <ul style="list-style-type: none"> <li>• Clear, precise description of the problem</li> <li>• Observance of the principles for formulating a hypothesis (observable and measurable nature of data, credibility, etc.)</li> </ul>                                                                                                                                                                             |
| 3. Verify a hypothesis by applying the fundamental principles of the basic experimental method. | <ul style="list-style-type: none"> <li>• Pertinence, reliability and validity of the experimental method used</li> <li>• Observance of established experimental method</li> <li>• Appropriate choice and use of instruments</li> <li>• Clear, satisfactory presentation of results</li> <li>• Validity of the connections established between the hypothesis, the verification and the conclusion</li> </ul> |

**Learning Activities**

|                       |    |
|-----------------------|----|
| Hours of instruction: | 45 |
| Credits:              | 2  |

## Modern Languages

Code: 000Z

| <b>Objective</b>                                                     | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Statement of the Competency</b>                                   | <b>Achievement Context</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| To communicate with limited skill <sup>1</sup> in a modern language. | <ul style="list-style-type: none"> <li>For modern Latin-alphabet languages:               <ul style="list-style-type: none"> <li>– during a conversation consisting of at least eight sentences of dialogue</li> <li>– in a written text consisting of at least eight sentences</li> </ul> </li> <li>Or</li> <li>For non-Latin-alphabet languages:               <ul style="list-style-type: none"> <li>– during a conversation consisting of at least six sentences of dialogue</li> <li>– in a written text consisting of at least six sentences</li> </ul> </li> <li>Based on learning situations on familiar themes</li> <li>Using reference materials</li> </ul> |
| <b>Elements of the Competency</b>                                    | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1. Understand the meaning of a verbal message.                       | <p>Learning a modern language requires becoming aware of the culture of the people who use the language.</p> <ul style="list-style-type: none"> <li>Accurate identification of words and idiomatic expressions</li> <li>Clear recognition of the general meaning of simple messages</li> <li>Logical connections between the various elements of the message</li> </ul>                                                                                                                                                                                                                                                                                               |
| 2. Understand the meaning of a written message.                      | <ul style="list-style-type: none"> <li>Accurate identification of words and idiomatic expressions</li> <li>Clear recognition of the general meaning of simple messages</li> <li>Logical connections between the various elements of the message</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            |

1. This refers to the limited use of the structures, grammar and vocabulary of the language studied. This limitation varies depending on the complexity of the modern language.

**Modern Languages****Code: 000Z**

3. Express a simple message verbally.
- Appropriate use of language structures in main and subordinate clauses
  - Appropriate application of grammar rules
  - Use of verbs in the present indicative
  - Appropriate use of basic vocabulary and idiomatic expressions
  - Comprehensible pronunciation
  - Coherent sequence of simple sentences
  - Spontaneous, coherent sequence of sentences in a dialogue
4. Write a text on a given subject.
- Appropriate use of language structures in main and subordinate clauses
  - Appropriate application of basic grammar rules
  - Use of verbs in the present indicative
  - Appropriate use of basic vocabulary and idiomatic expressions
  - Coherent sequence of simple sentences
  - Acceptable application of graphic rules for writing systems that do not use the Latin alphabet

**Learning Activities**

Hours of instruction: 45  
Credits: 2

| <b>Objective</b>                                                                                  | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Statement of the Competency</b><br><br>To communicate on familiar topics in a modern language. | <b>Achievement Context</b><br><br><ul style="list-style-type: none"> <li>• During a conversation consisting of at least 15 sentences of dialogue</li> <li>• In a written text consisting of at least 20 sentences for Latin-alphabet languages</li> <li>• In a written text consisting of at least 10 sentences for non-Latin alphabet languages</li> <li>• Based on:               <ul style="list-style-type: none"> <li>– situations in everyday life</li> <li>– simple topics from everyday life</li> </ul> </li> <li>• Using reference materials</li> </ul> |
| <b>Elements of the Competency</b>                                                                 | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 1. Understand the meaning of a verbal message.                                                    | Learning a modern language requires becoming aware of the culture of the people who use the language. <ul style="list-style-type: none"> <li>• Accurate identification of words and idiomatic expressions</li> <li>• Clear recognition of the general meaning and essential ideas of messages of average complexity</li> <li>• Logical connection between the various elements of the message</li> </ul>                                                                                                                                                         |
| 2. Understand the meaning of a written message.                                                   | <ul style="list-style-type: none"> <li>• Accurate identification of words and idiomatic expressions</li> <li>• Clear recognition of the general meaning and essential ideas of messages of average complexity</li> <li>• Logical connection between the various elements of the message</li> </ul>                                                                                                                                                                                                                                                               |
| 3. Express a simple message verbally, using sentences of average complexity.                      | <ul style="list-style-type: none"> <li>• Appropriate use of language structures in main or subordinate clauses</li> <li>• Appropriate application of grammar rules</li> <li>• Use of verbs in the present indicative</li> <li>• Appropriate use of enriched basic vocabulary and idiomatic expressions</li> <li>• Comprehensible pronunciation</li> <li>• Coherent sequence of sentences of average complexity</li> <li>• Coherent dialogue of average complexity</li> </ul>                                                                                     |

**Modern Languages****Code: 0010**

4. Write a text on a given subject, using sentences of average complexity.

- Appropriate use of language structures in main or subordinate clauses
- Appropriate application of grammar rules
- Use of verbs in the present and past indicative
- Appropriate use of enriched basic vocabulary and idiomatic expressions.
- Coherent sequence of sentences of average complexity
- Acceptable application of graphic rules for writing systems that do not use the Latin alphabet

**Learning Activities**

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Hours of instruction: 45  
Credits: 2

Modern Languages

Code: 0067

| <b>Objective</b>                                                    | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Statement of the Competency</b>                                  | <b>Achievement Context</b>                                                                                                                                                                                                                                                                                                                                                                                         |
| To communicate with relative ease in a modern language.             | <ul style="list-style-type: none"> <li>• Working alone</li> <li>• During a conversation consisting of at least 20 sentences of dialogue</li> <li>• In a written text of medium length (at least 25 sentences for Latin-alphabet languages and 15 sentences for other languages)</li> <li>• Given documents of a sociocultural nature</li> <li>• Using reference materials for the written text</li> </ul>          |
| <b>Elements of the Competency</b>                                   | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                        |
| 1. Understand the meaning of a verbal message in everyday language. | <p>Learning a modern language requires being aware of the culture of the people who use the language.</p> <ul style="list-style-type: none"> <li>• Accurate explanation of the general meaning and essential ideas of the message</li> <li>• Clear identification of structural elements of the language</li> </ul>                                                                                                |
| 2. Understand the meaning of a text of average complexity.          | <ul style="list-style-type: none"> <li>• Accurate explanation of the general meaning and essential ideas of the text</li> <li>• Clear identification of structural elements of the language</li> </ul>                                                                                                                                                                                                             |
| 3. Have a conversation about a subject.                             | <ul style="list-style-type: none"> <li>• Appropriate use of the structural elements of the language according to the message to be expressed</li> <li>• Appropriate use of everyday vocabulary</li> <li>• Accurate pronunciation and intonation</li> <li>• Normal flow in a conversation in everyday language</li> <li>• Coherence of the message expressed</li> <li>• Pertinent responses to questions</li> </ul> |
| 4. Write a text of average complexity.                              | <ul style="list-style-type: none"> <li>• Appropriate use of the structural elements of the language according to the text to be written</li> <li>• Accurate vocabulary</li> <li>• Coherence of the text as a whole</li> <li>• Observance of presentation and writing rules</li> </ul>                                                                                                                              |
| <b>Learning Activities</b>                                          |                                                                                                                                                                                                                                                                                                                                                                                                                    |

Hours of instruction: 45  
Credits: 2

## Mathematics Literacy and Computer Science

Code: 0011

**Objective****Standard****Statement of the Competency**

To recognize the role of mathematics or informatics in contemporary society.

**Achievement Context**

- Working alone
- In an essay of approximately 750 words
- Using several concrete examples selected by the student demonstrating the competency

**Elements of the Competency****Performance Criteria**

- |                                                                                                             |                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Demonstrate the acquisition of basic general knowledge in mathematics or informatics.                    | <ul style="list-style-type: none"> <li>• Identification of basic notions and concepts</li> <li>• Identification of main branches of mathematics or informatics</li> <li>• Appropriate use of terminology</li> </ul>                                                                                         |
| 2. Describe the evolution of mathematics or informatics.                                                    | <ul style="list-style-type: none"> <li>• Descriptive summary of several major phases</li> </ul>                                                                                                                                                                                                             |
| 3. Recognize the contribution of mathematics or informatics to the development of other areas of knowledge. | <ul style="list-style-type: none"> <li>• Demonstration of the existence of important contributions, using concrete examples</li> </ul>                                                                                                                                                                      |
| 4. Illustrate the diversity of mathematical or informatics applications.                                    | <ul style="list-style-type: none"> <li>• Presentation of a range of applications in various areas of human activity, using concrete examples</li> </ul>                                                                                                                                                     |
| 5. Evaluate the impact of mathematics or informatics on individuals and organizations.                      | <ul style="list-style-type: none"> <li>• Identification of several major influences</li> <li>• Explanation of the way in which mathematics or informatics have changed certain human and organizational realities</li> <li>• Recognition of the advantages and disadvantages of these influences</li> </ul> |

**Learning Activities**

Hours of instruction: 45  
Credits: 2

## Mathematics Literacy and Computer Science

Code: 0012

| <b>Objective</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Statement of the Competency</b><br><br>To use various mathematical or computer concepts, procedures and tools for common tasks.                                                                                                                                                                                                                                                                                                                                                                                | <b>Achievement Context</b><br><br><ul style="list-style-type: none"> <li>• Working alone</li> <li>• While carrying out a task or solving a problem based on everyday needs.</li> <li>• Using familiar tools and reference materials</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Elements of the Competency</b><br><br><ol style="list-style-type: none"> <li>1. Demonstrate the acquisition of basic functional knowledge in mathematics or informatics.</li> <li>2. Select mathematical or computer tools and procedures on the basis of specific needs.</li> <li>3. Use mathematical or computer tools and procedures to carry out tasks and solve problems.</li> <li>4. Interpret the quantitative data or results obtained using mathematical or computer tools and procedures.</li> </ol> | <b>Performance Criteria</b><br><br><ul style="list-style-type: none"> <li>• Brief definition of concepts</li> <li>• Correct execution of basic operations</li> <li>• Appropriate use of terminology</li> <li>• List of numerous possibilities available with mathematical and computer tools and procedures</li> <li>• Analysis of concrete situations and recognition of the usefulness of mathematical or computer tools and procedures</li> <li>• Appropriate choice according to needs</li> <li>• Planned, methodical process</li> <li>• Correct use of tools and procedures</li> <li>• Satisfactory results, given the context</li> <li>• Appropriate use of terminology specific to a tool or procedure</li> <li>• Accurate interpretation, given the context</li> <li>• Clear, precise formulation of the interpretation</li> </ul> |
| <b>Learning Activities</b><br><br>Hours of instruction: 45<br>Credits: 2                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Art and Aesthetics

Code: 0013

**Objective****Standard****Statement of the Competency**

To consider various forms of art produced by aesthetic practices.

**Achievement Context**

- Working alone
- Given a specified work of art
- In a written commentary of approximately 750 words

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Develop an appreciation for the dynamics of the imagination in art.</li> <li>2. Describe art movements.</li> <li>3. Give a commentary on a work of art.</li> </ol> | <ul style="list-style-type: none"> <li>• Precise explanation of a creative process connected to the construction of an imaginary universe</li> <li>• Descriptive list of the main characteristics of three art movements from different periods, including a modern movement</li> <li>• Coherent organization of observations, including identification of four basic elements of form and structure related to the language used as well as a justified description of the meaning of the work of art</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |    |
|-----------------------|----|
| Hours of instruction: | 45 |
| Credits:              | 2  |

## Art and Aesthetics

Code: 0014

**Objective****Standard****Statement of the Competency**

To produce a work of art.

**Achievement Context**

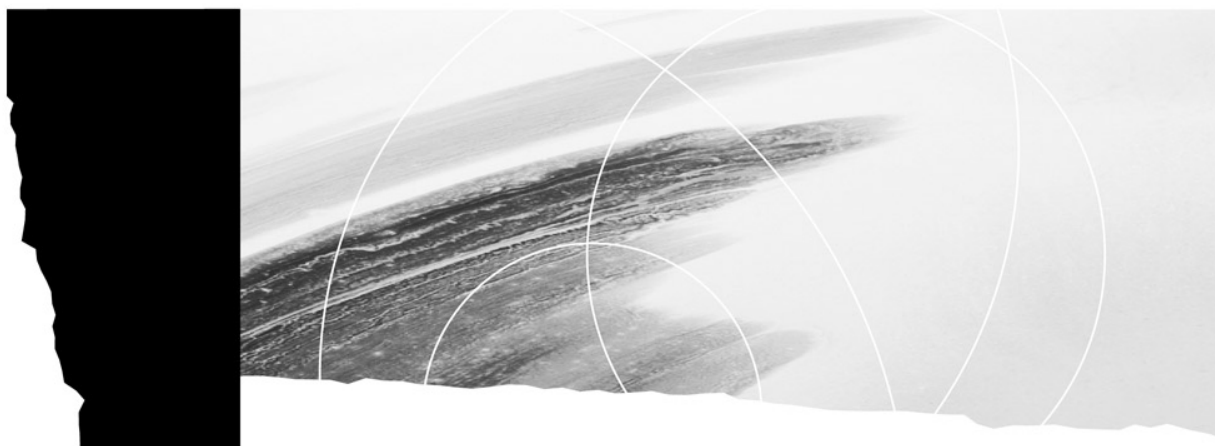
- Working alone
- During a practical exercise
- In the context of a creation or an interpretation
- Using the basic elements of the language and techniques specific to the medium selected

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Recognize the primary forms of expression of an artistic medium.</li> <li>2. Use the medium.</li> </ol> | <ul style="list-style-type: none"> <li>• Identification of specific features: originality, essential qualities, means of communication, styles, genres</li> <li>• Personal, coherent use of elements of language</li> <li>• Satisfactory application of artistic techniques</li> <li>• Observance of the requirements of the method of production</li> </ul> |
|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Learning Activities**

|                       |    |
|-----------------------|----|
| Hours of instruction: | 45 |
| Credits:              | 2  |



## **Part II**

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**Goals of the Program-Specific  
Component**

**Educational Aims of the Program-  
Specific Component**

**Harmonization**

**Program-Specific Glossary**

**Specialization**

**Definition of the Specialization**

**Grid of Competencies**

**Objectives and Standards of the  
Program-Specific Component**



## Goals of the Program-Specific Component

The aim of the *Electrotechnology* program is to prepare students to practise the occupation of electrotechnologist specialized in telecommunications, computers and networks or audiovisual.

