

Natural Environment Technology (147.A0)

College program

Sector 8 – Land Use Planning and the
Environment

College Education Program



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147.A0

Natural Environment Technology

Type of certification:	Diploma of College Studies
Number of credits:	91 2/3 credits
Number of periods of instruction:	2 700 periods of instruction

General education component:	660	periods of instruction
Program-specific component:		
Common core and specialization Forest Resource Management	2 040	periods of instruction
Common core and specialization Natural Heritage Management and Interpretation	2 040	periods of instruction
Common core and specialization Wildlife Management	2 040	periods of instruction
Common core and specialization Environmental Protection	2 040	periods of instruction

Admission Requirements:

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

- Mathematics 426
- Physical Sciences 436

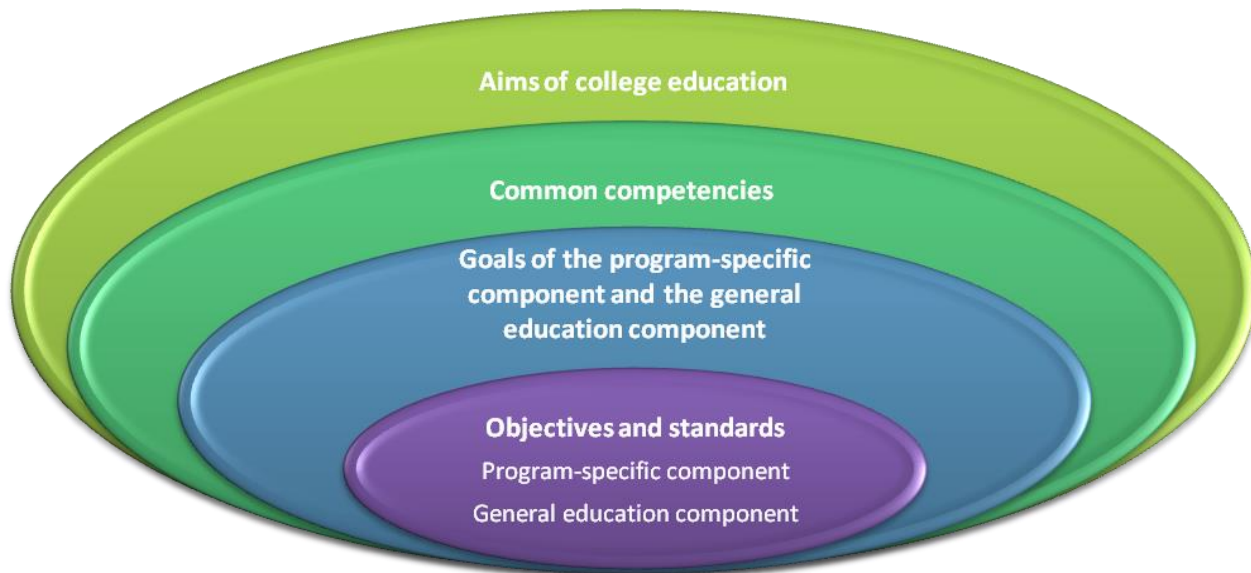
College-Level Programs

In Québec, college is the next stage after the compulsory years of schooling (elementary and secondary school). College graduates enter the labour market directly or proceed to university studies. The Minister of Education, Recreation and Sports establishes the programs of study, while individual colleges ensure their implementation.

A college-level program provides the frame of reference within which the students acquire designated competencies in order to qualify for a profession or to pursue their studies. For the teachers, the program outlines learning objectives and defines the scope of their application. The following figure illustrates the relationships among the elements of a college-level program, going from the general to the specific:

- Aims of college education
- Common competencies
- Goals of the program-specific component and the general education component
- Objectives and standards of the program-specific component and the general education component

Figure 1 – Elements of a College-Level Program



Programs leading to the Diploma of College Studies (DCS) include two main components: a general education component and a program-specific component. Both these components contribute to a student's education, as the knowledge, skills and attitudes imparted in one are emphasized and applied in the other, whenever possible. General education is an integral part of each program and, when coupled with the program-specific component as part of an integrated approach, fosters the development of the competencies required by all programs.

All college-level programs are characterized by three educational aims and five common competencies.

Aims of College Education

Educational aims guide the actions of those involved in the students' education. They facilitate the program-based approach by establishing the outcomes expected of students at the end of their college studies.

To educate students to live responsibly in society

At the personal level, students show they are engaged in their learning. They demonstrate rigour and perseverance as well as skills enabling them to analyze, synthesize and carry out research. At the professional level, they draw on their ability to apply their knowledge, skills and attitudes and to adapt to new situations. In the realm of social and civic life, students assume their role as informed and responsible citizens by adopting desirable attitudes and behaviours. They show evidence of open-mindedness and a sense of community in their dealings with others.

To help students integrate cultural knowledge into their studies

Students continue to enhance their personal culture and are able to appreciate various forms of cultural expression. Through their studies, they have become familiar with cultural productions. They can interpret the meaning and assess the value of these productions and are aware of the role they themselves play in the expression of culture. The development of their critical judgment and social conscience and the consolidation of their historical references have broadened their cultural horizons. Students recognize the diversity of social and cultural realities and appreciate the breadth and wealth of Québec's culture. Lastly, they apply their cultural knowledge by making connections among events occurring around them and by being involved in cultural, artistic, sports, technical or scientific activities.

To help students master language as a tool for thought, communication and openness to the world

Students understand and produce various forms of complex discourse in different situations. They are able to read and write independently at an advanced skill level. Their mastery of language allows them to engage in independent reflection, to know where they stand relative to various forms of discourse, and to express themselves in a structured, rational and precise manner. When faced with different communication situations, students are able to express their world view and identity. Language mastery also helps students be receptive to the dissemination of a broad range of knowledge. It allows them to share points of view and improve their communication skills in both the language of instruction and a second language.

Common Competencies of College Education

Common competencies are associated with the aims of college education. They help to ensure students are adequately prepared for personal and professional life.

Solve problems

Students can identify a problem and analyze its elements. They can list and classify possible solutions and implement the one they feel is most effective. They reflect on their approach, assess the appropriateness of the chosen solution and determine whether it can be applied in other situations.

Use creativity

Students discover new possibilities by juxtaposing, combining and reorganizing existing concepts, and by using ideas, strategies and techniques in new ways. Students are open to new ideas and

different ways of doing things, while assessing their effectiveness.

Adapt to new situations

When faced with a new situation, students are both open and critical. After analyzing the situation at hand, they identify and test ways of dealing with it. To adapt to a world that is constantly changing, students work in teams and show concern for keeping their knowledge up to date.

Exercise a sense of responsibility

Students assume their role as responsible citizens and act in accordance with socially and democratically desirable attitudes and behaviours. They act ethically and with integrity, exercise critical judgment and are fully engaged, personally, socially and professionally. Independent and organized, they respect their commitments.

Communicate

Students deliver a coherent message adapted to each situation. They are able to listen and to structure their thoughts in order to formulate a clear message. They rely on a variety of communication strategies and use information and communications technologies. They evaluate the impact of their communication and review their strategies, as needed.

Implementation of College-Level Programs

Each college determines the ways in which the educational aims, common competencies, goals, objectives and standards are implemented. This does not mean that students in a college must follow common courses. Each course may contribute to the full or partial achievement of these elements. The important thing is that all of these elements are taken into consideration in one or more courses and that they become specific focuses of teaching and learning, since they have been recognized as essential to the practice of a profession or to the pursuit of university studies in a given discipline.

The Natural Environment Technology Program

The *Natural Environment Technology* program was designed in accordance with the framework for developing technical programs. This approach involves the participation of partners working in the occupational 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 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 the occupation, but also a range of knowledge, skills and attitudes that will ensure their versatility.

The *Natural Environment Technology* program includes four components: a program-specific component, a general education component that is common to all programs, a general education component that is specific to each program, and a general education component that complements the program.

- The program-specific component consists of 65 credits.
- The general education component that is common to all programs consists of 16 $\frac{2}{3}$ credits:
 - Language of Instruction and Literature: 7 $\frac{1}{3}$ credits
 - Philosophy or Humanities: 4 $\frac{1}{3}$ credits
 - Physical Education: 3 credits
 - Second Language: 2 credits
- The general education component that is specific to the program consists of 6 credits:
 - Language of Instruction and Literature: 2 credits
 - Philosophy or Humanities: 2 credits
 - Second Language: 2 credits
- The complementary general education component, which aims to expose students to subject areas outside their program of study, consists of 4 credits and includes courses in the following areas:
 - Social Sciences
 - Science and Technology
 - Modern Language
 - Mathematics Literacy and Computer Science
 - Art and Aesthetics
 - Contemporary Issues

Students may choose courses only in those areas that are outside their program of study.

Goals of the Program

Program-Specific Component

The goals of the program-specific component of the *Natural Environment Technology* 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 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

Educational Aims

Educational aims in the program-specific component 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.

In keeping with the aims of college education, the program-specific component is also intended to educate students to live responsibly in society, to help them integrate cultural knowledge into their studies and, lastly, to help them master language as a tool for thought, communication and openness to the world.