The goals of the program-specific component of the *Electrotechnology* program are based on the general goals of vocational and technical training. These goals are:

- To help students develop effectiveness in the practice of a trade or occupation, that is:
  - to teach students to perform roles, functions, tasks and activities associated with the trade or occupation upon entry into the job market
  - to prepare students to progress satisfactorily on the job (which implies having the necessary technical and technological knowledge and skills in such areas as communication, problem solving, decision making, ethics, health and safety)
- To help students integrate into the work force, that is:
  - to familiarize students with the job market in general and the context surrounding the trade or occupation they have chosen
  - to familiarize students with their rights and responsibilities as workers
- To foster students' personal development and acquisition of occupational knowledge, skills, perceptions and attitudes, that is:
  - to help students develop their autonomy and the desire to learn, and acquire effective work methods
  - to help students understand the principles underlying the techniques and the technology used in the trade or occupation
  - to help students develop self-expression, creativity, initiative and entrepreneurial spirit
  - to help students adopt the attitudes required to successfully practise the trade or occupation, and instill in them a sense of responsibility and a concern for excellence
- To promote job mobility, that is:
  - to help students develop positive attitudes toward change
  - to help students develop the means to manage their careers by familiarizing them with entrepreneurship

The program reconciles two requirements of college education: versatility and specialization. Versatility is ensured through the acquisition of general competencies that will allow electrotechnologists to demonstrate that they can adapt to new work situations, perform tasks independently, diagnose problems, find information in French and English documentation and process technical information, communicate with their superiors, colleagues, clients and suppliers and write reports.

Specialization, which is necessary in order to integrate harmoniously into the work force, is ensured through the acquisition of specific competencies that are directly related to the tasks performed by technologists specialized in telecommunications, computers and networks or audiovisual. Specific information on each of these specializations appears in the following pages.



## Educational Aims of the Program-Specific Component

Educational aims are based on important values and concerns and serve as guidelines for interactions with students. As a general rule, educational aims focus on important aspects of the students' professional and personal development, such as attitudes, work habits and intellectual skills, which have not been explicitly formulated in the program's goals, objectives and standards.

The following is a description of the aims of the program-specific component of the *Electrotechnology* program:

- to employ meticulous work habits
- to observe occupational health and safety rules
- to demonstrate a sense of professional ethics
- to show courtesy and respect to clients



# Harmonization

The Ministère de l'Éducation, du Loisir et du Sport harmonizes its vocational and technical programs by establishing similarities and continuity between secondary- and college-level programs within a particular sector or between sectors, in order to avoid overlap in program offerings, recognize prior learning and facilitate the students' progress.

Harmonization establishes consistency between training programs and is especially important in ensuring that the tasks of a trade or occupation are clearly identified and described. Harmonization makes it possible to identify tasks requiring competencies that are common to more than one program. Even if there are no common competencies, training programs are still harmonized.

Harmonization is said to be “inter-level” when it focuses on training programs at different levels, “intra-level” when it focuses on programs within the same educational level, and “inter-sector” when carried out between programs in various sectors.

An important aspect of harmonization is that it allows the common features of competencies to be identified and updated as needed. Common competencies are those that are shared by more than one program; once acquired in one program, they can be recognized as having been acquired in another. Competencies with exactly the same statement and elements are said to be identical. Common competencies that are not identical but have enough similarities to be of equal value are said to be equivalent.

Harmonization of the *Electrotechnology* program has resulted in identifying competencies that are shared with other programs. Detailed information on the harmonization of this program and its results are presented in the document entitled *Tableaux d'harmonisation, Technologie de l'électronique*.



# Program-specific glossary \*

To facilitate understanding, this program includes a glossary of the terms used. In addition to these general terms, the following glossary defines more specific terms from the *Electrotechnology* program's Telecommunications, Computers and networks and Audiovisual specializations.

## **Adjust**

To carefully fit one thing to another.

## **Analog**

A way to represent data by means of continuously variable quantities, as well as the processes and devices that make use of such data.

## **Calibrate**

Physically set the position of reference points (sometimes only main reference points need be done) of a measuring instrument in accordance with the corresponding values of the unit to be measured.

Note: Calibrate is not the same thing as gauge, which means to check or adjust the graduations of a device or instrument by correlating its performance with a standard.

## **Component**

In technology, a permanently installed or attached fixture, element or part of a system.

## **Configure**

To set up the software or hardware of a computer by specifying the parameters.

## **Digital**

A way to represent data using discrete, countable pulses of fixed size, as well as the processes and devices that make use of such data.

## **Electric circuit and electronic circuit**

An arrangement of any of various conductors through which electric current can flow from a supply current.

Note: Generally speaking, electric circuit is the term used. Electronic circuits have small amplitude currents.

## **Equipment (hardware)**

The collection of machines, components and devices needed to run an electric installation in a given location (office, shop, plant, workstation, building, operation, etc.) or perform a specific activity.

Note: Equipment is the more general term, while hardware refers specifically to the physical components of a computer system, as compared to software.

**Logic circuit**

An electronic circuit that is an arrangement of switches used to calculate operations in Boolean algebra (e.g., AND, OR, NOT, NAND, NOR).

**Measuring instrument**

Device or tool used to compare the size of something to a referenced unit of measurement.

Note: The terms “measuring device” and “measuring instrument” are essentially synonymous.

**Microprocessor**

An electronic computer central processing unit (CPU) that performs arithmetic, logic and control operations (also called micro-instructions) and is made from miniaturized transistors and other circuit elements on a single semiconductor integrated circuit.

Note: A microcontroller is a dedicated microprocessor.

**Network**

A collection of interconnected elements or equipment, considered as a whole and represented by branches and nodes.

**Program**

To design, write and develop computer programs.

**Sensor**

A device that detects a change in a physical stimulus and turns it into a signal (usually electric) which can be measured or recorded.

**System**

Set of interdependent elements constituted to achieve a given objective by performing a specified function (e.g. a computer system).

**Tune**

To adjust a machine or mechanism for better functioning.

\* These definitions are taken from or based on a number of Internet sources, including the Grand dictionnaire terminologique, produced by the Office de la langue française, and TERMIUM, the Government of Canada’s linguistic database, produced by the Translation Bureau, as well as other references.

## ***Telecommunications* Specialization**



# Definition of the Telecommunications Specialization

The goal of the *Electrotechnology* program's Telecommunications specialization is to train technologists specialized in telecommunications.

The principal activities and tasks performed by telecommunications technologists are the following: the installation and activation, servicing, maintenance, repair and modification or upgrading of telecommunications systems; technical assistance; quality control during the connecting and assembling of hardware, equipment and systems (including calibration); and system design support.

They may also be asked to manage personnel and inventory (vehicles or small stores) and to perform administrative tasks.

Telecommunications technologists work with the hardware, equipment and various systems that transmit signals, regardless of the mode of transmission, to provide network access, switching and telecommunications signal transmission.

The skills acquired cover various types of signal transmission, notably transmission by wire (which includes cables) and fibre optic cable, as well as radio frequency transmission, which involves wireless communications.

Technologists can work on physical media directly or by remote, with the latter becoming increasingly common.

These telecommunications specialists can work for radio-broadcast, radio-communications and wired telephony companies, manufacturers of telecommunication systems, devices and components, as well as for companies with proprietary telecommunications networks.



# Grid of Competencies

The grid of competencies provides an overview of a technical program. It brings together all of the components of a program and shows the relationship among the competencies.

The grid of competencies includes:

- the general competencies of the program-specific component, which deal with work-related activities common to various tasks or situations
- the specific competencies, which deal with tasks directly related to the practice of the trade or occupation

The grid of competencies 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 general and a specific competency.

The order in which the competencies are presented reflects the program's design; it does not dictate the course sequence. The grid of competencies is provided for information purposes only.

| GRID OF COMPETENCIES                                                                            |                   |                                                                        |                                                         |                                           |                                           |                                  |                                 |                                  |                                       |                                       |                                                                                 |                                                             |                                                                   |                                                                |
|-------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------|-------------------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------|
| SPECIALIZATION                                                                                  | Competency Number | GENERAL COMPETENCIES                                                   |                                                         |                                           |                                           |                                  |                                 |                                  |                                       |                                       |                                                                                 |                                                             |                                                                   |                                                                |
|                                                                                                 |                   | To process information about working in the field of electrotechnology | To implement mathematical models related to electronics | To diagnose an analog electronics problem | To diagnose a digital electronics problem | To process technical information | To communicate in the workplace | To replace electronic components | To draw electronic schematic diagrams | To diagnose a network-related problem | To diagnose an analog electronics problem affecting telecommunications circuits | To check the operation of a wired telecommunications system | To check the operation of a fibre-optic telecommunications system | To check the operation of a wireless telecommunications system |
| Competency Number                                                                               |                   | 1                                                                      | 2                                                       | 3                                         | 4                                         | 5                                | 6                               | 7                                | 8                                     | 9                                     | 10                                                                              | 12                                                          | 13                                                                | 14                                                             |
| To perform telecommunications network surveillance activities                                   | 11                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To provide quality control for the assembly and integration of a telecommunications system      | 15                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To perform activities related to the installation and activation of a telecommunications system | 16                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To service a telecommunications system                                                          | 17                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To service a computer network system                                                            | 18                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To modify a telecommunications system                                                           | 19                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |
| To provide technical assistance and support                                                     | 20                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>                                                           | <input type="radio"/>                                       | <input type="radio"/>                                             | <input type="radio"/>                                          |

Code: 041Q

**Objective****Standard****Statement of the Competency**

To process information about working in the field of electrotechnology.

**Achievement Context**

- Using recent documentation and laws and regulations in effect

**Elements of the Competency****Performance Criteria**

1. Gather information on workplaces and the occupation.

- Selection of appropriate information sources
- Reliability and diversity of the information gathered
- Appropriate use of search tools

2. Analyze the information on workplaces.

- Accurate identification of the types of businesses and establishments
- Identification of occupations practised in the workplace
- Identification of professional associations and unions active in the workplace
- Accurate interpretation of the importance and characteristics of technological development
- Accurate identification of the types of work organization
- Accurate identification of the characteristics of products and services offered by businesses and establishments

3. Analyze the information on the occupation.

- Accurate identification of job specializations
- Detailed examination of the tasks and responsibilities of the occupation
- Identification of hazards to occupational health and safety
- Accurate identification of the knowledge and skills required to practise the occupation
- Accurate interpretation of the standards and conventions governing professional ethics
- Accurate identification of the limits of the occupation

4. Summarize the information.

- Proper sorting of information
- Accurate summary of the information



**Objective****Standard****Statement of the Competency**

To implement mathematical models related to electronics.

**Achievement Context**

- For work activities associated with taking measurements, diagnosing electronic problems, making modifications, conducting tests and setting parameters
- Using reference documents, data sheets, tables and diagrams
- Using measuring instruments and a calculator

**Elements of the Competency****Performance Criteria**

1. Become familiar with the situation requiring the implementation of a model.

- Accurate interpretation of the:
  - situation
  - goals to achieve
  - documentation

2. Select the model.

- Accurate interpretation of mathematical concepts
- Accurate interpretation of symbols, terminology and conventions
- Clear determination of the links among the model components
- Appropriate selection of model considering the:
  - situation
  - goals to achieve
  - application conditions

3. Apply the model to the situation.

- Appropriate use of mathematical formulas
- Appropriate use of:
  - scientific notation
  - units of measurement
- Appropriate use of problem-solving methods
- Accuracy of calculations
- Proper recording of results

4. Assess the results.

- Methodical check of application results
- Review of plausibility
- Accuracy of corrections made

5. Present the results.

- Clear, careful presentation of the:
  - method used
  - results



**Objective****Standard****Statement of the Competency**

To diagnose an analog electronics problem.

**Achievement Context**

- With various analog circuits, analog circuit diagrams and equipment with an analog defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037E

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To diagnose a digital electronics problem.

**Achievement Context**

- With various digital circuits, storage devices and data acquisition systems, digital circuit diagrams and equipment with a digital defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037F

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To process technical information.

**Achievement Context**

- Processing information related to current and new technologies
- Following standards, data sheets, specifications, diagrams and manufacturers' recommendations
- Using appropriate French and English technical documentation, a networked computer and appropriate software

**Elements of the Competency****Performance Criteria**

1. Gather technical information.

- Accurate determination of the information sought
- Appropriate use of the computer, software and search tools
- Reliability and variety of information sources
- Clarity of communications when consulting resource people
- Relevance and completeness of information gathered

2. Organize the information.

- Accurate interpretation of the information gathered
- Proper sorting of information
- Accurate comparison of data
- Careful, coherent organization of data

3. Record the information.

- Observance of spelling and grammar rules
- Observance of writing standards
- Appropriate use of software programs

4. Present the information.

- Suitable preparation of the presentation
- Appropriate selection of software programs
- Appropriate use of software programs
- Clear and organized presentation of the information
- Consideration of the reader's interest level



**Objective****Standard****Statement of the Competency**

To communicate in the workplace.