The following is a description of the aims of the program-specific component of the *Natural Environment Technology* program:

- Show concern for sustainable development
- Develop a respectful attitude and a sense of responsibility toward the environment
- Develop a sense of partnership
- Develop an open approach to different expertise
- Develop a respectful attitude toward the rights, needs and values of the various natural environmental stakeholders
- Acquire the rigour needed for critical analysis, problem-solving, the scientific method and the application of a systemic approach

General Education Component Common to All Programs and General Education Component Specific to the Program

The general education components that are common to all programs and specific to the program contribute to the development of twelve competencies associated with the three aims of college education:

- for the aim *To educate students to live responsibly in society:*
 - Demonstrate independence and creativity in thought and action
 - Demonstrate rational, critical and ethical thinking
 - Develop strategies that promote reflection on their knowledge and actions
 - Pursue the development of a healthy and active lifestyle
 - Assume their social responsibilities
- for the aim *To help students integrate cultural knowledge into their studies:*
 - Recognize the influence of culture and lifestyle on the practice of physical activity and sports
 - Recognize the influence of the media, sciences or technology on culture and lifestyle
 - Analyse works in philosophy or the humanities emanating from different historical periods and movements
 - Appreciate literary and non-literary works of other artistic expressions emanating from different historical periods and movements
- for the aim *To help students master language as a tool for thought, communication and openness to the world:*
 - Improve communication in the second language
 - Master the basic rules of discourse and argumentation
 - Refine oral and written communication in the language of instruction

English, Language of Instruction and Literature

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

- will be able to demonstrate their knowledge of the following:
 - the basic vocabulary and terminology used when discussing literary works
 - ways to apply an independent analytical approach to literary genres
 - ways to apply an independent analytical approach to literary themes
 - the appreciation of literary and non-literary works or other artistic expressions of different historical periods and movements

- ways to identify the socio-cultural and historical context of different periods and movements
- ways to refine oral and written communication in the language of instruction
- will be able to demonstrate their ability to do the following:
 - read, write, listen and speak at a college level of proficiency
 - develop their own ideas in arguments and theses
 - organize their arguments and theses in a discourse and edit their work
 - produce and analyze various styles of discourse
 - communicate in the styles of discourse appropriate to one or more fields of study
- will be encouraged to develop the following attitudes:
 - independence, individuality, and open-mindedness in thought and action
 - an appreciation of literature and other artistic works from different periods
 - a recognition of the role of media within a society and its culture
 - an awareness of strategies that foster self-reflective practice in their learning and actions
 - critical and ethical thought

Humanities

Humanities constitutes a thematic, multidisciplinary and, at times, transdisciplinary exploration of humankind, including its accomplishments, failures, abilities, creations, ideas and values. Students who have achieved the general education objectives in humanities

- will be able to demonstrate their knowledge of the following:
 - the main concepts, limits and uses of a form of knowledge including significant historical reference points
 - the main concepts, limits and uses of a world view
 - the nature and organization of the basic elements of an ethical question
 - methods for coherent integration of concepts and the formulation and synthesis of ideas
 - the importance and practice of adequately substantiated argumentation, written and oral
- will be able to demonstrate their ability to do the following:
 - describe, explain and organize the 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
 - recognize forms of creativity and original thought
 - 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
 - utilize the multiple strategies of critical thinking
- will be encouraged to develop the following attitudes:
 - openness to diversity and pluralism
 - awareness of the limits of knowledge claims, world views and ethical perspectives
 - respect for the points of view of others

- empathy and acceptance of others
- concern for global issues
- determination to continue learning

French as a Second Language

Students who have achieved the general education objectives in French as a Second Language:

- will be able to demonstrate their knowledge of the following:
 - different reading techniques
 - the formal elements needed to produce a structured text, both orally and in writing
 - different forms of discourse and their specific uses
- will be able to demonstrate their ability to do the following:
 - question, analyze, judge and defend an argument in French
 - reflect on their knowledge and actions notably by revising their written productions
 - maintain social relationships and share in the cultural life of Québec
 - establish and maintain work-related relationships in French
- will be encouraged to develop the following attitudes:
 - openness to the various aspects of Québec culture
 - recognition and promotion of creativity
 - readiness to participate in social and economic life

Physical Education

Students who have achieved the general education objectives in physical education:

- will be able to demonstrate their knowledge of the following:
 - notions and concepts based on the findings of scientific research and how to apply them methodically to physical or sporting activities
 - the relationship between lifestyle, physical activity, physical fitness and health
 - ways to evaluate their own abilities and needs with respect to activities that can enhance their health and fitness
 - the rules, techniques and conditions involved in different types of physical or sporting activity
 - the main socio-cultural determinants of physical activity and a healthy lifestyle
- will be able to demonstrate their ability to do the following:
 - give an initial account of their abilities, attitudes and needs
 - choose physical activities on the basis of their motivation, their ability to adapt to effort and their need for change
 - apply the rules and techniques of a certain number of physical activities with a view to practising them sufficiently on a regular basis
 - set goals that are realistic, measurable, challenging and situated within a specific time frame
 - improve their mastery of basic techniques and strategies associated with physical activities
 - evaluate their skills, attitudes and progress in order to adapt their means or objectives in their practice of physical activities
 - autonomously maintain or increase their physical activity and fitness levels in order to develop a healthy and active lifestyle
 - use their creativity in physical activities
 - express their choice of activities in a clear and reasoned manner

- will be encouraged to develop the following attitudes:
 - awareness of the importance of regular and sufficient physical activity in order to improve their fitness
 - awareness of the factors that encourage them to practise physical activity more often
 - awareness of the importance of evaluating and respecting their ability to adapt to effort, as well as an awareness of the conditions necessary to carry out a physical activity program, before committing to it
 - self-confidence, self-control, cooperation, respect and understanding, through knowledge and through the practice of a physical activity
 - respect for ethical behaviour when participating in a sport or a physical activity
 - respect for individual and cultural differences as well as for the environment in which the sport or physical activity takes place
 - appreciation for the aesthetic value of physical activity as well as the opportunities for enjoyment it provides
 - readiness to adopt the values of discipline, effort, consistency and perseverance
 - readiness to promote, as a social value, the regular and sufficient practice of physical activity

Complementary General Education Component

Social Sciences

The goal of this subject area is to help students view the social sciences as a specific approach to the study of human existence. This goal may cover various aspects, including the study of the specific contribution of the social sciences to an understanding of contemporary issues and the application of approaches from the social sciences.

Science and Technology

The goal of this subject area is to present science and technology as a specific approach to the study of reality, by introducing students to this area of knowledge. This goal may cover various aspects, including the study of the general nature of science and technology and contemporary scientific or technological issues as well as the application of the scientific method.

Modern Language

The goal of this subject area is to introduce students to the basic structures and vocabulary of a third language and help them develop an awareness of the culture of its native speakers.

Mathematics Literacy and Computer Science

The goal of this subject area is to highlight a culture of mathematics and computer science. This goal may cover various aspects, including the study of the role of mathematics or computers in contemporary society as well as the use of mathematical or computer concepts, procedures and tools.

Art and Aesthetics

The goal of this subject area is to provide students with a cultural awareness by exploring various forms of art and to help students develop an aesthetic awareness. This goal may cover various aspects, including an appreciation of different art forms and the production of a work of art.

Contemporary Issues

This subject area focuses on current, transdisciplinary issues. The concept of transdisciplinarity refers to a type of approach that addresses a contemporary issue from the perspective of different disciplines and areas of knowledge, beyond a mere juxtaposition of the subjects studied.

Goals of the Program-Specific Component

The aim of the *Natural Environment Technology* program is to prepare students to practise the occupation of natural environment technician mainly in the fields of land use planning; rational natural resource use and development; and interpretation, information, education, protection, monitoring, restoration and conservation of the natural environment. In this program of study, the term “natural environment” includes terrestrial, aquatic and wetland ecosystems and the resources derived from water, air, soil, vegetation and wildlife.

The work of a natural environment technician is performed with a view to sustainable development. This is best achieved through the integrated management of an area’s diverse natural components. Such an approach takes into account the many different functions, resources and users of the area concerned, along with the criteria for sustainable development, when selecting scenarios for its development. To do this, natural environment technicians must broaden their field of investigation, work in partnership, gather a variety of data and master the techniques required to manage the area’s resources and habitats.

Sustainable development is an inclusive concept that encompasses environmental, economic and social objectives and provides a way to see how problems are interrelated. Among other things, it appeals to notions of equity, integrity, ecosystem-based management and biological diversity. Sustainability is therefore a value system, an approach and a framework for action associated with the development of different skills and attitudes that form an integral part of the *Natural Environment Technology* program. Sustainable development is part of a broader social project designed to ensure a continuous improvement in the quality of life of communities while respecting the carrying capacity of supporting ecosystems.

The activities of a natural environment technician are carried out in wildlife management and ecotourism zones as well as in forested, farming, protected, urban and peri-urban areas.

There are four specialization streams in the *Natural Environment Technology* program, each with its distinct aims. These specialization streams are: forest resource management, wildlife management, natural heritage management and interpretation, and environmental protection.