**Achievement Context**

- Acting in various situations where an individual must provide explanations, advise clients, train users, negotiate with suppliers, converse and discuss (meetings and teamwork)
- Using specific methods

**Elements of the Competency****Performance Criteria**

1. Ensure that the environment is conducive to communication.

- Proper identification of any obstacles to communication
- Determination of methods for overcoming the chief obstacles to communication

2. Receive information.

- Accurate interpretation of verbal and nonverbal messages
- Active listening skills
- Proper application of reflecting and restating techniques
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - attention
  - respect for others

3. Transmit information.

- Clear expression of ideas
- Appropriate selection and use of communication methods
- Use of appropriate French and English terminology
- Appropriate explanation of technical information in everyday terms
- Check of the other person's understanding
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - courtesy
  - diplomacy
  - positive outlook
  - respect for others

4. Assess the quality of their communications.

- Critical analysis of their strengths and weaknesses
- Identification of methods for improving their communication skills



**Objective****Standard****Statement of the Competency**

To replace electronic components.

**Achievement Context**

- Following standards and manufacturers' recommendations
- Using appropriate French and English technical documentation, replacement circuits and components, equipment used for replacing components in various media, antistatic equipment and measuring instruments

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Clarity of communication
- Accurate interpretation of:
  - French and English terminology
  - safety and protective measures
  - standards
  - schematic diagrams and assembly drawings
  - manufacturer's recommendations

2. Plan the work.

- Accurate determination of techniques to use in accordance with the request
- Accurate identification of components to be replaced
- Appropriate selection of:
  - equipment and accessories
  - replacement components
  - products to be used
- Accurate determination of operations to perform
- Meticulous preparation of equipment and measuring instruments

3. Remove the components.

- Appropriate use of equipment
- Observance of disassembly techniques and methods
- Careful cleaning of component location

4. Install the components.

- Appropriate use of measuring instruments and equipment
- Observance of assembly techniques and methods
- Careful cleaning of component location

Code: 041T

5. Check the work.
  - Careful inspection of the quality of the installation
  - Relevance of tests performed
  - Systematic detection of anomalies
  - Accuracy of corrective measures
6. Record the information.
  - Accuracy of information regarding the work done
  - Relevance and clarity of explanatory notes

**Objective****Standard****Statement of the Competency**

To draw electronic schematic diagrams.

**Achievement Context**

- Following standards and manufacturers' recommendations
- Using appropriate French and English technical documentation, catalogues and parts libraries, a networked computer and drafting software

**Elements of the Competency****Performance Criteria**

1. Gather the information.

- Accurate interpretation of request
- Appropriate use of:
  - technical documentation
  - catalogues and parts libraries
  - dimensional measuring instruments
- Proper sorting of information

2. Produce a rough sketch.

- Appropriate layout
- Observance of drawing conventions and symbols
- Appropriate selection of presentation methods
- Clarity and accuracy of the presentation
- Appropriate use of drafting software

3. Produce final drawings.

- Relevance of the layout
- Clarity and accuracy of the presentation
- Cleanliness of schematic diagrams
- Appropriate use of drafting software

4. Transmit the information.

- Careful presentation of schematic diagrams
- Relevance and clarity of explanatory notes
- Detailed report of information related to schematic diagrams



**Objective****Standard****Statement of the Competency**

To diagnose a network-related problem.

**Achievement Context**

- For networks using various topologies and technologies
- Following various types of requests
- Using appropriate French and English technical documentation, diagnostic software, a networked computer, operating system utilities and measuring instruments
- In conformity with health and safety rules
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Become familiar with the situation.

- Accurate interpretation of the situation
- Accurate interpretation of the network architecture
- Proper identification of network equipment
- Clarity of communications with the network manager

2. Check the hardware.

- Thorough operational check of network equipment
- Correct configuration of diagnostic devices
- Accurate measurements of signal-related parameters
- Systematic operational check of transmission media and their conformity with standards
- Identification of all anomalies
- Proper recording of results

3. Check the software.

- Thorough operational check of the operating system
- Thorough check of the most recent updates installed
- Proper application of the check method
- Thorough operational check of protocols
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Logical processing of results

Code: 041V

5. Determine the cause or causes of the problem.
  - Accurate interpretation of the problem or problems
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To diagnose an analog electronics problem affecting telecommunications circuits.

**Achievement Context**

- Working with various types of circuits associated with amplification, power supply, oscillation and filtration systems, schematic diagrams, standards and safety rules
- Using data sheets, measuring instruments, check methods and antistatic equipment

**Elements of the Competency****Performance Criteria**

1. Become familiar with the specifications.

- Accurate identification of the:
  - problem to solve
  - components to check
  - expected circuit behaviour
- Accurate interpretation of the:
  - circuit schematic diagram
  - standards
  - type of circuit involved
  - check methods

2. Conduct a visual inspection.

- Systematic check of components' conformity with schematic diagrams
- Inspection of all components
- Identification of all anomalies
- Recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Appropriate use of antistatic equipment
- Proper application of check method and observance of safety rules
- Accuracy of measurements, considering the effects of the instruments
- Recording of results

4. Make calculations.

- Appropriate selection of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - the types of circuits
  - expected circuit behaviours
- Accuracy of calculations
- Recording of results

Code: 041W

5. Determine the causes of the problem.
  - Accurate analysis of all results
  - Accurate interpretation of deviations observed
  - Relevance of hypotheses
  - Accuracy of diagnosis
  
6. Write a report.
  - Observance of report writing standards
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To perform telecommunications network surveillance activities.

**Achievement Context**

- With standards, priority codes, surveillance routines, statistical data and plans and documents related to telecommunications network topology
- Using test and simulation equipment, measuring instruments, surveillance equipment, and data organization and representation software

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards
  - priority codes
  - surveillance routines
  - needs
  - statistics
- Accurate identification of network characteristics with regard to:
  - transmission modes
  - modulation types
  - multiplexing types
  - topology
- Identification and sorting of performance indicators and anomalies

2. Conduct tests.

- Appropriate selection of tests
- Appropriate selection and use of measuring instruments
- Determination and application of a test scenario
- Observance of response times
- Recording of results

3. Analyze the data gathered.

- Appropriate organization and representation of data
- Accurate interpretation of:
  - data
  - deviations
- Accuracy of trends and anomalies identified

4. Determine the measures to take.

- Relevance of measures, considering the results
- Observance of standards and needs



**Objective****Standard****Statement of the Competency**

To check the operation of a wired telecommunications system.

**Achievement Context**

- Working with surveillance and automatic switching systems and telephone network systems, as well as cable television and digital data transmission networks, standards and specifications, plans and regulations in effect
- Using test equipment, measuring instruments and service manuals

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards and specifications
  - plans
  - regulations
- Accurate identification of:
  - equipment characteristics
  - components to check

2. Plan the inspection.

- Precise identification of subassemblies, parts and components to be checked
- Appropriate selection of check method
- Appropriate selection of tests to conduct

3. Take measurements.

- Observance of occupational health and safety rules
- Appropriate selection and use of measuring instruments
- Appropriate selection of test points
- Accuracy of measurements, considering the effects of the instruments
- Observance of response times
- Recording of results

4. Analyze the data gathered.

- Accurate interpretation of:
  - data
  - deviations in relation to specifications
- Accuracy of anomalies identified

5. Write an inspection report.

- Observance of report writing standards
- Clarity and accuracy of information
- Use of appropriate terminology
- Review of the plausibility and significance of the results, given the tests' repeatability and margin of error



**Objective****Standard****Statement of the Competency**

To check the operation of a fibre-optic telecommunications system.

**Achievement Context**

- Working with fibre-optic systems or networks, standards and specifications, plans and regulations in effect
- Using test equipment, measuring instruments and service manuals

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards and specifications
  - plans
  - regulations
- Accurate identification of:
  - equipment characteristics
  - components to check

2. Plan the inspection.

- Precise identification of subassemblies, parts and components to be checked
- Appropriate selection of check method
- Appropriate selection of tests to conduct

3. Take measurements.

- Observance of occupational health and safety rules
- Appropriate selection and use of measuring instruments
- Appropriate selection of test points
- Accuracy of measurements, considering the effects of the instruments
- Observance of response times
- Recording of results

4. Analyze the data gathered.

- Accurate interpretation of:
  - data
  - deviations in relation to specifications
- Accurate identification of anomalies

5. Write an inspection report.

- Observance of report writing standards
- Clarity and accuracy of information
- Use of appropriate terminology
- Review of the plausibility and significance of the results, given the tests' repeatability and margin of error



**Objective****Standard****Statement of the Competency**

To check the operation of a wireless telecommunications system.

**Achievement Context**

- Working with wireless and satellite telecommunications networks and wireless equipment for local area networks, standards and specifications, plans and regulations in effect
- Using test equipment, measuring instruments and service manuals

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards and specifications
  - plans
  - regulations
- Accurate identification of:
  - equipment characteristics
  - components to check

2. Plan the inspection.

- Precise identification of subassemblies, parts and components to be checked
- Appropriate selection of check method
- Appropriate selection of tests to conduct

3. Take measurements.

- Observance of occupational health and safety rules
- Appropriate selection and use of measuring instruments
- Appropriate selection of test points
- Accuracy of measurements, considering the effects of the instruments
- Observance of response times
- Recording of results

4. Analyze the data gathered.

- Accurate interpretation of:
  - data
  - deviations in relation to specifications
- Accuracy of anomalies identified

5. Write an inspection report.

- Observance of report writing standards
- Clarity and accuracy of information
- Use of appropriate terminology
- Review of the plausibility and significance of the results, given the tests' repeatability and margin of error



**Objective****Standard****Statement of the Competency**

To provide quality control for the assembly and integration of a telecommunications system.

**Achievement Context**

- Following telecommunications quality standards, manufacturers' recommendations and occupational health and safety rules
- Using test equipment, measuring instruments, test procedures, equipment specifications and general applications

**Elements of the Competency****Performance Criteria**

1. Become familiar with the specifications.

- Accurate interpretation of:
  - quality standards
  - occupational health and safety rules
  - test procedures
  - equipment specifications

2. Conduct compliance testing.

- Rigorous application of test procedures
- Appropriate use of measuring instruments
- Accuracy of measurements
- Observance of execution delays
- Recording of results and decisions

3. Take corrective action.

- Relevance of adjustments, modifications or repairs, considering test procedures and equipment specifications
- Rigorous application of occupational health and safety rules
- Observance of company methods
- Meticulousness of final inspection

4. Write a quality control report.

- Observance of writing standards
- Clarity and accuracy of information
- Appropriate selection of transmission method and report recipients



**Objective****Standard****Statement of the Competency**

To perform activities related to the installation and activation of a telecommunications system.

**Achievement Context**

- Following standards, safety rules, client needs, plans and diagrams and manufacturers' recommendations
- Using test equipment, measuring instruments, installation methods and specialized software for system configuration and set-up

**Elements of the Competency****Performance Criteria**

1. Understand the request correctly.

- Accurate interpretation of:
  - standards
  - occupational health and safety rules
  - installation procedures
  - plans and diagrams
  - client needs
- Clarity of communications with their supervisor and the client

2. Plan the installation.

- Accurate production of installation plans
- Accurate assessment of completion time
- Appropriate selection of hardware and equipment needed
- Recording of planning

3. Perform installation tasks.

- Observance of assembly steps in conformity with specifications
- Observance of occupational health and safety rules
- Rigorous application of installation procedures
- Appropriate, safe handling of tools and equipment
- Observance of execution delays
- Careful storage of tools and materials
- Cleanliness of work area

Code: 0423

4. Plan the activation.
  - Accurate identification of:
    - system parameters
    - the desired configuration
    - hardware and software compliance tests to be done on the equipment
  - Careful compliance check of physical set-up
  - Accurate identification of the start-up procedure
  - Accurate assessment of completion time
  - Recording of activation steps
5. Configure and set up the system.
  - Rigorous application of configuration and set-up steps
  - Appropriate use of configuration and set-up software
  - Accuracy of configuration and set-up
  - Precision of manual adjustments
6. Conduct compliance testing.
  - Activation of system
  - Observance of execution delays
  - Rigorous application of compliance testing steps
  - Recording of results

**Objective****Standard****Statement of the Competency**

To service a telecommunications system.

**Achievement Context**

- Working with wired, wireless and fibre-optic telecommunications systems, standards and specifications, plans, regulations in effect and occupational health and safety rules
- Using test equipment, measuring instruments, service manuals and troubleshooting and maintenance methods

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards and specifications
  - plans
  - regulations
  - preventive maintenance schedule
- Accurate identification of:
  - equipment characteristics
  - components to check
- Clarity of communications with their supervisor and the client

2. Plan the maintenance.

- Accurate identification of the subassemblies, parts and components to check
- Appropriate selection of the hardware and equipment needed
- Appropriate selection of equipment to be gauged by the manufacturer or calibrated by the worker
- Accurate assessment of completion time

3. Apply a troubleshooting method.

- Observance of the troubleshooting and maintenance method
- Appropriate visual inspection
- Appropriate selection and use of measuring instruments
- Appropriate selection of test points
- Accuracy of measurements, considering the effects of the instruments
- Accurate recording of results
- Accurate interpretation of:
  - data
  - deviations from specifications
- Accurate identification of the origin of the problem

Code: 0424

4. Take the necessary corrective actions.
  - Appropriate selection of corrective actions
  - Appropriate repair or replacement of the defective device or component
  - Observance of the recalibration procedure
5. Check the system's operation.
  - Observance of the restart procedure
  - Accurate check of the system's operating parameters
  - Accurate interpretation of results
  - Thorough check of client's level of satisfaction
6. Write a maintenance report.
  - Observance of report writing standards
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To service a computer network system.

**Achievement Context**

- With hardware and software from a networked workstation and wired or wireless data transmission equipment, standards and specifications, plans, regulations in effect and occupational health and safety rules
- Using test equipment, measuring instruments, service manuals and troubleshooting and maintenance methods

**Elements of the Competency****Performance Criteria**

1. Gather the necessary information.

- Accurate interpretation of:
  - standards and specifications
  - plans
  - regulations
  - preventive maintenance schedule
- Accurate identification of:
  - characteristics of the workstation equipment
  - networking equipment
  - components to check
- Clarity of communications with their supervisor and the client

2. Plan the maintenance.

- Accurate identification of the subassemblies, parts and components to check
- Appropriate selection of the hardware and equipment needed
- Appropriate selection of equipment to be gauged by the manufacturer or calibrated
- Accurate assessment of completion time

3. Apply a troubleshooting method.
  - Observance of troubleshooting and maintenance methods
  - Appropriate visual inspection
  - Appropriate selection and use of measuring instruments
  - Appropriate selection of test points
  - Accuracy of measurements, considering the effects of the instruments
  - Recording of results
  - Accurate interpretation of:
    - data
    - deviations from specifications
  - Accurate identification of the origin of the problem
4. Take the necessary corrective actions.
  - Appropriate selection of corrective actions
  - Appropriate repair or replacement of the defective device or component
  - Observance of calibration procedures
5. Check the system's operation.
  - Observance of the restart procedure
  - Accurate check of the system's operating parameters
  - Accurate interpretation of results
  - Thorough check of client's level of satisfaction
6. Write a maintenance report.
  - Observance of report writing standards
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To modify a telecommunications system.

**Achievement Context**

- With information on the limits of the operation, system standards and specifications, suppliers' information and occupational health and safety rules
- Using appropriate technical documentation, measuring instruments, test procedures, system simulation lab equipment and prototypes

**Elements of the Competency****Performance Criteria**

1. Plan the modification.

- Accurate interpretation of:
  - system standards and specifications
  - limits of the operation
- Clarity of communications with their supervisor and the client
- Check of the effects of modifications on:
  - service
  - the existing system
  - physical and technical compatibility
  - system modes of operation
  - other systems
- Validation of the modification's relevance and feasibility
- Careful planning of the steps of the operation and their completion time

2. Perform simulations.

- Specific search of relevant information from equipment suppliers
- Appropriate selection of simulation type:
  - using a prototype
  - using lab equipment
- Accurate interpretation of results

3. Conduct compliance testing.

- Rigorous application of test procedures
- Appropriate use of measuring instruments and test equipment
- Accuracy of measurements
- Accurate determination of compliance or non-compliance
- Recording of results and decisions

Code: 0426

4. Implement the modifications.
  - Proper installation of modified equipment
  - Operational check of modified system
  - Proper application of a troubleshooting method
  - Compliance with standards and specifications
  - Recording of results
5. Transmit the information.
  - Relevance of suggested modifications to plans and diagrams
  - Appropriate selection of transmission method and information recipients
  - Relevance of information transmitted
  - Thorough check of client's level of satisfaction

**Objective****Standard****Statement of the Competency**

To provide technical assistance and support.

**Achievement Context**

- Following standards, procedure books and detailed plans and specifications
- Using appropriate technical documentation, telecommunications equipment, test and simulation equipment, a computer system, drawing software and materials needed for information transmission

**Elements of the Competency****Performance Criteria**

1. Identify needs.

- Observance of rules and standards in use at the company
- Accurate interpretation of:
  - plans and specifications
  - the request for assistance
- Consultation of appropriate resources
- Clarity of communications with supervisor and client
- Validation of needs

2. Gather information.

- Accurate determination of the information to be gathered
- Appropriate selection and use of research tools
- Identification of information relevant to the needs expressed
- Methodical consultation of technical documentation
- Proper sorting and organization of information

3. Provide technical support for the design process.

- Appropriate identification of parameters and specifications
- Precision of assembly and integration operations
- Appropriate selection and performance of tests and simulations
- Thorough analysis of results
- Relevance of adjustments and modifications in accordance with results
- Appropriate documentation of activities performed

Code: 0427

4. Produce technical documentation.
  - Use of appropriate terminology
  - Accuracy and clarity of information in the documentation
  - Clarity and precision of drawings and diagrams
  - Observance of writing standards
5. Transmit technical information.
  - Appropriate preparation of the communication or demonstration
  - Appropriate explanation of data in everyday terms
  - Clarity of the data transmission
  - Check of the effectiveness of the communication or demonstration

## ***Computers and Networks Specialization***



# Definition of Computers and Networks Specialization

The goal of the *Electrotechnology* program's Computers and networks specialization is to train technologists specialized in electronic computer hardware.

The principal tasks performed by computer and network technologists regarding electronics are the following: the installation, servicing, maintenance, repair and modification of electronic and computer equipment.

Regarding computers: the installation of hardware and software, servicing, maintenance, repair and customer service.

Regarding networks: the installation, servicing, maintenance and functional activity of networks and their facilities.

More specifically, computer and network technologists may perform some or all of the following tasks:

- install, maintain, repair and recondition hardware
- install, maintain and repair a computer network
- put together or assemble components or equipment
- help design or modify equipment
- install and configure operating systems and software programs
- inspect and test electronic hardware, components and assemblies using multimeters, circuit testers, oscilloscopes, logic probes and other devices, tools and electronic measuring equipment
- troubleshoot breakdowns and identify the defective circuit, component or equipment
- adjust, align, replace or repair electronic hardware, assemblies or components using manuals, schematic diagrams and hand or power tools
- perform quality control
- advise clients and offer training in equipment operations
- train and supervise other technicians, as needed
- analyze problems related to computer science and networking
- follow up on data

In the practice of their occupation, computer and network technologists must write technical documents and reports. They are also asked to manage their inventory and update their skills and knowledge.

These computer and network specialists can work for businesses providing computer services, institutions, public organizations or industries.



# Grid of Competencies

The grid of competencies provides an overview of a technical program. It brings together all of the components of a program and shows the relationship among the competencies.

The grid of competencies includes:

- the general competencies of the program-specific component, which deal with work-related activities common to various tasks or situations
- the specific competencies, which deal with tasks directly related to the practice of the trade or occupation

The grid of competencies 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 general and a specific competency.

The order in which the competencies are presented reflects the program's design; it does not dictate the course sequence. The grid of competencies is provided for information purposes only.

| Grid of Competencies                                                                                         |                   |                                                                        |                                                         |                                           |                                           |                                  |                                 |                                  |                                       |                                       |                                |
|--------------------------------------------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------|-------------------------------------------|----------------------------------|---------------------------------|----------------------------------|---------------------------------------|---------------------------------------|--------------------------------|
| <b>ELECTROTECHNOLOGY -<br/>COMPUTERS AND NETWORKS<br/>SPECIALIZATION</b><br><br><b>SPECIFIC COMPETENCIES</b> | Competency Number | GENERAL COMPETENCIES                                                   |                                                         |                                           |                                           |                                  |                                 |                                  |                                       |                                       |                                |
|                                                                                                              |                   | To process information about working in the field of electrotechnology | To implement mathematical models related to electronics | To diagnose an analog electronics problem | To diagnose a digital electronics problem | To process technical information | To communicate in the workplace | To replace electronic components | To draw electronic schematic diagrams | To diagnose a network-related problem | To install an operating system |
| Competency Number                                                                                            |                   | 1                                                                      | 2                                                       | 3                                         | 4                                         | 5                                | 6                               | 7                                | 8                                     | 9                                     | 21                             |
| To install a piece of computer hardware                                                                      | 22                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           |                                  |                                       | <input type="radio"/>                 | <input type="radio"/>          |
| To service a piece of computer hardware                                                                      | 23                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            |                                       | <input type="radio"/>                 | <input type="radio"/>          |
| To modify a piece of computer hardware                                                                       | 24                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 |                                       |                                |
| To set up a local network                                                                                    | 25                | <input type="radio"/>                                                  |                                                         | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           |                                  |                                       | <input type="radio"/>                 | <input type="radio"/>          |
| To service a local network                                                                                   | 26                | <input type="radio"/>                                                  |                                                         | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           |                                  |                                       | <input type="radio"/>                 | <input type="radio"/>          |
| To plan the set-up of a local network                                                                        | 27                | <input type="radio"/>                                                  |                                                         | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           |                                  |                                       | <input type="radio"/>                 | <input type="radio"/>          |
| To provide technical assistance                                                                              | 28                | <input type="radio"/>                                                  | <input type="radio"/>                                   | <input type="radio"/>                     | <input type="radio"/>                     | <input type="radio"/>            | <input type="radio"/>           | <input type="radio"/>            | <input type="radio"/>                 | <input type="radio"/>                 | <input type="radio"/>          |

Code: 041Q

| <b>Objective</b>                                                                                                  | <b>Standard</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Statement of the Competency</b><br><br>To process information about working in the field of electrotechnology. | <b>Achievement Context</b><br><br><ul style="list-style-type: none"> <li>• Using recent documentation and laws and regulations in effect</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Elements of the Competency</b>                                                                                 | <b>Performance Criteria</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1. Gather information on workplaces and the occupation.                                                           | <ul style="list-style-type: none"> <li>• Selection of appropriate information sources</li> <li>• Reliability and diversity of the information gathered</li> <li>• Appropriate use of search tools</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| 2. Analyze the information on workplaces.                                                                         | <ul style="list-style-type: none"> <li>• Accurate identification of the types of businesses and establishments</li> <li>• Identification of occupations practised in the workplace</li> <li>• Identification of professional associations and unions active in the workplace</li> <li>• Accurate interpretation of the importance and characteristics of technological development</li> <li>• Accurate identification of the types of work organization</li> <li>• Accurate identification of the characteristics of products and services offered by businesses and establishments</li> </ul> |
| 3. Analyze the information on the occupation.                                                                     | <ul style="list-style-type: none"> <li>• Accurate identification of job specializations</li> <li>• Detailed examination of the tasks and responsibilities of the occupation</li> <li>• Identification of hazards to occupational health and safety</li> <li>• Accurate identification of the knowledge and skills required to practise the occupation</li> <li>• Accurate interpretation of the standards and conventions governing professional ethics</li> <li>• Accurate identification of the limits of the occupation</li> </ul>                                                          |
| 4. Summarize the information.                                                                                     | <ul style="list-style-type: none"> <li>• Proper sorting of information</li> <li>• Accurate summary of the information</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |



**Objective****Standard****Statement of the Competency**

To implement mathematical models related to electronics.

**Achievement Context**

- For work activities associated with taking measurements, diagnosing electronic problems, making modifications, conducting tests and setting parameters
- Using reference documents, data sheets, tables and diagrams
- Using measuring instruments and a calculator

**Elements of the Competency****Performance Criteria**

1. Become familiar with the situation requiring the implementation of a model.

- Accurate interpretation of the:
  - situation
  - goals to achieve
  - documentation

2. Select the model.

- Accurate interpretation of mathematical concepts
- Accurate interpretation of symbols, terminology and conventions
- Clear determination of the links among the model components
- Appropriate selection of model considering the:
  - situation
  - goals to achieve
  - application conditions

3. Apply the model to the situation.

- Appropriate use of mathematical formulas
- Appropriate use of:
  - scientific notation
  - units of measurement
- Appropriate use of problem-solving methods
- Accuracy of calculations
- Proper recording of results

4. Assess the results.

- Methodical check of application results
- Review of plausibility
- Accuracy of corrections made

5. Present the results.

- Clear, careful presentation of the:
  - method used
  - results



**Objective****Standard****Statement of the Competency**

To diagnose an analog electronics problem.

**Achievement Context**

- Working with various analog circuits, analog circuit diagrams and equipment with an analog defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037E

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To diagnose a digital electronics problem.

**Achievement Context**

- Working with various digital circuits, storage devices and data acquisition systems, digital circuit diagrams and equipment with a digital defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037F

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To process technical information.

**Achievement Context**

- Processing information related to current and new technologies
- Following standards, data sheets, specifications, diagrams and manufacturers' recommendations
- Using appropriate French and English technical documentation, a networked computer and appropriate software

**Elements of the Competency****Performance Criteria**

1. Gather technical information.

- Accurate determination of the information sought
- Appropriate use of the computer, software and search tools
- Reliability and variety of information sources
- Clarity of communications when consulting resource people
- Relevance and completeness of information gathered

2. Organize the information.

- Accurate interpretation of the information gathered
- Proper sorting of information
- Accurate comparison of data
- Careful, coherent organization of data

3. Record the information.

- Observance of spelling and grammar rules
- Observance of writing standards
- Appropriate use of software programs

4. Present the information.

- Suitable preparation of the presentation
- Appropriate selection of software programs
- Appropriate use of software programs
- Clear and organized presentation of the information
- Consideration of the reader's interest level



**Objective****Standard****Statement of the Competency**

To communicate in the workplace.

**Achievement Context**

- Acting in various situations where an individual must provide explanations, advise clients, train users, negotiate with suppliers, converse and discuss (meetings and teamwork)
- Using specific methods

**Elements of the Competency****Performance Criteria**

1. Ensure that the environment is conducive to communication.

- Proper identification of any obstacles to communication
- Determination of methods for overcoming the chief obstacles to communication

2. Receive information.

- Accurate interpretation of verbal and nonverbal messages
- Active listening skills
- Proper application of reflecting and restating techniques
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - attention
  - respect for others

3. Transmit information.

- Clear expression of ideas
- Appropriate selection and use of communication methods
- Use of appropriate French and English terminology
- Appropriate explanation of technical information in everyday terms
- Check of the other person's understanding
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - courtesy
  - diplomacy
  - positive outlook
  - respect for others

4. Assess the quality of their communications.

- Critical analysis of their strengths and weaknesses
- Identification of methods for improving their communication skills



**Objective****Standard****Statement of the Competency**

To replace electronic components.

**Achievement Context**

- Following standards and manufacturers' recommendations
- Using appropriate French and English technical documentation, replacement circuits and components, equipment used for replacing components in various media, antistatic equipment and measuring instruments

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Clarity of communication
- Accurate interpretation of:
  - French and English terminology
  - safety and protective measures
  - standards
  - diagrams and assembly drawings
  - manufacturer's recommendations

2. Plan the work.

- Accurate determination of techniques to use in accordance with the request
- Accurate identification of components to be replaced
- Appropriate selection of:
  - equipment and accessories
  - replacement components
  - products to be used
- Accurate determination of operations to perform
- Meticulous preparation of equipment and measuring instruments

3. Remove the components.

- Appropriate use of equipment
- Correct observance of disassembly techniques and methods
- Careful cleaning of component location

4. Install the components.

- Appropriate use of measuring instruments and equipment
- Correct observance of assembly techniques and methods
- Careful cleaning of component location

Code: 041T

5. Check the work.
  - Careful inspection of the quality of the installation
  - Relevance of tests performed
  - Systematic detection of anomalies
  - Accuracy of corrective measures
6. Record the information.
  - Accuracy of information regarding the work done
  - Relevance and clarity of explanatory notes

**Objective****Standard****Statement of the Competency**

To draw electronic schematic diagrams.