Specialization in Forest Resource Management

Forest resource management technicians collaborate in forest resource development and perform various tasks relating to the management, planning, conservation, research and sustainable use of forest resources. They are called on to participate in preparing management plans and reports, coordinating and controlling silvicultural work, planning timber harvesting and transportation, planning infrastructure construction and maintenance work, carrying out forest and environmental inventories, supervising the production of plans for forest resource use, participating in forestry research, mapping forests and helping to protect forests.

Forest resource management technicians work in a relatively demanding context where, in addition to past forestry data, they must now consider data on wildlife and ecosystems, as well as guides to sound forest management practices and environmental standards, improved comprehensive management plans and the multiresource plans. They must also work closely with different users of the forests and take into the account the needs of the communities who live there.

Forest resource management technicians work for organizations or enterprises in the private, public and parapublic sectors. While the public sector remains a major employer, the private

sector's need for technical services has increased as a result of a vigorous economy, increasingly sophisticated instrumentation and a growing body of technical, legal and regulatory constraints and standards.

Specialization in Wildlife Management

The work of wildlife management technicians is associated with the harvesting and management of terrestrial, avian and aquatic wildlife resources. Among other things, they may be asked to monitor population and habitats in different environments, play a role in preparing plans for wildlife conservation, management and development, carry out habitat and wildlife resource management activities, monitor resource harvesting activities, design projects, take part in research, manage projects and educate users of the environment.

To achieve the objectives associated with the integrated management of a given area within the context of sustainable development, it is important to consider the area's users and the integrity of its ecosystems, land and resources. As part of their work, wildlife management technicians must therefore measure the wildlife-related impacts of practices linked to the other types of land use. Since this requires the use of data that are beyond the scope of the wildlife sector, they must therefore be able to prepare multiresource management plans.

Wildlife management technicians must meet the needs of a variety of organizations and enterprises in the private, public and parapublic sectors. While the public and parapublic sectors still play an important role, the government's practice of delegating aspects of wildlife area management and development to other stakeholders has considerably diversified the job market. As a result, most employers are now found in the private sector and include environmental consulting firms, controlled harvesting zones, outfitting operations, independent management corporations, wildlife associations and watershed management groups.

Specialization in Natural Heritage Management and Interpretation

Natural heritage management and interpretation technicians work in the field of ecotourism, and perform activities involving natural and cultural heritage management and the development and presentation of heritage activities. They may also be involved in natural environmental research, management, planning and conservation work. In addition, they may carry out inventories of biological, physical and socio-cultural resources, conduct site characterizations for heritage development through management and interpretation activities, produce interpretation materials and equipment, promote and present interpretation activities, ensure that materials and equipment are functional, manage projects involving the development of a natural and cultural heritage site, develop ecotourism infrastructures and enforce current regulations at heritage sites.

With regard to sustainable development, natural heritage management and interpretation technicians play a role in awareness-raising and are able to explain to the general public the dichotomy of allowing access to a given site while safeguarding the overall integrity of an area. Beyond simply raising public awareness of this issue, interpretation activities aim to elicit a personal adherence to sustainable development as a social value.

Natural heritage management and interpretation technicians may be employed by a variety of public and private sector organizations and companies that own ecotourism infrastructures or organize natural and cultural heritage interpretation activities. For example, parks, private and municipal interpretation centres, outfitters and specialist ecotourism or environmental education companies actively recruit candidates for these types of positions.

Specialization in Environmental Protection

The work of environmental protection technicians is associated with impact assessment studies, site characterization, waste management, decontamination and the implementation of measures to restore, mitigate and protect the environment. They must demonstrate a constant concern for environmental laws and regulations. Among other things, they may be asked to carry out natural or disturbed environment characterizations for diagnostic purposes, propose interventions, apply monitoring programs, provide technical support for environmental protection initiatives, communicate with various stakeholders, ensure that technical gear is available and in working order, manage inventory projects and environmental interventions, respond to complaints and write reports.

Analyzing an environmental problem from the standpoint of sustainable development requires collecting a variety of information, taking samples of all kinds, and advising clients seeking solutions or developing new technologies that meet economic and regulatory requirements. Environmental protection technicians assist in developing sustainable development and environmental management plans. Their knowledge of environmental laws and regulations enables them to play a proactive role as agents of change with respect to environmental issues.

Environmental protection technicians are employed by a variety of public and private sector organizations and companies. Many positions are available with governments and municipalities, but most jobs are found in the private sector, with environmental consulting firms, waste management and decontamination firms and, to a lesser extent, environmental laboratories.

The goals of the program-specific component of the *Natural Environment Technology* program are based on the general goals of technical training. These goals are:

- to help students become effective in their occupation:
 - by teaching students to perform roles, functions, tasks and activities associated with the occupation upon entry into the job market
 - by preparing 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, etc.)
- to help students integrate into the work force:
 - by familiarizing them with the job market in general and the context surrounding the occupation they have chosen
 - by teaching them their rights and responsibilities as workers
- to foster students' personal development and acquisition of occupational knowledge, skills, perceptions and attitudes:
 - by helping them develop their autonomy and the desire to learn, and acquire effective work methods
 - by teaching them the principles underlying the techniques and the technology used in the occupation
 - by helping students develop their self-expression, creativity, initiative and entrepreneurial spirit
 - by instilling in them the attitudes required to successfully practise the occupation, a sense of responsibility and a concern for excellence

- to promote job mobility:
 - by helping them develop positive attitudes toward change
 - by familiarizing them with entrepreneurship and helping them develop the tools they need to manage their careers

Objectives

Statements of the Competency

Program-Specific Component

Common core

- 0200 Analyze the occupation
- 043S Work in isolated, rustic conditions in the natural environment
- 044S Act within the legal and ethical parameters of the field
- 044N Apply health and safety measures
- 0201 Manage an intervention project in the natural environment
- 044E Convey scientific information
- 043M Process mapping information
- 0202 Inventory the abiotic components of a natural environment
- 0203 Inventory the vegetation component of a natural environment
- 0204 Inventory the terrestrial and avian wildlife component of a natural environment
- 0205 Make connections between the biotic and abiotic components of a natural environment using an ecosystem-based approach
- 0206 Address a land-use planning problem from a sustainable development perspective

Specialization A - Forest Resource Management

- 00KU Map a forest area
- 0207 Carry out forest protection activities
- 00KY Carry out silvicultural work prior to harvesting
- 00KW Inventory a forest area
- 00KT Classify a forest site
- 00KR Manage stocks of felled wood
- 00L3 Coordinate infrastructure-related work
- 00L4 Coordinate timber harvesting work
- 00L0 Supervise pre-commercial and rehabilitation work in an area
- 0208 Participate in developing and monitoring management plans

Specialization B - Wildlife Management

- 0209 Inventory the aquatic wildlife component of a natural environment
- 020A Detect the presence of anomalies among wildlife species
- 020B Evaluate the population of a wildlife species in a natural environment
- 020C Manage the population of a wildlife species in a natural environment
- 020D Manage a habitat
- 020E Monitor the management of a wildlife species population and its habitat
- 020F Prepare a comprehensive wildlife management plan

Specialization C - Natural Heritage Management and Interpretation

- 0209 Inventory the aquatic wildlife component of a natural environment
- 020G Inventory the cultural heritage of a given site
- 020H Draw up a profile of potential users
- 020J Design and structure an interpretation activity
- 020K Produce interpretative materials
- 020L Manage and maintain ecotourism infrastructures
- 020M Promote activities relating to heritage facilities
- 020N Present an interpretation activity
- 020P Conduct a site characterization for the purpose of heritage development
- 020Q Plan heritage management and interpretation activities for a particular site

SPECIALIZATION D - ENVIRONMENTAL PROTECTION

- 0209 Inventory the aquatic wildlife component of a natural environment
- 044F Analyze how micro-organisms live in and adapt to their environment
- 044C Carry out laboratory analyses
- 020R Carry out a natural or disturbed environment characterization
- 020S Propose intervention and monitoring measures for environmental protection
- 01TN Implement means of control and treatment processes
- 020T Provide technical support for environmental protection
- 020U Apply waste treatment measures

General Education Component Common to All Programs and General Education Component Specific to the Program

16½ credits and 420 periods of instruction, 6 credits and 150 periods of instruction

English, Language of Instruction and Literature

- 4EA0 Analyze and produce various forms of discourse
- 4EA1 Apply an analytical approach to literary genres
- 4EA2 Apply an analytical approach to a literary theme
- 4EAP Communicate in the forms of discourse appropriate to one or more fields of study

Humanities

- 4HU0 Apply a logical analytical process to how knowledge is organized and used
- 4HU1 Apply a critical thought process to world views
- 4HUP Apply a critical thought process to ethical issues relevant to the field of study

French as a Second Language

One objective to be met from the following:

- 4SF0 Apply basic concepts for communicating in standard French
- 4SF1 Communicate in standard French with some ease
- 4SF2 Communicate with ease in standard French
- 4SF3 Explore a cultural and literary topic

One objective to be met from the following:

- 4SFP Apply basic concepts for communicating in French in relation to the student's field of study
- 4SFQ Communicate in French on topics related to the student's field of study
- 4SFR Communicate with ease in French on topics related to the student's field of study
- 4SFS Produce a text in French on a topic related to the student's field of study

Physical Education

- 4EP0 Analyze one's physical activity from the standpoint of a healthy lifestyle
- 4EP1 Improve one's effectiveness when practising a physical activity
- 4EP2 Demonstrate one's ability to assume responsibility for maintaining a healthy lifestyle through the continued practice of physical activity

Complementary General Education Component

4 credits, 90 periods of instruction

Two objectives to be met from the following, in subject areas outside the student's program of study:

- 000V Estimate the contribution of the social sciences to an understanding of contemporary issues
- 000W Analyze one of the major problems of our time using one or more social scientific approaches
- 000X Explain the general nature of science and technology and some of the major contemporary scientific or technological issues
- 000Y Resolve a simple problem by applying the basic scientific method
- 000Z Communicate with limited skill in a modern language
- 0010 Communicate on familiar topics in a modern language
- 0067 Communicate with relative ease in a modern language
- 0011 Recognize the role of mathematics or computer science in contemporary society
- 0012 Use various mathematical or computer science concepts, procedures and tools for common tasks
- 0013 Consider various forms of art produced according to aesthetic practices
- 0014 Produce a work of art
- 021L Consider contemporary issues from a transdisciplinary perspective
- 021M Explore a contemporary issue from a transdisciplinary perspective

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.

FOREST RESOURCE MANAGEMENT	Competency number	GENERAL COMPETENCIES													
		Analyze the occupation	Work in isolated, rustic conditions in the natural environment.	Apply health and safety measures	Inventory the abiotic components of a natural environment.	Inventory the vegetation component of a natural environment.	Inventory the terrestrial and avian wildlife component of a natural environment.	Make connections between the biotic and abiotic components of a natural environment using an ecosystem-based approach.	Classify a forest site.	Process mapping information.	Convey scientific information.	Act within the legal and ethical parameters of the field.	Carry out silvicultural work prior to harvesting.	Carry out forest protection activities.	Manage stocks of felled wood.
SPECIFIC COMPETENCIES	Competency number	1	2	3	4	5	6	7	8	9	10	13	14	15	16
Map a forest area.	11))))))))))))))
Inventory a forest area.	12))))))))))))))
Supervise pre-commercial and rehabilitation work in an area	17))))))))))))))
Coordinate infrastructure work	19))))))))))))))
Coordinate timber harvesting work	20))))))))))))))
Participate in developing and monitoring management plans	21))))))))))))))
Manage an intervention project in the natural environment	22))))))))))))))

GRID OF COMPETENCIES

SPECIFIC COMPETENCIES	Competency number	GENERAL COMPETENCIES												
		Analyze the occupation	Work in isolated, rustic conditions in the natural environment	Apply health and safety measures	Inventory the abiotic components of a natural environment	Inventory the terrestrial and avian wildlife component of a natural environment	Inventory the aquatic wildlife component of a natural environment	Inventory the vegetation component of a natural environment	Make connections between the biotic and abiotic components of a natural environment	Process mapping information	Detect the presence of anomalies among wildlife species	Convey scientific information	Act within the legal and ethical parameters of the field	Address a land-use planning problem from a sustainable development perspective
Competency number		1	2	3	4	5	6	7	8	9	10	12	13	17
Evaluate the population of a wildlife species in a natural environment	11)))))))))))))
Manage the population of a wildlife species in a natural environment	14)))))))))))))
Manage a habitat	15)))))))))))))
Monitor the management of a wildlife species population and its habitat	16)))))))))))))
Prepare a comprehensive wildlife management plan	18)))))))))))))
Manage an intervention project in the natural environment	19)))))))))))))

GRID OF COMPETENCIES

SPECIFIC COMPETENCIES	Competency number	GENERAL COMPETENCIES													
		Analyze the occupation	Work in isolated, rustic conditions in the natural environment	Apply health and safety measures	Inventory the abiotic components of a natural environment	Inventory the terrestrial and avian component of a natural environment	Inventory the aquatic wildlife component of a natural environment	Inventory the vegetation component of a natural environment	Make connections between the biotic and abiotic components of a natural environment using an ecosystem-based approach.	Inventory the cultural heritage of a given site	Process mapping information	Act within the legal and ethical parameters of the field	Draw up a profile of potential users	Convey scientific information	Address a land-use planning problem from a sustainable development perspective
Competency number		1	2	3	4	5	6	7	8	9	10	12	13	14	15
Conduct a site characterization for the purpose of heritage development	11))))))))))				
Manage and maintain ecotourism infrastructures	16))))))
Design and structure an interpretation activity	17)))))))))))))
Produce interpretative materials	18))))))))))))
Present an interpretation activity	19))))))))))))))
Promote activities relating to heritage facilities	20)))))))))))	
Plan heritage management and interpretation activities for a particular site	21))))))))))))))
Manage an intervention project in the natural environment	22))))))))))))))

GRID OF COMPETENCIES																
ENVIRONMENTAL PROTECTION	Competency number	GENERAL COMPETENCIES														
		Analyze the occupation	Work in isolated, rustic conditions in the natural environment	Apply health and safety measures	Act within the legal and ethical parameters of the field	Inventory the abiotic components of a natural environment	Inventory the terrestrial and avian wildlife component of a natural environment	Inventory the aquatic wildlife component of a natural environment	Inventory the vegetation component of a natural environment	Make connections between the biotic and abiotic of a natural environment using an ecosystem-based approach	Process mapping information	Analyze how micro-organisms live in and adapt to their environment	Carry out laboratory analyses	Convey scientific information	Address a land-use planning problem from a sustainable development perspective	
SPECIFIC COMPETENCIES	Competency number															
Carry out a natural or disturbed environment characterization	11)))))))))))	
Apply waste treatment measures	15)))))))))))))		
Implement means of control and treatment processes	16))))))))))))		
Propose intervention and monitoring measures for environmental protection	18)))))))))))))	
Provide technical support for environmental protection	19))))))))))))))	
Manage an intervention project in the natural environment	20))))))))))))))	

Program-Specific Component

Code: 0200

Objective

Standard

Statement of the Competency	Achievement Context
Analyze the occupation.	<ul style="list-style-type: none"> Working alone In the following sectors: forest resource management, natural heritage management and interpretation, wildlife management, environmental protection Through research, visits to firms, meetings, conferences, visits to exhibitions and fairs, etc., and as part of a job search process Using recent information about the occupation and the companies and organizations involved in the natural environment
Elements of the Competency	Performance Criteria
1. Describe the occupation and the conditions in which it is practised in the different sectors of activity associated with the natural environment.	<ul style="list-style-type: none"> Relevant information gathered Thorough examination of the general characteristics of the occupation and the conditions in which it is practised Understanding of the workplace and the role of the various stakeholders Understanding of potential career paths
2. Examine the tasks and activities associated with the occupation.	<ul style="list-style-type: none"> Satisfactory analysis of activities and of the performance conditions and criteria associated with each task. Accurate determination of the relative importance of each task Establishment of connections between the steps in the work process and the different tasks to be performed
3. Examine the skills and behaviours needed to practise the occupation.	<ul style="list-style-type: none"> Establishment of relevant connections between the skills and behaviours required and the different tasks associated with the occupation Recognition of the importance of teamwork when practising the occupation Recognition of the rules governing professional ethics
4. Examine the requirements associated with entrepreneurship.	<ul style="list-style-type: none"> Recognition of self-employment opportunities in the sector Satisfactory analysis of the strategies used to prepare a professional service offer Satisfactory consideration of the requirements, constraints and resources associated with venture creation in the sector

Elements of the Competency	Performance Criteria
5. Examine developmental trends in sectors associated with the natural environment.	<ul style="list-style-type: none"> • Recognition of the different developmental factors in socio-economic sectors associated with the natural environment • Description of the probable impact of those trends on practising the occupation

Objective**Standard**

Statement of the Competency	Achievement Context
Work in isolated, rustic conditions in the natural environment.	<ul style="list-style-type: none"> Using topographical and bathymetric maps , aerial photographs and equipment
Elements of the Competency	Performance Criteria
1. Live and work as part of a team in the natural environment.	<ul style="list-style-type: none"> Smooth integration into the work team Tolerance of and solidarity with group members
2. Navigate in the natural environment.	<ul style="list-style-type: none"> Appropriate use of maps, aerial photographs, a compass and a global positioning system (GPS) Accurate localization of their position on the map Correct determination of the azimuth and distance from a position on the map Accurate assessment of distances in the natural environment Accurate establishment of a position using a coordinate system Accurate identification of natural reference points Consideration of constraints imposed by the terrain
3. Travel through the natural environment.	<ul style="list-style-type: none"> Appropriate choice and safe, effective use of different means of transportation Compliance with the rules governing the driving of motor vehicles and the operation of watercraft
4. Meet their needs for lodging, food and safety.	<ul style="list-style-type: none"> Appropriate choice of the type of lodging or campsite, as needed Accurate determination of the type and amount of food required Accurate assessment of the amount of fuel required Appropriate planning for and use of tools and equipment
5. Use field telecommunication systems.	<ul style="list-style-type: none"> Correct use of apparatus Establishment of a communication protocol with correspondents Compliance with standard codes for bush telecommunications
6. Apply survival techniques.	<ul style="list-style-type: none"> Creation of a sense of cohesion between the people concerned Ability to start a fire in difficult conditions Installation of an effective heat reflector Construction of a temporary shelter using various materials Appropriate management of food, water and fuel reserves Application of an appropriate emergency signalling system

Objective**Standard**

Statement of the Competency	Achievement Context
Act within the legal and ethical parameters of the field.	<ul style="list-style-type: none"> • In all professional activities associated with the field • By referring to all current laws and regulations, including the <i>Sustainable Forest Development Act</i>, the <i>Act respecting the conservation and development of wildlife</i>, and the rules established by the Canadian Council on Animal Care • By referring to legal parameters governing the issuing of permits, licences and authorizations • Using all the necessary documentation

Elements of the Competency	Performance Criteria
1. Gather information on the legal and ethical parameters applicable to different professional situations.	<ul style="list-style-type: none"> • Complete list of the different aspects of the protocol affected by the parameters • Identification of the authorities, laws and regulations concerned • Identification and consultation of relevant information sources
2. Assess the practical consequences of the parameters for their professional activities.	<ul style="list-style-type: none"> • Determination of the constraints, limitations and obligations arising from the legal framework • Methodical review of the protocol and work plan in terms of the legal and ethical parameters • Adjustment of the logistical and practical aspects under their responsibility • Rigorous communication of relevant information to the people concerned
3. Help ensure compliance with the laws and regulations in force in the field.	<ul style="list-style-type: none"> • Preparation of applications for permits, licences and authorizations • Adoption of professional practices in compliance with the laws and regulations • Relevant interventions with users of a given environment for educational purposes
4. Conduct themselves ethically in all professional activities.	<ul style="list-style-type: none"> • Demonstration of an open mind toward others' values and prerogatives at all times • Demonstration of intellectual honesty in all circumstances • Application of ethical practices • Constant concern for the impact of their practices on organisms and environments • Constant concern for the impact of their practices on human communities

Objective**Standard**

Statement of the Competency	Achievement Context
Apply health and safety measures.	<ul style="list-style-type: none"> • In all types of work carried out in the natural environment and in the laboratory • Using all the necessary documentation • Using all the necessary materials: first aid kit, protective clothing and equipment, health and safety facilities
Elements of the Competency	Performance Criteria
1. Recognize potential risks in the natural environment and in the laboratory.	<ul style="list-style-type: none"> • Precise distinction of the different types of risks: <ul style="list-style-type: none"> ○ environmental factors ○ factors relating to the nature of the work, including the handling and containment of various organisms ○ factors relating to the use of products, apparatus and equipment ○ factors relating to general attitudes and behaviours • Careful observation and accurate interpretation of potential danger signs • Realistic assessment of the level of danger in different situations involving risk
2. Adopt the preventive measures required to maintain health and safety.	<ul style="list-style-type: none"> • Appropriate assimilation of the site evacuation plan • Accurate identification of equipment and resource persons in an emergency situation • Verification to ensure that all health and safety materials are accessible and in good condition • Adjustment of gear to fill the gaps identified • Adoption of safe behaviours and attitudes in all circumstances • Rigorous application of preventive measures for: <ul style="list-style-type: none"> ○ handling of organisms ○ use of hazardous products ○ use of equipment
3. Intervene in an emergency situation and in response to accidents in the workplace.	<ul style="list-style-type: none"> • Thorough knowledge of their obligations and responsibilities • Calm application of emergency measures according to established procedures • Proper administration of first aid in the natural environment and in the laboratory • Efficient organization of evacuation procedures for injured persons • Rapid communication with the appropriate intervention authorities

Objective**Standard**

Statement of the Competency	Achievement Context
Manage an intervention project in the natural environment.	<ul style="list-style-type: none"> Working alone, under the supervision of another person or body in charge In all types of projects involving land-use planning (restoration, conservation, use) or the management of its components Based on instructions given by public, parapublic or private authorities Using all relevant documentation (studies, technical documents, catalogues, suppliers' lists, etc.) and the necessary materials and equipment
Elements of the Competency	Performance Criteria
1. Analyze the key parameters of the project.	<ul style="list-style-type: none"> Rigorous analysis of the problem and questions underlying the project Clear explanation of the purpose of the project and the related issues List of all the key determinants of the project, including those relating to ethics and sustainable development Appropriate consultations with the project's stakeholders Detailed definition of the project objectives and expected outcomes
2. Plan the project.	<ul style="list-style-type: none"> Logical determination of the different steps in carrying out the project and the corresponding operations Preparation of a realistic work schedule Accurate assessment of the human resources needed, including each person's roles and responsibilities Accurate assessment of the material resources needed, including procurement methods and transportation of the resources to the site Accurate assessment of project costs and preparation of a budget that includes cost monitoring methods Clear formulation of an application for financial assistance Determination of quality standards and procedures for verifying compliance with these standards Approval of the plan by the authority in charge

Elements of the Competency	Performance Criteria
3. Ensure that suitable human and material resources are available for the project.	<ul style="list-style-type: none"> • Adequate participation in staff recruitment and training • Adequate transmission of all relevant and necessary information to the other team members • Adequate participation in procuring the necessary materials • Methodical verification to ensure that the materials delivered comply with order specifications • Compliance with pre-established budget limits
4. Supervise the performance of the work.	<ul style="list-style-type: none"> • Effective organization of activities at the site • Adequate verification of work techniques and application of remedial action where necessary • Methodical verification of compliance with health and safety requirements and with the applicable laws and regulations • Effective use of means of communication • Accurate assessment of team members' compliance with established rules of conduct • Accurate assessment of the team's performance • Effective collaboration with other stakeholders • Effective handling of emergencies, complaints and conflicts, including preparation of the necessary reports • Clarity and precision of progress reports, interim reports and final project reports • Proper management of end-of-work operations
5. Manage the changes made to the project during implementation.	<ul style="list-style-type: none"> • Appropriate changes to the organization and schedule of work to reflect the new parameters • Accurate assessment of the additional related costs • Adoption of effective remedial measures for performance gaps or quality deficiencies • Adoption of appropriate strategies to resolve any problems encountered
6. Evaluate the success of the project and the results obtained.	<ul style="list-style-type: none"> • Careful evaluation of quality and compliance of the work with the stated objectives • Careful evaluation of the parties' performance • Relevance of the recommendations made with respect to potential future improvements

Objective**Standard**

Statement of the Competency	Achievement Context
Convey scientific information.	<ul style="list-style-type: none"> • Communication for purposes of interpretation and training, popular science and the production of scientific material, including technical reports and portions of research reports • Based on explicit requests and expressed or perceived information needs • Through sufficient access to different scientific data sources, representative models of different forms of communication, the necessary computer equipment and any other appropriate apparatus

Elements of the Competency	Performance Criteria
1. Describe the characteristics of the target audience.	<ul style="list-style-type: none"> • Meticulous analysis of the target audience's needs and features • Accurate determination of the audience profile
2. Determine the communication objectives, approach and content.	<ul style="list-style-type: none"> • Accuracy and relevance of the objectives • Effective, methodical review of the literature on the topic concerned • Choice of content based on its relevance to the communication objectives • Identification of a communication approach and strategy suited to those elements
3. Plan and structure the content of the communication.	<ul style="list-style-type: none"> • Verification with qualified authorities to ensure the accuracy of the content • Strategic choice of communication means and media • Structuring of the content and planning of an appropriate didactic and strategic format for the communication
4. Produce all the elements required for the communication.	<ul style="list-style-type: none"> • Quality of the different communication elements produced: texts, images, tables, presentations • Use of simple language to express the content of the communication • Use of terminology and language suited to the characteristics of the target audience • Overall quality of the language and structure of the different communication elements • Consideration of applicable current presentation standards
5. Present the content of the communication.	<ul style="list-style-type: none"> • Proper application of the rules and principles of written, oral and mediated communication • Appropriate use of different media • Consideration of different communication styles in their interactions with the audience • Overall quality of the communication: consistency, clarity and rigour of the language used

Elements of the Competency	Performance Criteria
6. Evaluate the effectiveness of the communication with a view to making improvements.	<ul style="list-style-type: none"> • Strategic evaluation of the achievement of the original objectives • Identification of potential elements for improvement • Accurate revision of different elements of communication based on any deficiencies identified

Objective**Standard**

Statement of the Competency	Achievement Context
Process mapping information.	<ul style="list-style-type: none"> Using topographical maps, aerial photographs and orthophotographs; tools including stereoscopes, planimeters, opisometers and others; documentation, computers and geomatics equipment