**Achievement Context**

- Following standards and manufacturers' recommendations
- Using appropriate French and English technical documentation, catalogues and parts libraries, a networked computer and drafting software

**Elements of the Competency****Performance Criteria**

1. Gather the information.

- Accurate interpretation of request
- Appropriate use of:
  - technical documentation
  - catalogues and parts libraries
  - dimensional measuring instruments
- Proper sorting of information

2. Produce a rough sketch.

- Appropriate layout
- Correct observance of drawing conventions and symbols
- Appropriate selection of presentation methods
- Clarity and accuracy of the presentation
- Appropriate use of drafting software

3. Produce final drawings.

- Relevance of the layout
- Clarity and accuracy of the rendering
- Cleanliness of schematic diagrams
- Appropriate use of drafting software

4. Transmit the information.

- Careful presentation of schematic diagrams
- Relevance and clarity of explanatory notes
- Detailed report of information related to schematic diagrams



**Objective****Standard****Statement of the Competency**

To diagnose a network-related problem.

**Achievement Context**

- For networks using various topologies and technologies
- Following various types of requests
- Using appropriate French and English technical documentation, diagnostic software, a networked computer, operating system utilities and measuring instruments
- In conformity with health and safety rules
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Become familiar with the situation.

- Accurate interpretation of the situation
- Accurate interpretation of the network architecture
- Proper identification of network equipment
- Clarity of communications with the network manager

2. Check the hardware.

- Thorough operational check of network equipment
- Correct configuration of diagnostic devices
- Accurate measurements of signal-related parameters
- Systematic operational check of transmission media and their conformity with standards
- Identification of all anomalies
- Proper recording of results

3. Check the software.

- Thorough operational check of the operating system
- Thorough check of the most recent updates installed
- Proper application of the check method
- Thorough operational check of protocols
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Logical processing of results

Code: 041V

5. Determine the cause or causes of the problem.
  - Accurate interpretation of the problem or problems
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To install an operating system.

**Achievement Context**

- Using appropriate French and English technical documentation, an operating system, a networked computer, diskettes, CD-ROMs, image files and shared resources, data security software and an electronic communications network

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Interpret the request.</li> <li>2. Make sure that the hardware is compatible with the operating system's requirements.</li> <li>3. Back up the data.</li> <li>4. Plan the installation.</li> </ol> | <ul style="list-style-type: none"> <li>• Clarity of communications with the supervisor or client</li> <li>• Accurate interpretation of written information</li> <li>• Accurate interpretation of information and configuration files</li> <li>• Accurate interpretation of the operating system's requirements</li> <li>• Proper check of the internal and external peripherals' compatibility with the operating system's requirements</li> <li>• Proper gathering of information about the operating system:               <ul style="list-style-type: none"> <li>– names</li> <li>– licenses</li> <li>– protocols and parameters</li> <li>– peripherals and parameters</li> </ul> </li> <li>• Proper back-up of all or part of the hard disk</li> <li>• Observance of data confidentiality</li> <li>• Appropriate selection of method for starting the installation:               <ul style="list-style-type: none"> <li>– with or without a diskette</li> <li>– with or without a CD-ROM</li> <li>– within a network or outside a network</li> <li>– with or without an image file</li> </ul> </li> <li>• Appropriate selection of type of file system and number and size of partitions</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Code: 0428

5. Begin installing the operating system.
  - Proper configuration of:
    - the start command
    - the operating system's operating parameters
    - options and services
    - protocols
    - the peripherals' operating parameters
    - the protocols' operating parameters
  - Methodical work
6. Check the installation of the operating system.
  - Proper operational check of peripherals
  - Proper operational check of the network
7. Record the information.
  - Clear account of the installation
  - Accuracy of information

**Objective****Standard****Statement of the Competency**

To install a piece of computer hardware.

**Achievement Context**

- In shop and at a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- Using appropriate French and English technical documentation, floor plans, with a piece of computer hardware, a networked computer and software, cables and measuring instruments and tools
- In conformity with occupational health and safety rules, rules for blocking the effects of static electricity and standards in effect
- Working independently and demonstrating a sense of professional ethics

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Clarity of communications with a supervisor or client
- Accurate interpretation of installation instructions

2. Plan the work.

- Accurate assessment of the environment's resources and limitations
- Accurate determination of the sequence of steps to take
- Accurate assessment of the completion time and cost
- Appropriate selection of measuring instruments and tools
- Proper check of hardware:
  - condition
  - quantities

3. Assemble the hardware.

- Careful handling of the hardware
- Proper installation and wiring of any internal peripherals

Code: 0429

4. Position the hardware and start it up.
  - Proper installation of all cables
  - Proper set-up of all connectors
  - Appropriate placement of hardware
  - Proper configuration of the BIOS, if necessary
  - Proper configuration of peripherals
  - Functional installation of the operating system
  - Proper installation of all drivers
  - Proper operational check of hardware
5. Establish network connections.
  - Proper configuration of network's communication parameters
  - Proper operational check of the user account
  - Accurate diagnosis of network problems
6. Install application software.
  - Observance of software installation procedures
7. Ensure the security of the hardware.
  - Set-up of effective security measures, considering the type of installation
8. Provide follow-up.
  - Clear transmission of information concerning:
    - inventory
    - the work done
    - any problems detected
  - Thorough, accurate activity report
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To service a piece of computer hardware.

**Achievement Context**

- In shop and at a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- Using appropriate French and English technical documentation, spare parts and equipment, a networked computer, diagnostic and test software, cables, measuring instruments and tools and cleaning products
- In conformity with occupational health and safety rules, rules for blocking the effects of static electricity and standards in effect
- Working independently and demonstrating a sense of professional ethics

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Accurate interpretation of needs or problem:
  - relevance of questions
  - active listening skills
- Accurate interpretation of information concerning measures to protect and safeguard the hardware

2. Plan the work.

- Accurate determination of the sequence of steps to take
- Accurate assessment of the completion time and cost
- Appropriate selection of:
  - measuring instruments and tools
  - diagnostic software
  - replacement components
  - cables
  - products to use
- Proper check of hardware:
  - condition
  - quantities

3. Back up the data.

- Proper decision with regard to data security
- Observance of methods for ensuring data security
- Proper archiving of data
- Observance of data confidentiality

4. Service the hardware.
  - Accurate interpretation of material safety data sheets
  - Appropriate use of tools
  - Complete uninstallation of security system
  - Observance of hardware maintenance procedures
  - Methodical cleaning of hardware
  - Proper operational check of hardware
5. Repair the hardware.
  - Appropriate use of tools
  - Accurate observation of symptoms
  - Proper application of mathematical models
  - Accurate diagnosis of problem
  - Accurate assessment of the optimal solution, considering the scope and feasibility of the repair
  - Proper replacement or repair of components or hardware
  - Proper operational check of hardware
  - Methodical cleaning of the area
6. Update the hardware and software.
  - Effective product information search
  - Proper removal of components or uninstallation of software
  - Observance of installation procedures for new components or software
  - Proper operational check of hardware
  - Methodical cleaning of hardware
7. Communicate with the client.
  - Clear explanations of the work done
  - Clear explanations of how to use the hardware or software
8. Provide follow-up.
  - Clear transmission of information concerning:
    - inventory
    - the work done
    - problems detected
    - corrective actions taken
  - Thorough, accurate activity report
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To modify a piece of computer hardware.

**Achievement Context**

- In shop and at a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- Using appropriate French and English technical documentation; working with a piece of computer hardware, a networked computer, diagnostic and drawing software, cables and measuring instruments and tools
- In conformity with occupational health and safety rules, rules for blocking the effects of static electricity and standards in effect
- Working independently and demonstrating a sense of professional ethics

**Elements of the Competency****Performance Criteria**

1 Interpret the request.

- Clarity of communications with their supervisor or with the client
- Accurate interpretation of the request

2. Plan the work.

- Accurate determination of the sequence of steps to take
- Effective search for information on the type of modification

3. Design the modification.

- Rigorous analysis of the modification:
  - accurate interpretation of the plan
  - accurate interpretation of the circuit's operation
  - accuracy of measurements
  - accurate interpretation of results
- Consideration of constraints imposed by the material and financial feasibility
- Observance of drawing standards when drafting plans
- Clear presentation of results

4. Assemble the prototype.

- Appropriate use of tools and instruments
- Accurate assembly of circuit
- Precise modification of the mechanics, if necessary
- Methodical cleaning of the work area

Code: 042B

5. Write a test program.
  - Appropriate use of software used to develop a test program
  - Relevance of solution presented in the form of an algorithm, flowchart or pseudo-code
  - Proper translation of the solution into programming language
6. Conduct tests.
  - Appropriate use of hardware
  - Proper operational check of the prototype
  - Proper correction of test program and plans, if necessary
7. Write technical documentation.
  - Clarity and accuracy of information
  - Use of appropriate terminology
  - Observance of technical writing standards

**Objective****Standard****Statement of the Competency**

To set up a local network.

**Achievement Context**

- In shop and at a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- Using appropriate French and English technical documentation, layout plans, network plans, building plans, manufacturer's recommendations, diagnostic and surveillance software and measuring instruments and tools
- With wired and wireless network hardware
- With various network topologies and technologies
- In conformity with occupational health and safety rules and standards in effect
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Clarity of communications with resource people
- Accurate interpretation of:
  - layout plans
  - network plans
  - building plans
- Completeness of information gathered

2. Plan the work.

- Accurate determination of the sequence of steps to take
- Accurate assessment of the completion time and cost
- Appropriate selection of:
  - measuring instruments and tools
  - network hardware
  - software

3. Position the network hardware.

- Correct observance of hardware installation procedures
- Proper installation of network cabling:
  - copper wire
  - wireless
  - fibre optic

Code: 042C

4. Activate the network.
  - Appropriate configuration of applications
  - Proper installation of network management software
  - Proper operational check of the wide area network (WAN)
5. Modify the network documentation and plans.
  - Clarity and precision
  - Accuracy of information
6. Check the network's operation.
  - Proper operational check of the network with regard to:
    - communications
    - hardware
    - software
7. Provide follow-up.
  - Clear transmission of information concerning:
    - inventory
    - the work done
    - problems detected
  - Thorough, accurate activity report
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To service a local network.

**Achievement Context**

- In shop and at a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- Using appropriate French and English technical documentation, layout plans, network plans, building plans, manufacturer's recommendations, diagnostic and surveillance software and measuring instruments and tools
- With spare components and circuits and replacement hardware
- With various network topologies, technologies and applications
- In conformity with occupational health and safety rules and standards in effect
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Accurate interpretation of needs or problem:
  - relevance of questions
  - active listening skills

2. Plan the work.

- Accurate perception of the effects of a network shutdown
- Accurate determination of the sequence of steps to take
- Accurate assessment of the completion time and cost
- Appropriate selection of:
  - tools
  - measuring instruments
  - diagnostic software
  - surveillance software and devices
  - replacement hardware
  - products to use
  - cables

3. Back up the data.

- Proper decision with regard to data security
- Proper back-up of hardware and software configuration parameters
- Observance of data confidentiality

Code: 042D

4. Solve network-related problems.
  - Gathering of all network status information
  - Appropriate use of surveillance and diagnostic software
  - Rigorous analysis of the information gathered
  - Accurate determination of the cause or causes of the problem
  - Proposal of a realistic solution
  - Appropriate corrective actions for hardware and software
  - Proper operational check of the network
5. Update software.
  - Effective search of software information
  - Observance of software installation procedures
  - Proper operational check of new software
6. Replace hardware.
  - Appropriate use of tools
  - Proper removal of hardware
  - Observance of installation procedures for new hardware
  - Proper installation of cabling
  - Proper operational check of hardware
7. Communicate with the client.
  - Clear explanations of work done
  - Clear explanations of how to use the hardware or software
8. Provide follow-up.
  - Clear transmission of information concerning:
    - inventory
    - the work done
    - problems found
    - corrective actions taken
  - Thorough, accurate activity report
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To plan the set-up of a local network.

**Achievement Context**

- At a client's place of business, internally and externally
- Following instructions from a supervisor or at the request of a client
- To expand an existing network or set up a new local area network
- Using appropriate French and English technical documentation
- In conformity with standards in effect
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Accurate interpretation of client's needs with regard to:
  - the scope of the network
  - the number of users
  - the services desired
  - anticipated traffic
  - security required
  - future needs
- Proper identification of constraints and available resources

2. Gather information.

- Accuracy of information gathered with regard to current and new technologies
- In-depth study of layout plans and building plans
- Accurate identification of potential sources of interference
- Accurate description of location
- Relevance of consultations with external resource people

Code: 042E

3. Analyze the situation.
  - Accurate identification of:
    - network hardware
    - operating systems and software
    - transmission media
    - protocols
    - desired performance level
  - Accurate assessment of completion time
  - Accurate estimate of human, material and financial resources needed for:
    - set-up
    - training
    - maintenance
  - Appropriate diagramming of interconnection plan
4. Suggest one or more scenarios.
  - Clear presentation of each scenario's advantages and disadvantages, considering the client's needs, budget and schedule
5. Write documentation.
  - Accurate production of network plans
  - Accurate, precise specifications
  - Clarity and relevance of information
  - Quality of writing

**Objective****Standard****Statement of the Competency**

To provide technical assistance.