Elements of the Competency	Performance Criteria
1. Obtain aerial photographs and topographical and thematic maps.	<ul style="list-style-type: none"> Choice of an appropriate information source Accurate localization on a map index Precise determination of the required characteristics Accurate assessment of photograph and map quality
2. Interpret aerial photographs.	<ul style="list-style-type: none"> Precise recognition of proportions based on the scale of the photographs Precise determination of relief Accurate determination of physical landscape elements such as the hydrographic network, vegetation and man-made elements
3. Interpret topographical maps.	<ul style="list-style-type: none"> Accurate interpretation of symbols in the legend Precise recognition of proportions based on the scale of the map Precise determination of relief based on contour lines Precise determination of physical landscape elements such as the hydrographic network, vegetation and man-made elements Accurate determination of geographical positions using different coordinate systems
4. Produce thematic maps from topographical maps, aerial photographs and orthophotographs.	<ul style="list-style-type: none"> Careful choice of control points Accurate transfer of control points to the map Precise recognition of infrastructures and area's basic physical elements Accurate drawing of elements shown on the photographs and orthophotographs Proper use of data processing techniques and geomatics processes
5. Produce thematic maps using data gathered in the field.	<ul style="list-style-type: none"> Accurate transposition of data Choice of colours, patterns and symbols that clearly illustrate the information on the map Accurate drawing of elements shown on the photographs Correct use of data processing techniques and geomatics processes

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the abiotic components of a natural environment.	<ul style="list-style-type: none"> Working alone or in a team, in the context of an inventory of components (water, air, soil and landscapes) In collaboration with environmental professionals In response to requests for projects involving site or environment management or land use planning (restoration, conservation, use) Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents on water, air and soil, and the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> Precise determination of the nature and scope of the work: parameters to be measured, delimitation of the survey zone Collection, critical analysis and verification of relevant information available Description of the general characteristics of the survey zone for planning purposes Choice of a sampling plan suited to the survey Choice of appropriate inventory techniques Choice and preparation of appropriate material Accurate localization of potential sampling sites on aerial photographs and maps Production of data collection tools
2. Carry out the different inventories provided for in the work plan.	<ul style="list-style-type: none"> Precise location of sampling sites in the field. Correct application of measurement techniques and water, air and soil sampling techniques Compliance with the predetermined protocol to ensure the measurements and observations are accurate, complete and reliable Compliance with the predetermined protocol for sample collection and preparation for immediate analysis or conservation Adequate tactile and visual sensitivity Satisfactory description of reliefs and landscapes Accuracy, completeness and reliability of measurements, observations and analyses of sample characteristics Rigorous and methodical data entry in compliance with established work protocol

Elements of the Competency	Performance Criteria
3. Behave responsibly when carrying out the different work activities.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and regulations • Respect for other team members and other collaborators • Careful use of materials
4. Produce a report describing the abiotic components of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation completed according to method chosen • Realistic and accurate description of the characteristics of water, air and soil • Realistic and accurate description of reliefs and landscapes • Overall quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the vegetation component of a natural environment.	<ul style="list-style-type: none"> • Working alone or in a team • In collaboration with environmental professionals • In response to requests for projects involving site or environment management or land-use planning (stand surveys, habitat characterizations, studies of recreotourism potential, etc.) • Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents; and the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> • Precise determination of the nature and scope of the work • Collection, critical analysis and verification of relevant information available • Description of the general characteristics of the survey zone for planning purposes • Choice of a sampling plan suited to the survey • Choice of appropriate inventory techniques • Choice and preparation of appropriate gear • Accurate localization, on aerial photographs and maps, of potential sampling sites that are representative of the environment and its diversity • Production of data collection tools

Elements of the Competency	Performance Criteria
2. Analyze the vegetation cover at all the pre-determined sample plots.	<ul style="list-style-type: none"> • Precise localization of sample plots in the field • Precise delineation of vegetation strata and identification of their component species • Complete, precise measurements: count, percentage cover for each species, physical characteristics of these species • Description of the plant communities present at the site • Description of the connections between the vegetation cover and the characteristics of the sample plots: orientation, drainage and surface deposit • Adequate sampling of specimens or partial specimens for identification purposes and to determine age • Measurements based on established protocol • Appropriate use of vernacular and scientific terminology • Rigorous and methodical data entry in compliance with established work protocol
3. Behave responsibly when carrying out the different work activities.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and regulations • Respect for other team members and other collaborators • Careful use of gear
4. Produce a report describing the vegetation component of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation in compliance with method chosen • Relevant comparison of data in the report with the environment • Overall quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the terrestrial and avian wildlife component of a natural environment.	<ul style="list-style-type: none"> • Working alone or in a team • In collaboration with environmental professionals • In response to requests for projects involving site or environment management or land-use planning (stand surveys, habitat characterizations, studies of recreotourism potential, etc.) • Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents on water air and soils; and the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> • Precise determination of the nature and scope of the work • Collection, critical analysis and verification of relevant information available • Description of the general characteristics of the survey zone for planning purposes • Choice of a sampling plan suited to the survey • Choice of appropriate inventory techniques • Choice and preparation of appropriate equipment • Accurate localization, on aerial photographs and maps, of potential sampling sites that are representative of the environment and its diversity • Production of data collection tools

Elements of the Competency	Performance Criteria
2. Carry out the different inventories provided for in the work plan.	<ul style="list-style-type: none"> • Correct application of inventory techniques suited to the species concerned: direct and indirect observation and interpretation of signs (tracks, browse, droppings) • Compliance with the chosen methodology • Demonstration of autonomy in adapting methods and techniques to the constraints of different sampling sites • Adequate sampling of specimens or partial specimens for identification purposes and to determine age • Precision and quality of the information collected, such as: <ul style="list-style-type: none"> ○ identification of species present at the site ○ count of species present at the site ○ delineation of range and distribution of species present at the site • Measurements based on established protocol • Appropriate use of vernacular and scientific terminology • Rigorous and methodical entry of data in compliance with the established work protocol
3. Assess the extent to which habitat quality meets species' requirements.	<ul style="list-style-type: none"> • Appropriate survey of relevant documentation to determine the nutritional, reproduction and shelter requirements of the different species • Proper use of geomatics for habitat characterization • Accurate, well documented habitat characterization based on habitat suitability index (HSI)
4. Behave responsibly when carrying out the work.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and regulations • Respect for other team members and other collaborators • Careful use of equipment
5. Produce a report describing the wildlife component of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation in compliance with method chosen • Relevant comparison of data in the report with the environment • Overall quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
<p>Make connections between the biotic and abiotic components of a natural environment using an ecosystem-based approach.</p>	<ul style="list-style-type: none"> • Working alone or in a team • In collaboration with environmental professionals • As part of work carried out for environment characterization, preparing intervention plans, assessing the environmental impacts of different activities, preparing future interpretation and educational activities, etc. • Using markers for a clearly defined problem: population dynamics; habitat conditions; management, use or conservation of resources; impact assessments, etc. • Synthesis produced from all relevant environmental studies and all the necessary data • Using maps, aerial photographs, field guides, identification keys, guidance instruments, reference books on ecology and statistics, a computer and software
Elements of the Competency	Performance Criteria
<p>1. Assimilate all the data on the components of the environment.</p>	<ul style="list-style-type: none"> • Rigorous analysis of data on the biotic or abiotic resources specific to the components studied • Justification and synthesis processing of data used • Summary of the similarities and differences between the various studies • Formulation of an overall impression of the component(s) analyzed • Identification of the best strategy and the most appropriate approach for the study • Methodical planning of the work to be done
<p>2. Characterize each component of the environment under study.</p>	<ul style="list-style-type: none"> • Accurate determination of the components' operational mechanisms • Description of the conditions and living areas of the different biotic components • Appropriate explanation of the presence of the different species in the study zone

Elements of the Competency	Performance Criteria
3. Describe the dynamic connections between the different components of the environment.	<ul style="list-style-type: none"> • Rigorous description of the interactions between the different biotic components of the environment: competition, complementarity, symbiosis • Rigorous description of the dynamic connections between the biotic and abiotic components of the environment: <ul style="list-style-type: none"> ○ environmental constraints ○ the organisms' needs ○ organisms' mechanisms for adapting to environmental constraints • Scientific explanation of the different factors that are favourable or unfavourable to the development of the species present at the site
4. Prepare a summary profile of the overall environment.	<ul style="list-style-type: none"> • Accurate description of the different ecosystems making up the environment • Graphic and schematic presentation of the dynamic connections between the environment's main components • Accurate impression of the general state of the environment and its future development
5. Produce a report.	<ul style="list-style-type: none"> • Overall quality of the report in terms of its form, structure and content • Structured presentation of qualitative and quantitative data • Proper use of computer tools