**Achievement Context**

- For a client, either in-house or outside, or for a colleague
- Following a request
- Using appropriate French and English technical documentation, computer and network hardware, troubleshooting software and writing tools

**Elements of the Competency****Performance Criteria**

1. Advise clients.

- Active listening skills
- Accurate interpretation of needs
- Proper advice regarding the selection and use of hardware and software
- Proper explanation of concepts in everyday terms
- Patience, courtesy and diplomacy

2. Train users.

- Proper preparation of training
- Accurate assessment of duration of training
- Clear demonstration of how hardware and software operate
- Clarity of explanations
- Appropriate use of terminology
- Check to ensure other people have understood
- Patience, courtesy and diplomacy

3. Provide technical support by telephone.

- Accurate interpretation of problems
- Rigorous analysis of problems
- Realistic solutions
- Proper application of solutions
- Clarity of communications
- Observance of telephone protocol
- Appropriate stress management
- Appropriate consultation of resource people

Code: 042F

## 4. Write technical documents.

- Effective information search
- Rigorous analysis of information
- Observance of technical writing standards
- Accuracy of information
- Observance of spelling, grammar and punctuation rules
- Use of appropriate terminology
- Relevance and coherence of ideas
- Consideration of readers' interest level
- Clear, careful presentation of information

## ***Audiovisual* Specialization**



# Definition of *Audiovisual* Specialization

Audiovisual technologists specialize in audiovisual production and the installation and maintenance of audiovisual equipment. However, their training does not prepare them to create television productions.

Their duties, tasks and working conditions do not exist in a uniform context. Instead, they represent a multi-faceted reality. The work environments of shows and events, institutions, radio and television stations and film and video studios are very diverse and the people who work in them, whether salaried employees or freelance workers, have very distinctive profiles.

The work environment of shows and events is characterized by constant change: the types of shows, work locations and schedules are varied and technologists must often tour Québec, Canada and other countries. In this context, people have to react quickly to unforeseen events and find ways to solve various technical problems just before a show or even during it, since replacement parts for broken equipment are not always available. Workers must also pay particular attention to observing occupational health and safety rules. Self-sufficiency, good stress management and the ability to work in a team are essential qualities. These specialists must communicate with managers, directors and colleagues, as well as with performers. Audiovisual technologists perform the duties of lighting engineers, sound technicians, and service technicians as well as many tasks that help make a show or event a success: installing, operating and dismantling equipment such as projectors, video recorders, cameras, etc.

Technologists who work in museums or for the audiovisual department of schools, research centres, hospitals and other types of institutions have an entirely different work environment. Generally speaking, these people enjoy stable working conditions. They are considered generalists who help develop projects; they participate in designing projects, provide advice on technical feasibility, plan the work, make purchases, install equipment, realize projects by taking care of the lighting, sound recording, filming, editing, etc. and maintain the audiovisual equipment. As part of their job, they must provide technical support to teachers, researchers, etc. Qualities such as patience and initiative are necessary for these people, who must often work alone.

Audiovisual technologists can also practise their occupation at radio stations. In this case, they are called operations and production technicians and service technicians. When working in production, they are generally alone, and because most radio shows are broadcast live, there is little leeway for making mistakes.

At television stations and television production companies, audiovisual technologists may work for the maintenance department or, depending on the station and the types of production, perform activities related to the installation, operation and dismantling of equipment, including solving various technical problems.

Regardless of the work environment, all these specialists require a background in electricity so they can, if need be, ensure that the electricity works and make connections, as well as a background in electronics and computer science so they can activate control systems and networks, and repair or troubleshoot hardware. They must establish professional relationships, adapt to technological changes, show imagination and demonstrate a sense of responsibility, critical thinking and creativity.



# Grid of Competencies

The grid of competencies provides an overview of a technical program. It brings together all of the components of a program and shows the relationship among the competencies.

The grid of competencies includes:

- the general competencies of the program-specific component, which deal with work-related activities common to various tasks or situations
- the specific competencies, which deal with tasks directly related to the practice of the trade or occupation

The grid of competencies 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 general and a specific competency.

The order in which the competencies are presented reflects the program's design; it does not dictate the course sequence. The grid of competencies is provided for information purposes only.

## GRID OF COMPETENCIES

| SPECIFIC COMPETENCIES                                                   | Competency Number | GENERAL COMPETENCIES                                                   |                                                         |                                           |                                           |                                  |                                 |                                                                            |                                                |                                               |                                    |                                         |
|-------------------------------------------------------------------------|-------------------|------------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------|-------------------------------------------|----------------------------------|---------------------------------|----------------------------------------------------------------------------|------------------------------------------------|-----------------------------------------------|------------------------------------|-----------------------------------------|
|                                                                         |                   | To process information about working in the field of electrotechnology | To implement mathematical models related to electronics | To diagnose an analog electronics problem | To diagnose a digital electronics problem | To process technical information | To communicate in the workplace | To practise health and safety techniques related to audiovisual technology | To ensure the distribution of electrical power | To interconnect audiovisual system components | To activate an audiovisual network | To activate audiovisual control systems |
| Competency Number                                                       |                   | 1                                                                      | 2                                                       | 3                                         | 4                                         | 5                                | 6                               | 29                                                                         | 30                                             | 31                                            | 34                                 | 35                                      |
| To provide lighting                                                     | 32                | ○                                                                      | ○                                                       |                                           |                                           | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             |                                    |                                         |
| To fit a hall or stage with a public address (PA) system                | 33                | ○                                                                      | ○                                                       | ○                                         |                                           | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             |                                    |                                         |
| To present audiovisual documents                                        | 36                | ○                                                                      |                                                         | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  | ○                                       |
| To make sound recordings                                                | 37                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  |                                         |
| To produce video recordings                                             | 38                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  | ○                                       |
| To edit audio or video documents                                        | 39                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          |                                                | ○                                             | ○                                  | ○                                       |
| To perform activities related to the broadcast of audiovisual documents | 40                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          |                                                | ○                                             | ○                                  | ○                                       |
| To service audiovisual equipment                                        | 41                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  | ○                                       |
| To modify audiovisual systems                                           | 42                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          |                                                | ○                                             | ○                                  | ○                                       |
| To provide technical support for a production                           | 43                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  | ○                                       |
| To provide technical direction for an audiovisual project               | 44                | ○                                                                      | ○                                                       | ○                                         | ○                                         | ○                                | ○                               | ○                                                                          | ○                                              | ○                                             | ○                                  | ○                                       |

Code: 041Q

**Objective****Standard****Statement of the Competency**

To process information about working in the field of electrotechnology.

**Achievement Context**

- Using recent documentation and laws and regulations in effect

**Elements of the Competency****Performance Criteria**

1. Gather information on workplaces and the occupation.

- Selection of appropriate information sources
- Reliability and diversity of the information gathered
- Appropriate use of search tools

2. Analyze the information on workplaces.

- Accurate identification of the types of businesses and establishments
- Identification of occupations practised in the workplace
- Identification of professional associations and unions active in the workplace
- Accurate interpretation of the importance and characteristics of technological development
- Accurate identification of the types of work organization
- Accurate identification of the characteristics of products and services offered by businesses and establishments

3. Analyze the information on the occupation.

- Accurate identification of job specializations
- Detailed examination of the tasks and responsibilities of the occupation
- Identification of hazards to occupational health and safety
- Accurate identification of the knowledge and skills required to practise the occupation
- Accurate interpretation of the standards and conventions governing professional ethics
- Accurate identification of the limits of the occupation

4. Summarize the information.

- Proper sorting of information
- Accurate summary of the information



**Objective****Standard****Statement of the Competency**

To implement mathematical models related to electronics.

**Achievement Context**

- For work activities associated with taking measurements, diagnosing electronic problems, making modifications, conducting tests and setting parameters
- Using reference documents, data sheets, tables and diagrams
- Using measuring instruments and a calculator

**Elements of the Competency****Performance Criteria**

1. Become familiar with the situation requiring the implementation of a model.

- Accurate interpretation of the:
  - situation
  - goals to achieve
  - documentation

2. Select the model.

- Accurate interpretation of mathematical concepts
- Accurate interpretation of symbols, terminology and conventions
- Clear determination of the links among the model components
- Appropriate selection of model considering the:
  - situation
  - goals to achieve
  - application conditions

3. Apply the model to the situation.

- Appropriate use of mathematical formulas
- Appropriate use of:
  - scientific notation
  - units of measurement
- Appropriate use of problem-solving methods
- Accuracy of calculations
- Proper recording of results

4. Assess the results.

- Methodical check of application results
- Review of plausibility
- Accuracy of corrections made

5. Present the results.

- Clear, careful presentation of the:
  - method used
  - results



**Objective****Standard****Statement of the Competency**

To diagnose an analog electronics problem.

**Achievement Context**

- Working with various analog circuits, analog circuit diagrams and equipment with an analog defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037E

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To diagnose a digital electronics problem.

**Achievement Context**

- Working with various digital circuits, storage devices and data acquisition systems, digital circuit diagrams and equipment with a digital defect
- Following procedures
- Using appropriate French and English technical documentation, measuring instruments and tools, antistatic equipment, a networked computer, diagnostic tools and simulation software
- In conformity with occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Become familiar with the problem and specifications.

- Accurate interpretation of the problem to be diagnosed
- Accurate interpretation of the:
  - circuits and their schematic diagrams
  - standards
  - check methods

2. Identify anomalies.

- Systematic check of components' conformity with schematic diagrams
- Visual inspection of all components
- Proper recording of inspection results

3. Take measurements.

- Appropriate selection and use of measuring instruments
- Correct observance of the procedure
- Accuracy of measurements, considering the effects of the instruments
- Proper recording of results

4. Analyze the results.

- Accurate interpretation of check results
- Accurate determination of calculations to be made in accordance with:
  - applicable laws, concepts and theorems
  - circuits
- Accuracy of calculations
- Logical processing of results

Code: 037F

5. Determine the cause or causes of the problem.
  - Accurate interpretation of deviations observed
  - Correct observance of diagnostic steps
  - Relevance of hypotheses
  - Accuracy of diagnosis
6. Write a report.
  - Clarity and accuracy of information
  - Use of appropriate terminology

**Objective****Standard****Statement of the Competency**

To process technical information.

**Achievement Context**

- Processing information related to current and new technologies
- Following standards, data sheets, specifications, diagrams and manufacturers' recommendations
- Using appropriate French and English technical documentation, a networked computer and appropriate software

**Elements of the Competency****Performance Criteria**

1. Gather technical information.

- Accurate determination of the information sought
- Appropriate use of the computer, software and search tools
- Reliability and variety of information sources
- Clarity of communications when consulting resource people
- Relevance and completeness of information gathered

2. Organize the information.

- Accurate interpretation of the information gathered
- Proper sorting of information
- Accurate comparison of data
- Careful, coherent organization of data

3. Record the information.

- Observance of spelling and grammar rules
- Observance of writing standards
- Appropriate use of software programs

4. Present the information.

- Suitable preparation of the presentation
- Appropriate selection of software programs
- Appropriate use of software programs
- Clear and organized presentation of the information
- Consideration of the reader's interest level



**Objective****Standard****Statement of the Competency**

To communicate in the workplace.

**Achievement Context**

- Acting in various situations where an individual must provide explanations, advise clients, train users, negotiate with suppliers, converse and discuss (meetings and teamwork)
- Using specific methods

**Elements of the Competency****Performance Criteria**

1. Ensure that the environment is conducive to communication.

- Proper identification of any obstacles to communication
- Determination of methods for overcoming the chief obstacles to communication

2. Receive information.

- Accurate interpretation of verbal and nonverbal messages
- Active listening skills
- Proper application of reflecting and restating techniques
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - attention
  - respect for others

3. Transmit information.

- Clear expression of ideas
- Appropriate selection and use of communication methods
- Use of appropriate French and English terminology
- Appropriate explanation of technical information in everyday terms
- Check of the other person's understanding
- Demonstration of appropriate attitudes:
  - empathy
  - patience
  - courtesy
  - diplomacy
  - positive outlook
  - respect for others

4. Assess the quality of their communications.

- Critical analysis of their strengths and weaknesses
- Identification of methods for improving their communication skills



**Objective****Standard****Statement of the Competency**

To practise health and safety techniques related to audiovisual technology.

**Achievement Context**

- Using safety equipment, the Act respecting occupational health and safety and the Workplace Hazardous Materials Information System (WHMIS)
- Demonstrating their ability to observe and enforce occupational health and safety rules

**Elements of the Competency****Performance Criteria**

1. Evaluate the risks of an accident.

- Detailed study of the work environment
- Soundness of judgment regarding potentially hazardous situations
- Clear transmission of information regarding potential hazards

2. Select preventive measures.

- Appropriate selection of personal protective equipment
- Accurate determination of safety measures for the type of location and activities

3. Follow safe work practices.

- Safe use of lifting and handling equipment
- Proper application of lifting techniques
- Observance of ergonomic rules
- Clear communication of health and safety instructions

4. React in an emergency.

- Accurate assessment of their abilities and limitations
- Clear, precise communications with the emergency responder
- Proper application of emergency procedures
- Speed of response



**Objective****Standard****Statement of the Competency**

To ensure the distribution of electrical power.

**Achievement Context**

- For temporary installations, inside halls and on outdoor stages
- Using electrical equipment such as junction boxes, cables, connectors, batteries, generators, measuring instruments and tools, ladders, platforms and scaffolding and computers and software
- In conformity with laws and regulations (the Québec Electrical Code), the Building Code and codes of other countries, occupational health and safety rules and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Assess the needs.</li> <li>2. Plan the supply of electrical power.</li> <li>3. Make provision for health and safety measures.</li> <li>4. Implement the plan.</li> <li>5. Put away all electrical equipment.</li> </ol> | <ul style="list-style-type: none"> <li>• Detailed list of electrical hardware required by the request</li> <li>• Consideration of the environment's constraints and resources</li> <li>• Accurate calculation of electrical power needs</li> <li>• Accurate determination of electrical power needs</li> <li>• Clear drawing of distribution plans</li> <li>• Appropriate selection of safety equipment</li> <li>• Proper installation of safety equipment</li> <li>• Safe connection of all electrical equipment</li> <li>• Observance of connection techniques</li> <li>• Thorough visual inspection of the installation</li> <li>• Accuracy of measurements taken</li> <li>• Sequential supply of electrical power</li> <li>• Safe phase balance</li> <li>• Appropriate resolution of technical problems</li> <li>• Safe storage</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**Objective****Standard****Statement of the Competency**

To interconnect audiovisual system components.

**Achievement Context**

- Following instructions
- Using appropriate French and English technical documentation, installation specifications, measuring instruments and tools and a computer
- Working with fibre optic cables, copper wires and accessories
- In conformity with occupational health and safety rules, standards in effect and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

1. Interpret plans, installation specifications and documentation.

- Accurate interpretation of various symbols used on the plans
- Accurate interpretation of the installation's characteristics in terms of the type of equipment and location

2. Plan the work.

- Accurate determination of:
  - the work to be done
  - the time needed
- Appropriate selection of measuring instruments and tools

3. Install the cables.

- Appropriate, safe handling of tools
- Rigorous application of cable installation techniques:
  - precise measurement of required lengths
  - sequential labelling of wires
  - safe route for cables
  - solid attachments
  - cleanliness of joints
  - aesthetic arrangement of cables and wires
- Methodical assembly and soldering of the various connectors

4. Check the installation.

- Conformity of installation with plans and specifications
- Observance of test procedures
- Clear, precise communications with other team members

Code: 042J

5. Put away materials and clean the area.
  - Careful storage of tools
  - Appropriate cleaning of the area
6. Provide follow-up.
  - Clear transmission of information concerning:
    - inventory
    - test results
    - the work done
    - problems detected

**Objective****Standard****Statement of the Competency**

To provide lighting.

**Achievement Context**

- For a small or medium-size production
- For a temporary installation and a permanent installation
- In various settings
- In accordance with various schedules
- Under various weather conditions
- Working alone and in a team
- Following instructions from the technical director or director, a production project and technical specifications
- Using appropriate French and English technical documentation, lighting and supervision equipment and measuring instruments and tools
- In conformity with occupational health and safety rules, standards in effect and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

1. Create a lighting plan.

- Accurate interpretation of the production director's needs
- Accurate determination of:
  - the placement of devices, the control room and wiring
  - anchoring and coupling points
  - the equipment needed, given the budget
- Detailed drawing of lighting plan
- Meticulous drafting of the cue sheet
- Demonstration of artistic capability

2. Prepare and check the equipment.

- Proper operational check of equipment
- Accurate calibration of all lighting equipment and devices
- Proper modification of the equipment selected, given availability and performance tests

Code: 042K

- |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Install the lighting system.     | <ul style="list-style-type: none"> <li>• Safe moving of equipment</li> <li>• Secure hitching of bridges and safety system</li> <li>• Methodical placement and connection of equipment in accordance with plans</li> <li>• Observance of the Québec Electrical Code when connecting equipment</li> <li>• Safe connecting of dimmers</li> <li>• Careful focussing of spotlights</li> <li>• Proper installation of intercom system</li> </ul>                            |
| 4. Power up the lighting system.    | <ul style="list-style-type: none"> <li>• Proper operational check of the lighting system</li> <li>• Proper configuration of lighting consoles</li> <li>• Precise balancing of various spotlights' relative luminosities</li> <li>• Meticulous programming of lighting sequences in accordance with the cue sheet</li> <li>• Precise adjustments of lights in relation to people and accessories</li> <li>• Clear, precise communications with other people</li> </ul> |
| 5. Operate the equipment.           | <ul style="list-style-type: none"> <li>• Appropriate sequencing of light intensities</li> <li>• Proper adaptation of the cue sheet</li> <li>• Optimal equipment operation</li> <li>• Appropriate resolution of technical problems</li> </ul>                                                                                                                                                                                                                          |
| 6. Dismantle the lighting system.   | <ul style="list-style-type: none"> <li>• Safe disconnection of equipment</li> <li>• Observance of sequence for dismantling the equipment</li> <li>• Careful storage of equipment in boxes</li> <li>• Meticulous labelling of defective equipment</li> </ul>                                                                                                                                                                                                           |
| 7. Maintain the lighting equipment. | <ul style="list-style-type: none"> <li>• Appropriate cleaning and adjustment of equipment</li> <li>• Appropriate use of measuring instruments and tools</li> <li>• Accurate detection of potential problems</li> <li>• Accurate determination of maintenance needs</li> </ul>                                                                                                                                                                                         |

**Objective****Standard****Statement of the Competency**

To fit a hall or stage with a public address (PA) system.

**Achievement Context**

- For a small or medium-size production
- For a temporary installation and a permanent installation
- In various settings and in accordance with various schedules
- Under various weather conditions
- Working alone and in a team
- Following instructions from the technical director or director, a production project and technical specifications
- Using appropriate French and English technical documentation, PA and supervision equipment and measuring instruments and tools
- In conformity with occupational health and safety rules, standards in effect and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

1. Create a sound plan.

- Accurate interpretation of the production director's needs
- Accurate determination of:
  - the placement of devices, the control room and wiring
  - scaffolding
  - anchoring and coupling points
  - the equipment needed, given the budget
- Detailed drawing of sound plan
- Meticulous drafting of the cue sheet
- Demonstration of artistic capability

2. Prepare and check the equipment.

- Proper operational check of equipment
- Accurate calibration of all sound equipment and devices
- Proper modification of the equipment selected, given availability and performance tests

Code: 042L

- |                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3. Install the PA system.        | <ul style="list-style-type: none"> <li>• Safe moving of equipment</li> <li>• Secure installation of speakers and safety system</li> <li>• Methodical placement and connection of equipment in accordance with plans</li> <li>• Observance of the Québec Electrical Code when connecting equipment</li> <li>• Proper installation of intercom system</li> </ul>                                                                                                                             |
| 4. Balance the sound.            | <ul style="list-style-type: none"> <li>• Accurate check of the position and direction of the speakers in accordance with the acoustics of the site</li> <li>• Proper operational check of the system for:               <ul style="list-style-type: none"> <li>– providing sound to the hall</li> <li>– monitors and wired and wireless headphones</li> </ul> </li> <li>• Interactive balancing of all sound sources</li> <li>• Clear, precise communications with other people</li> </ul> |
| 5. Operate the equipment.        | <ul style="list-style-type: none"> <li>• Appropriate sequencing of sound recording</li> <li>• Proper adaptation of the cue sheet</li> <li>• Optimal equipment operation</li> <li>• Appropriate resolution of technical problems</li> </ul>                                                                                                                                                                                                                                                 |
| 6. Dismantle the PA system.      | <ul style="list-style-type: none"> <li>• Safe disconnection of equipment</li> <li>• Correct observance of sequence for dismantling the equipment</li> <li>• Proper coiling of cables</li> <li>• Careful storage of equipment in boxes</li> <li>• Meticulous labelling of defective equipment</li> </ul>                                                                                                                                                                                    |
| 7. Maintain the sound equipment. | <ul style="list-style-type: none"> <li>• Appropriate cleaning and adjustment of equipment</li> <li>• Appropriate use of measuring instruments and tools</li> <li>• Accurate detection of potential problems</li> <li>• Accurate determination of maintenance needs</li> </ul>                                                                                                                                                                                                              |

**Objective****Standard****Statement of the Competency**

To activate an audiovisual network.

**Achievement Context**

- For an audiovisual network employing various topologies
- Using appropriate French and English technical documentation, network plans, building plans, layout plans and installation specifications, measuring instruments and tools, software, wiring, network equipment and uninterruptible power supplies (UPS)
- In conformity with occupational health and safety rules and norms and standards in effect
- Working with resource people within the company or outside

**Elements of the Competency****Performance Criteria**

1. Plan the network installation.

- Accurate interpretation of the client's needs
- Accurate determination of:
  - the placement of the equipment and wiring
  - housings and shelves
- Accurate interpretation of installation plans
- Accurate interpretation of flowchart
- Accurate interpretation of access rights and priorities

2. Install the network equipment.

- Proper installation of transmission media:
  - with copper wire
  - wireless
  - with fibre optic cable
- Proper installation of the various signal distribution interfaces
- Correct observance of equipment installation procedures
- Sufficient electrical power supply for the system

3. Configure the server.

- Proper installation of the operating system and specialized software
- Precise operational check
- Check of the attribution of user names and passwords

Code: 042M

4. Check the network's operation.
  - Correct observance of procedures for conducting compliance testing
  - Proper operational check of communications
  - Appropriate resolution of any hardware or software problems
5. Provide follow-up.
  - Clear recording of results
  - Proper transmission of information

**Objective****Standard****Statement of the Competency**

To activate audiovisual control systems.

**Achievement Context**

- Using appropriate French and English technical documentation, installation specifications, measuring instruments and tools, software, computers, transmission media, time-code generators or electronic slates, audiovisual equipment and control systems
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

1. Install and configure parallel or serial control systems.

- Accurate interpretation of connection diagrams
- Proper installation of wiring, jack fields and terminal blocks
- Standardized drawing of wiring diagrams
- Proper installation of software programs
- Appropriate configuration of control systems
- Proper synchronization of machine-to-machine systems
- Proper management of communication protocols
- Proper operational check of control systems

2. Install and configure control systems with multiple interfaces and protocols.

- Accurate interpretation of connection diagrams
- Proper installation of wiring, jack fields and terminal blocks
- Standardized drawing of wiring diagrams
- Proper installation of software programs
- Proper synchronization of sound and image
- Proper configuration of control systems
- Proper use of universal remotes
- Proper operational check of control systems

3. Install and configure transcoders and converters.

- Accurate interpretation of connection diagrams
- Standardized drawing of wiring diagrams
- Proper installation of cables and software
- Proper configuration or programming of transcoders and converters
- Appropriate adaptation of detectors of motion, heat, humidity and other conditions
- Proper operational check of control systems



**Objective****Standard****Statement of the Competency**

To present audiovisual documents.

**Achievement Context**

- For a small or medium-size presentation
- In places like convention centres, hotels, meeting rooms, performance halls, etc.
- In accordance with various schedules
- Working alone and in a team
- Following instructions from a supervisor or client and a cue sheet
- Using appropriate French and English technical documentation, different presentation methods, installation specifications, presentation equipment, a computer and specialized software and measuring instruments and tools
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

1. Plan the work.

- Accurate interpretation of the client's needs
- Proper consultation of the layout plans
- Accurate determination of the equipment needed
- Detailed drawing of the devices installation plan

2. Put together a presentation.

- Thorough gathering of:
  - originals or copies
  - credits, subtitles and logos
  - sound effects
  - special effects
- Appropriate use of:
  - presentation software
  - a control system
- Correct observance of recording methods, given the medium selected

3. Install the equipment.

- Proper modification of the equipment selected, given availability and performance tests
- Correct observance of the device installation plan
- Accurate connecting of devices
- Accurate calibrating of devices
- Proper operational check of devices

Code: 042P

4. Operate the devices.
  - Optimal operation of presentation devices
  - Proper synchronization of events
  - Critical assessment of the presentation's quality
  - Speedy resolution of technical problems
  - Clear, precise communications with the client
5. Dismantle the temporary installation.
  - Correct observance of the sequence for dismantling the equipment
  - Proper storage of equipment
  - Meticulous labelling of devices deemed nonperforming
6. Maintain the presentation equipment.
  - Appropriate cleaning and adjustment of equipment
  - Appropriate use of measuring instruments and tools
  - Accurate detection of potential problems
  - Accurate determination of maintenance needs

Code: 042Q

**Objective****Standard****Statement of the Competency**

To make sound recordings.

**Achievement Context**

- During a production, for a temporary installation and a permanent installation
- In various settings and in accordance with various schedules
- Under various weather conditions
- Working alone and in a team
- Following instructions from the technical director or director and the cue sheet
- Using appropriate French and English technical documentation, wiring diagrams, recording equipment, measuring instruments and tools and a computer and specialized software
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

1. Plan the sound recording.

- Accurate interpretation of the production director's needs
- Proper consultation of layout plans
- Accurate determination of the equipment needed
- Detailed drawing of the equipment installation plan
- Demonstration of artistic capability

2. Prepare and check the equipment.

- Proper operational check of equipment
- Proper modification of the equipment selected, given availability and performance

3. Install the sound recording equipment.

- Correct observance of the installation plan when positioning the sound recording equipment
- Accurate connecting of devices
- Accurate directing of microphone booms
- Proper performance of summary tests

Code: 042Q

- |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Record sound sources.                                       | <ul style="list-style-type: none"> <li>• Proper operation of the mixing console</li> <li>• Proper recording of a reference signal</li> <li>• Accurate synchronization of time code</li> <li>• Appropriate processing of audio signals</li> <li>• Proper recording of the various sound sources onto analog or digital media</li> <li>• Proper distribution of audio signals to monitors or for broadcast</li> <li>• Critical assessment of the sound signals' quality</li> <li>• Clear, precise communications with directors, technical staff, performers, lecturers, etc.</li> <li>• Speedy resolution of technical problems</li> </ul> |
| 5. Assess the quality of the sound recordings with the client. | <ul style="list-style-type: none"> <li>• Proper presentation of recording results</li> <li>• Soundness of judgment with regard to recording quality</li> <li>• Meticulous reproduction of originals onto various media</li> <li>• Clear, precise communications with other people</li> </ul>                                                                                                                                                                                                                                                                                                                                              |
| 6. Dismantle the sound recording system.                       | <ul style="list-style-type: none"> <li>• Correct observance of the sequence for dismantling the installation</li> <li>• Proper storage of equipment</li> <li>• Meticulous labelling of devices deemed nonperforming</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            |
| 7. Archive the recordings.                                     | <ul style="list-style-type: none"> <li>• Accurate labelling of recording media</li> <li>• Proper cataloguing of sound recordings</li> <li>• Safe storage of originals</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 8. Maintain the sound recording equipment.                     | <ul style="list-style-type: none"> <li>• Appropriate cleaning and adjustment of equipment</li> <li>• Appropriate use of measuring instruments and tools</li> <li>• Accurate detection of potential problems</li> <li>• Accurate determination of maintenance needs</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |

**Objective****Standard****Statement of the Competency**

To produce video recordings.