Objective**Standard**

Statement of the Competency	Achievement Context
Address a land-use planning problem from a sustainable development perspective.	<ul style="list-style-type: none"> • As part of a multidisciplinary, multisectoral team representing a broad range of interests and users • Based on a problem addressed from a sustainable development perspective and the different uses of the land and resources • Through interventions focused on sustainable development, acting as an agent of change and spokesperson for sustainable development • Using the documentation required to understand the overall situation: relevant scientific studies, master plans and land use plans for the territory in question, current laws and regulations, and thematic maps
Elements of the Competency	Performance Criteria
1. Analyze all aspects of the problem.	<ul style="list-style-type: none"> • Identification of the parties and interests concerned • Accurate definition of the main issues at stake • Brief analysis of the needs of the various users: <ul style="list-style-type: none"> ○ common ground ○ areas of disagreement ○ potential areas of conflict • Adequate summary of the following aspects: <ul style="list-style-type: none"> ○ ecosystem characterization of the land and its potential with respect to the problem ○ development targets versus conservation requirements ○ the social, economic and environmental issues at stake ○ the legislative and regulatory constraints
2. Explore different ways of reconciling the various interests.	<ul style="list-style-type: none"> • Clear and honest expression of their point of view and personal biases • Presentation of opinions and arguments based on facts and on scientific and technical evidence • Demonstration of an open-minded, flexible attitude toward the views of other participants • Demonstration of attitudes and behaviours conducive to dialogue, reconciliation and conflict resolution • Use of language adapted to the different interlocutors • Demonstration of a clear effort to understand terminology specific to the different specialty areas concerned • Consideration of the limitations of their own expertise during interventions

Elements of the Competency	Performance Criteria
3. Play a role in helping to design scenarios for integrated land-use planning.	<ul style="list-style-type: none"> • Adequate performance of technical tasks for which they are responsible • Adoption of a sustainable development perspective • Preparation of results and presentation to the team • Successful integration of these elements into the chosen scenarios
4. Take part in information and educational activities on the chosen scenarios for integrated land-use planning.	<ul style="list-style-type: none"> • Ability to summarize and use plain language • Communication approach and style adapted to the audience • Use of techniques and means that are appropriate to the situation • Constructive moderation of the ensuing debates • Open attitude to the reactions and opinions expressed at the meetings
5. Situate their own professional development with respect to sustainable development.	<ul style="list-style-type: none"> • Critical assessment of their support for the values and principles associated with the concept of sustainable development • Presentation of a personal balance sheet setting out: <ul style="list-style-type: none"> ○ their view of the importance and foreseeable impacts of sustainable development on integrated land-use planning of natural environments ○ their perception of probable changes to practices in their field of specialization ○ a review of the changes brought to professions by the adoption of a sustainable development perspective

Objective**Standard**

Statement of the Competency	Achievement Context
Map a forest area.	<ul style="list-style-type: none"> Based on the needs expressed by a client or by the person responsible for a forestry service Using thematic maps, aerial photographs and satellite images Using relevant documentation Using the necessary equipment
Elements of the Competency	Performance Criteria
1. Draft a map of a land survey.	<ul style="list-style-type: none"> Accuracy and regularity of the map Compliance with conventional forest mapping standards and symbols Appropriate use of computer equipment
2. Order the aerial photographs and satellite images needed to cover an area.	<ul style="list-style-type: none"> Choice of an appropriate information source Accurate determination of the characteristics of the required photographs and satellite images Exact localization of the aerial photographs on an index map Accurate evaluation of photograph quality
3. Interpret the aerial photographs.	<ul style="list-style-type: none"> Accurate assessment of photograph quality Preparation of an identification key that accurately depicts reality Adequate preparation of aerial photographs Careful determination of the physical elements of the area, the type of cover, the forest stands and other regular classification features Compliance with the client's specifications or with forest stratification standards
4. Transfer elements from an aerial photograph to a map.	<ul style="list-style-type: none"> Careful choice of match points Accurate transfer of match points to the map Precise superposition of match points on the photograph and the map Accurate identification of infrastructures and basic physical elements in the area Precise outlining, on the map, of elements shown on the photograph Correct use of common computer procedures

Objective**Standard**

Statement of the Competency	Achievement Context
Carry out forest protection activities.	<ul style="list-style-type: none"> • Working alone or in a team • In a forest, plantation or nursery • By means of data collection, prevention projects, detection, suppression or treatment of insects and tree diseases, measures to protect forests against fires • In collaboration with other technicians, with forestry engineers, entomologists and forest pathologists • Using standardized procedures, collecting equipment, sampling and conservation instruments and fire prevention materials (shovels, motor-driven pump) • Using maps, aerial photographs, measuring and surveying instruments, identification guides and a motor vehicle

Elements of the Competency	Performance Criteria
1. Assess the health of a forest stand in a given area.	<ul style="list-style-type: none"> • Accurate detection of signs and symptoms of the presence of destructive insects and diseases • Precise identification of the insects and diseases in question • Accurate assessment of the size and extent of the stand damaged by insects or disease • Explanation of the connections between environmental conditions in the area and the stand's level of vulnerability to the insects and diseases identified
2. Propose special measures to address the insects identified and diseases diagnosed.	<ul style="list-style-type: none"> • Methodical consultation of appropriate documentary and human resources • Identification of relevant, standardized preventive or remedial measures • Provision of relevant information to the appropriate authorities
3. Apply measures to protect forests against fires.	<ul style="list-style-type: none"> • Accurate assessment of the level of fire risk in the forest • Identification and correct application of relevant preventive measures • Correct application of forest fire repression techniques • Safe behaviour • Wearing of appropriate safety equipment

Objective**Standard**

Statement of the Competency	Achievement Context
Carry out silvicultural work prior to harvesting.	<ul style="list-style-type: none"> • In accordance with instructions • In public and private forests • Using forestry maps and aerial photographs • Using relevant apparatus and tools • Based on silvicultural directives and prescriptions

Elements of the Competency	Performance Criteria
1. Carry out work to restore production in a given area.	<ul style="list-style-type: none"> • Careful juxtaposition of tree multiplication methods and objectives • Verification and proper storage of seedlings before planting • Correct application of planting methods • Application of an appropriate plantation maintenance method • Compliance with health and safety rules
2. Locate harvesting sectors and roads to be built.	<ul style="list-style-type: none"> • Accuracy of onsite markings • Justified corrections to original markers • Compliance with work procedures • Compliance with health and safety rules
3. Carry out pre-commercial stand improvement treatments.	<ul style="list-style-type: none"> • Justified choice of trees to be encouraged • Relevance of improvement work on each tree • Proper handling of tools • Compliance with health and safety rules
4. Select trees for commercial treatment.	<ul style="list-style-type: none"> • Compliance with selection criteria for the prescribed treatment • Compliance with health and safety rules

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory a forest area.	<ul style="list-style-type: none"> Based on established standards, procedures and the applicable legislation As part of a multiresource inventory Using maps and aerial photographs Using relevant documentation Using inventory, communication and computer equipment

Elements of the Competency	Performance Criteria
1. Draw up a production specification.	<ul style="list-style-type: none"> Proper interpretation of the initial production specification Consistent determination of the inherent organizational impacts of the methodology chosen Compilation of relevant information Precise determination of needs for human and material resources Establishment of a realistic schedule Accurate cost estimate Quality of the written presentation of the work plan
2. Plan data collection.	<ul style="list-style-type: none"> Correct execution of area mapping process Careful implementation of the survey plan Complete logistics organization Correct application of a personnel selection method
3. Supervise data collection.	<ul style="list-style-type: none"> Choice of appropriate personnel training methods Effective distribution of the work Careful verification of work quality Verification of the accuracy of the data collected Proper application of health and safety rules Effective use of computer equipment
4. Prepare an inventory report.	<ul style="list-style-type: none"> Consistency of the report with the expected inventory results Appropriate corrections made to the inventory area map Clarity of the report Appropriate use of computer equipment Digital summary and careful mapping of inventory data

Objective**Standard**

Statement of the Competency	Achievement Context
Classify a forest site.	<ul style="list-style-type: none"> • In the context of planning and carrying out of forestry work • Based on laws and regulations • Using maps and aerial photographs • Using appropriate documentation and instruments
Elements of the Competency	Performance Criteria
1. Collect the data required for a multiresource inventory.	<ul style="list-style-type: none"> • Use of an appropriate data collection method • Accurate survey of the descriptive aspects of the soil and vegetation • Accurate survey of wildlife presence indicators • Survey of relevant landscape elements • Compliance with health and safety rules
2. Characterize the site.	<ul style="list-style-type: none"> • Correct position of site in the toposequence and within a reference framework based on geology, geomorphology and climate • Suitable delimitation of the site • Relevance of the physical elements used to indicate constraints or potential • Accurate interpretation of the results of the physicochemical soil analysis • Appropriate summary of the elements considered
3. Determine the forest type.	<ul style="list-style-type: none"> • Suitable delimitation of the forest type to be identified • Relevance of the connections made with elements from the ecological reference framework • Correct assessment of the standard classification criteria • Correct use of classification keys • Accurate naming of the forest type
4. Situate the forest type within the vegetation development process.	<ul style="list-style-type: none"> • Accurate determination of its origins • Production of a plausible development hypothesis
5. Carry out an assessment of the potential of the site resources.	<ul style="list-style-type: none"> • Use of an appropriate method to assess the potential of the resource in question • Correct associations made between the site characteristics and the potential of the resource being assessed • Accuracy of the potential assigned to each resource

Elements of the Competency	Performance Criteria
6. Assess the site constraints.	<ul style="list-style-type: none"> • Use of an appropriate method to assess constraints • Correct associations made between vegetation, environmental conditions and existing constraints • Correct associations made between the impacts of harvesting and the site characteristics • Accuracy of the assessment