**Achievement Context**

- During a production, for a temporary installation and a permanent installation
- In various settings, particularly exhibitions, shows, special events and the field of education
- In accordance with various schedules
- Under various weather conditions
- Working alone and in a team
- Following instructions from the technical director or director
- Following a scenario, storyboard and final shooting script
- Using appropriate French and English technical documentation
- Using an installation plan and wiring diagram, video recording equipment, colour charts and test charts and measuring instruments and tools
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

1. Plan the filming.

- Accurate interpretation of the production director's needs
- Proper consultation of the layout plans
- Accurate determination of the equipment needed
- Demonstration of artistic capability

2. Prepare and check the equipment.

- Proper cleaning of:
  - lenses and monitors
  - video cassette recorder heads
- Meticulous equipment check:
  - column air pressure
  - recorder head tension
  - battery charge, etc.
- Proper modification of the equipment selected, given availability and performance

Code: 042R

3. Install the video recording equipment.
  - Appropriate installation of cables and tripods
  - Stable positioning of the camera on the tripod
  - Ergonomic adjustment and accurate balancing of the camera
  - Standard white balance
  - Standard adjustments in accordance with the type of camera:
    - back focus
    - height and level (outside and jib arm)
    - time code
    - sound levels
  - Proper installation of intercom system
4. Adjust the camera's control unit.
  - Appropriate selection of optical filter
  - Standard adjustments of:
    - cable lengths
    - horizontal synchronization
    - colour phase
    - black levels
    - white balance
  - Relevant use of audiovisual electronic cross-connect system
5. Make video recordings.
  - Proper insertion of colour bars on the cassette
  - Careful execution of camera movements and framing, in accordance with instructions and image composition principles
  - Accurate adjusting of the iris and focal length, given the desired image composition
  - Proper recording of images
  - Speedy resolution of technical problems
6. Assess the quality of the video recordings with the client.
  - Proper presentation of recording results
  - Relevance of judgment with regard to recording quality
  - Meticulous check of copies
  - Clear, precise communications with other people
7. Dismantle the cameras and their accessories.
  - Safe disconnection of cameras
  - Correct observance of the sequence for dismantling the cameras
  - Proper rolling of cables
  - Organized storage of cameras in boxes
  - Meticulous labelling of devices deemed nonperforming

Code: 042R

8. Archive the recordings.
  - Clear labelling of recording media
  - Proper cataloguing of all video
  - Systematic storage of both analog and digital media
9. Maintain the video recording equipment.
  - Appropriate cleaning and adjustment of equipment
  - Appropriate use of measuring instruments and tools
  - Accurate detection of potential problems
  - Accurate determination of maintenance needs



**Objective****Standard****Statement of the Competency**

To edit audio or video documents.

**Achievement Context**

- Working in various settings and in accordance with various schedules
- Following instructions from the technical director or director
- Following a scenario, final shooting script, cue sheet or storyboard
- Following rules or cues for camera angles and inserts
- Using appropriate French and English technical documentation
- Using device connection diagrams, editing and analog and digital mixing equipment, banks of sound and image files, measuring instruments and tools and a computer and specialized software
- In conformity with occupational health and safety rules and norms and standards in effect, including North American and international standards for electronic signal tuning

**Elements of the Competency****Performance Criteria**

1. Plan the editing.

- Accurate interpretation of the final shooting script and cue sheet
- Accurate determination of:
  - audio and video resources needed for editing
  - media such as videotape, a file on a server or streaming video
- Proper check of network access
- Consideration of characteristics and limits of feasibility

2. Prepare and check the equipment.

- Accurate interpretation of equipment installation plans
- Correct observance of the method for operating the mixing and editing equipment
- Proper preparation of the editing equipment:
  - proper cleaning of heads
  - observance of the method for adjusting video cassette recorders
  - proper preparation of recording cassettes
  - precise configuration of the time code
- Proper operational check of all devices or the system

Code: 042S

3. Produce the master of the edited sound track.
  - Appropriate transfer of original sources to analog or digital media
  - Proper adjustment of the audio passband
  - Proper conversion of sounds, considering the desired effects
  - Assignment of various sources to different tracks
  - Proper balancing of various tracks
  - Precise synchronization of the various tracks
  - Dramatic or comic effects that conform to the artistic vision
  - Correct observance of instructions included on the cue sheet
  - Meticulous check of work quality
4. Produce a low-resolution original document.
  - Proper selection of sequences to be used
  - Meticulous integration of various documents involving:
    - titles
    - superimposed images
    - special effects
    - 2D or 3D apertures
    - credits
  - Appropriate insertion of sound sources
  - Correct observance of the edit decision list
  - Proper use of file server
  - Exact synchronization between various sources
  - Proper conversion of film to analog or digital video or from virtual to film
  - Proper digitizing of audio and video sources, with or without compression
5. Produce a linear or non-linear high-resolution original document.
  - Precise adjustment of the various signals
  - Precise synchronization of all outputs
  - Proper check of work quality
6. Assess the quality of the editing with the client.
  - Relevance of their judgment with regard to editing quality
  - Clear, precise communications with the client when presenting the product
7. Make copies of the originals.
  - Precise code conversion of originals
  - Meticulous check of protective masters
  - Proper labelling of analog or digital media containing the recordings
  - Safe storage of the originals
  - Meticulous observation of copyright rules and regulations
8. Complete technical evaluation sheets.
  - Appropriate recording of results obtained

Code: 042S

## 9. Maintain the editing equipment.

- Appropriate cleaning and adjustment of equipment
- Appropriate use of measuring instruments and tools
- Accurate detection of potential problems
- Accurate determination of maintenance needs



**Objective****Standard****Statement of the Competency**

To perform activities related to the broadcast of audiovisual documents.

**Achievement Context**

- In various audiovisual production control rooms: master control room, transmission booth, mobile control room, etc.
- For live or taped broadcast, on various types of media: radio, television, Internet, intranet, video conference, etc.
- Following instructions from the technical director or director
- Using appropriate French and English technical documentation, control room equipment, measuring instruments and tools and a computer and specialized software
- In conformity with occupational health and safety rules, norms and standards in effect and deadlines

**Elements of the Competency****Performance Criteria**

1. Switch among audiovisual sources.

- Precise establishment of connection diagram
- Proper check of switcher inputs
- Proper performance of cuts, mixes, special effects, etc.
- Correct observance of temporal synchronization with network
- Continuous check of electronic signal quality
- Clarity of communications with members of the production team
- Rapid transmission of information about problems

2. Manage the broadcast.

- Thorough gathering of:
  - originals and copies
  - credits, subtitles and logos
  - sound elements
  - special effects
  - commercials
- Proper organization of connections in accordance with needs
- Proper check of signal quality, given the characteristics of the communication media
- Proper reservation of air time, bandwidth or supplier services
- Rapid transmission of information about problems

## 3. Broadcast audiovisual documents.

- Proper coordination of services with suppliers
- Precise technical checks of:
  - inputs and outputs
  - remote monitoring of transmitters
  - events on the computer network
  - the list of events
- Correct observance of cue sheet
- Rapid resolution of technical problems
- Proper archiving of documents broadcast:
  - continuous recording
  - meticulous labelling
  - safe storage
- Rapid transmission of information about problems

**Objective****Standard****Statement of the Competency**

To service audiovisual equipment.

**Achievement Context**

- In a repair shop and on-site at a client's workplace
- In accordance with various schedules
- Following instructions from a supervisor, and according to a preventive maintenance schedule and a worksheet or work order
- Using appropriate French and English technical documentation, replacement parts and hardware databases, tools, measuring instruments and calibration standards, and a portable computer
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

1. Interpret the request.

- Clear, precise communications with the client or suppliers:
  - relevance of questions
  - active listening skills
- Accurate interpretation of needs or problem
- Respect for others

2. Repair the equipment.

- Proper observation of the symptoms of the problem
- Accurate determination of the cause or causes of the problem
- Appropriate use of measuring instruments, devices and tools
- In-depth analysis of the nature of the problem
- Accurate determination of the sequence of steps to take
- Accurate assessment of the completion time and cost of service, as well as cost of replacement parts needed for repair
- Request for approval in conformity with corrective action
- Appropriate resolution of problem
- Proper operational check of equipment
- Proper application of mathematical models

Code: 042U

3. Provide preventive maintenance.
  - Regular consultation of preventive maintenance schedule
  - Correct observance of maintenance procedure
  - Meticulous cleaning of all devices
  - Proper adjustments of devices
  - Proper execution of performance tests
  - Accurate detection of potential problems
4. Write a report.
  - Meticulous recording of corrective actions taken and problems found
  - Accuracy of information recorded on the:
    - work order or service requests
    - worksheet
    - invoice
  - Clear, precise communications with supervisors, colleagues and clients
  - Specific information regarding:
    - corrective actions taken
    - optimal use of devices
    - suggested modifications

**Objective****Standard****Statement of the Competency**

To modify audiovisual systems.

**Achievement Context**

- In a repair shop and on-site at a client's workplace
- In accordance with various schedules
- Following instructions from a supervisor and a work order
- Using appropriate French and English technical documentation, design and simulation software, parts and hardware databases, tools, measuring instruments and calibration standards, and a computer
- In conformity with occupational health and safety rules, norms and standards in effect and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

1. Interpret the client's needs.

- Accurate interpretation of client's needs
- Precise communications with users

2. Plan the work.

- Accurate interpretation of plans and technical manuals
- Effective search for information on the type of modification

3. Design interfaces.

- Rigorous analysis of the situation
- Consideration of:
  - the characteristics of the inputs and outputs attached to the devices
  - the desired function or functions
- Clear, precise interface diagram
- Appropriate determination of components

4. Construct interfaces.

- Proper use of measuring instruments and tools
- Proper construction of prototype:
  - proper soldering of components
  - solid assembly of prototype
- Appropriate reorganization of interconnections
- Proper reconfiguration of operating parameters
- Proper operational check of interface

5. Activate the systems.

- Correct observance of the system activation procedure
- Proper operational check of systems

Code: 042V

6. Update the technical documentation and plans.
  - Accuracy of technical information
  - Exact schematic reproduction
  - Detailed adaptation of technical documentation and drawings
  - Use of appropriate terminology
7. Provide follow-up.
  - Clear account of modifications with regard to:
    - test results
    - plans and diagrams
    - technical documentation

**Objective****Standard****Statement of the Competency**

To provide technical support for a production.

**Achievement Context**

- During preproduction, production and postproduction
- With the client in attendance or not
- Using appropriate French and English technical documentation, audiovisual equipment and measuring instruments and tools
- Demonstrating a sense of ethics
- In conformity with occupational health and safety rules and norms and standards in effect

**Elements of the Competency****Performance Criteria**

- |                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Provide an opinion on the technical aspects of an audiovisual project.</li> <li>2. Advise people on their choice of hardware and software.</li> <li>3. Provide information on the operation of audiovisual equipment.</li> <li>4. Help people adjust and use equipment and systems.</li> <li>5. Resolve technical problems during production.</li> </ol> | <ul style="list-style-type: none"> <li>• Accurate interpretation of scenario or project specifications</li> <li>• Detailed study of the hardware and software characteristics</li> <li>• Clear expression of their opinion with regard to project feasibility and potential hardware and software problems</li> <li>• Clear explanation of available options, given needs expressed</li> <li>• Active listening to needs</li> <li>• Careful preparation of documentation and equipment</li> <li>• Clear, precise explanations</li> <li>• Organized delivery of demonstrations</li> <li>• Real concern regarding the other person's understanding</li> <li>• Proper application of the client-centred approach</li> <li>• Clear, precise explanations</li> <li>• Accurate diagnosis of problems</li> <li>• Proper application of optimal solutions</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Code: 042W

6. Write procedure books.
  - Accurate interpretation of objectives targeted by procedures:
    - equipment use
    - optimized equipment operation
    - equipment replacement
  - Proper determination of procedure steps, given the client
  - Use of appropriate terminology
  - Observance of spelling, grammar and punctuation rules
  - Observance of technical writing standards
  - Relevance and coherence of ideas
  - Careful presentation
7. Provide follow-up to clients.
  - Proper communication with others in French and English.

Code: 042X

**Objective****Standard****Statement of the Competency**

To provide technical direction for an audiovisual project.

**Achievement Context**

- For a small or medium-size production
- During preproduction, production and postproduction
- Following scenarios and storyboards
- Using appropriate French and English technical documentation, communication equipment and plans
- Demonstrating a sense of ethics and aesthetics
- In conformity with occupational health and safety rules, norms and standards in effect and legal and regulatory constraints on practice

**Elements of the Competency****Performance Criteria**

- |                                                                  |                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Meet the client.                                              | <ul style="list-style-type: none"> <li>• Accurate interpretation of client's needs</li> <li>• Gathering of all technical, artistic and budget information</li> </ul>                                                                                                                                                                          |
| 2. Plan the project.                                             | <ul style="list-style-type: none"> <li>• Clear establishment of schedule</li> <li>• Proper distribution of costs among budget allowances</li> <li>• Clear transmission of plans to client</li> <li>• Appropriate selection of team leaders</li> <li>• Efficient logistics</li> </ul>                                                          |
| 3. Hold technical meetings.                                      | <ul style="list-style-type: none"> <li>• Detailed presentation of project</li> <li>• Appropriate technical indexing</li> <li>• Appropriate selection of technical personnel</li> </ul>                                                                                                                                                        |
| 4. Determine where equipment will be placed throughout the site. | <ul style="list-style-type: none"> <li>• Clear establishment of plans and specifications</li> </ul>                                                                                                                                                                                                                                           |
| 5. Make sure that the equipment is available.                    | <ul style="list-style-type: none"> <li>• Appropriate selection of audiovisual and security equipment</li> <li>• Regular communications with suppliers</li> </ul>                                                                                                                                                                              |
| 6. Supervise the production.                                     | <ul style="list-style-type: none"> <li>• Rigorous control over production quality</li> <li>• Effective coordination between technical personnel and other people</li> <li>• Proper management of personnel</li> <li>• Effective management of conflicts</li> <li>• Observance of schedule and budget</li> <li>• Calm and diplomacy</li> </ul> |

Code: 042X

7. Provide follow-up.

- Systematic check when equipment is returned
- Proper check of invoice payments
- Accuracy of balance sheet
- Organization of technical evaluation meeting