Objective**Standard**

Statement of the Competency	Achievement Context
Manage stocks of felled wood.	<ul style="list-style-type: none"> • Under the supervision of the person responsible for harvesting timber • Based on information set out in a contract or book of reference standards • Using scaling and computer equipment

Elements of the Competency	Performance Criteria
1. Plan the scaling of the felled wood.	<ul style="list-style-type: none"> • Choice of an appropriate scaling method • Precise determination of needs for human and material resources • Accurate estimate of operational costs • Relevance of information exchanged with the appropriate authorities
2. Supervise the data collection process.	<ul style="list-style-type: none"> • Application of an appropriate method to record and manage the data • Clear communication of instructions to the people concerned • Appropriate verification of accuracy of scaling equipment • Careful verification of compliance with the applicable standards • Appropriate management of complaints and scaling errors
3. Produce reports.	<ul style="list-style-type: none"> • Rigorous application of method to update stocks and forward information to the people concerned • Accuracy of the data in the report • Appropriate use of computer equipment

Objective**Standard**

Statement of the Competency	Achievement Context
Coordinate infrastructure-related work.	<ul style="list-style-type: none"> • Under the supervision of a line supervisor • To build and improve road infrastructures • To dig forest drainage channels • To install camps • Based on standards for construction and harvesting in a forest environment • Using maps and aerial photographs • Using computer equipment and land surveying instruments

Elements of the Competency	Performance Criteria
1. Plan the construction of the road network.	<ul style="list-style-type: none"> • Determination of optimal location of roads on maps and aerial photographs • Appropriate sourcing of granular borrow material • Appropriate use of computer equipment
2. Prepare to construct the proposed infrastructures.	<ul style="list-style-type: none"> • Accurate survey of the infrastructure sites • Careful interpretation of plans and specifications • Accurate determination of needs for human and material resources • Clear presentation of written documents • Compliance with standards for road infrastructure construction and environmental protection • Appropriate use of computer equipment
3. Supervise the construction of the infrastructures.	<ul style="list-style-type: none"> • Use of an appropriate method to determine the infrastructure location • Compliance with environmental protection standards • Compliance with plans and specifications • Effective organization of work • Rigorous tracking of construction costs • Compliance with health and safety rules
4. Supervise infrastructure maintenance.	<ul style="list-style-type: none"> • Accurate determination of human and material resource needs • Use of an appropriate method of infrastructure maintenance • Careful verification of infrastructure safety • Compliance with health and safety rules

Objective**Standard**

Statement of the Competency	Achievement Context
Coordinate timber harvesting work.	<ul style="list-style-type: none"> • For a given harvesting sector • Under the supervision of the site manager • Based on the applicable silvicultural prescriptions as set out in the annual forest management plan • Based on forest harvesting standards • Based on scaling standards for felled wood • Based on labour conventions and workplace health and safety rules • Using maps and aerial photographs • Using computer equipment
Elements of the Competency	Performance Criteria
1. Plan harvesting operations.	<ul style="list-style-type: none"> • Consistent choice of harvesting procedures • Precise determination of needs for human and material resources • Production of a detailed schedule of operations • Accurate estimate of production costs • Effective use of computer equipment
2. Supervise the work teams assigned to harvesting tasks.	<ul style="list-style-type: none"> • Adequate verification of work techniques • Adequate management of felled wood stocks • Accurate assessment of treatment quality • Correct tracking of costs and productivity • Adequate verification of compliance with environmental protection standards and health and safety rules • Effective use of communication means
3. Prepare production reports.	<ul style="list-style-type: none"> • Relevance of the information provided • Accurate digital and map-based summary of volumes and areas harvested • Precise calculation of costs and productivity • Quality of presentation

Objective**Standard**

Statement of the Competency	Achievement Context
Supervise pre-commercial and rehabilitation work in an area.	<ul style="list-style-type: none"> • For stand creation and tending purposes • In public and private forests • Based on established silvicultural prescriptions • Based on current laws and regulations • Based on labour conventions and standards • Using maps and aerial photographs • Using computer equipment

Elements of the Competency	Performance Criteria
1. Plan the work.	<ul style="list-style-type: none"> • Consideration of the specific features of the work prescribed • Preparation of a realistic work schedule • Precise determination of needs for human and material resources • Accurate estimate of costs • Consideration of health and safety rules
2. Coordinate the work teams.	<ul style="list-style-type: none"> • Effective organization of work • Compliance with the labour convention • Compliance with health and safety rules • Adequate verification of work techniques • Quality of verbal communication
3. Monitor the work.	<ul style="list-style-type: none"> • Adequate control of work quality • Accurate record of production • Careful determination of productivity • Compliance with laws and regulations. • Stringent control of production costs • Effective use of computer equipment
4. Draft and present reports.	<ul style="list-style-type: none"> • Relevance of the information collected • Accurate digital and map-based summary of the work completed • Effective use of computer equipment • Quality of written and oral presentations

Objective**Standard**

Statement of the Competency	Achievement Context
Participate in developing and monitoring management plans.	<ul style="list-style-type: none"> • Work performed in teams under the supervision of a forestry engineer • During silvicultural work in a public or private forest, including work associated with restoration of production, stand tending and harvesting of the forestry component • Based on a request involving the following elements: production objectives; delimitation of the area concerned; applicable legal framework, including prescription and monitoring standards; a description of time-related and monetary constraints on preparation of the plan • Using the necessary instruments (tracking and tracing tools, global positioning system [GPS], measuring instruments, computer and software, and the necessary field equipment

Elements of the Competency	Performance Criteria
1. Plan to carry out the work involved in developing the plan.	<ul style="list-style-type: none"> • Rigorous analysis of the request and its parameters • Identification of missing data and choice of appropriate methods to collect it • Identification of the steps in the work process • Fair division of tasks among team members • Adequate logistics organization based on budget and time-related constraints
2. Characterize the area according to the production objectives.	<ul style="list-style-type: none"> • Complete list of missing data • Data analysis to prepare an accurate profile of the area's components • Accurate assessment of each stand's production potential • Accurate assessment of each stand's potential for silvicultural work • Determination of the feasibility of the objectives based on the area's potential • Accurate digital and map-based summary of the area's components
3. Prepare proposals for management prescriptions.	<ul style="list-style-type: none"> • Relevance of the proposed silvicultural work • Quality of the description of the prescriptions: type, scope and exact location of the work • Accurate determination of the resources and access terms required to carry out the proposed work • Presentation of the prescriptions to the authority concerned for technical, legal and financial verification • Appropriate corrections made to the prescriptions, based on the feedback received

Elements of the Competency	Performance Criteria
4. Help to draft the management plan.	<ul style="list-style-type: none"> • Inclusion of all project elements by the team • Precise description of: <ul style="list-style-type: none"> ○ the objectives ○ the work ○ the area ○ the operational sequence of the work ○ the schedule • Preparation of the management plan in accordance with the standard format
5. Present the management plan to whom it may concern.	<ul style="list-style-type: none"> • Quality of the various communication elements produced: texts, images, tables, presentations • Appropriate adaptation of the content • Use of terminology and language suited to the characteristics of the intended audience • Overall quality of the language and structure of the various communication elements • Consideration of current presentation standards, depending on the circumstances
6. Monitor the interventions provided for in the management plan.	<ul style="list-style-type: none"> • Preparation of a survey plan suited to the monitoring parameters • Rigorous inventory based on current monitoring standards • Accuracy of observations • Relevance of the prescribed remedial measures formulated in the plan

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the aquatic wildlife component of a natural environment.	<ul style="list-style-type: none"> • Working alone or in a team • In collaboration with environmental professionals • In response to requests for site, environment or area management projects (stand surveys, habitat characterizations, studies of recreotourism potential, etc.) • Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents on water, air and soil, and the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> • Precise determination of the nature and scope of the study • Collection, critical analysis and verification of relevant information available • Description of the general characteristics of the survey zone for planning purposes • Choice of a sampling plan suited to the survey • Choice of appropriate inventory techniques • Choice and preparation of appropriate materials • Accurate location, on aerial photographs and maps, of potential sampling sites that are representative of the environment and its diversity • Production of data collection tools

Elements of the Competency	Performance Criteria
2. Carry out the different inventories provided for in the work plan.	<ul style="list-style-type: none"> • Proper application of inventory techniques suited to the species under study • Compliance with the predefined methodology • Demonstration of autonomy in adapting methods and techniques to the constraints of different sampling sites • Adequate sampling of specimens or partial specimens for identification purposes and to determine age • Precision and quality of the information collected in terms of: <ul style="list-style-type: none"> ○ identification of species present at the site ○ list of species present at the site ○ delineation of the ranges of species present at the site • Measurements taken using the established protocol • Appropriate use of vernacular and scientific terminology • Rigorous and methodical entry of data in compliance with the working protocol
3. Assess the extent to which species' requirements are met by the quality of their habitats.	<ul style="list-style-type: none"> • Appropriate examination of relevant documentation to determine the nutritional, reproduction and shelter requirements of the different species • Accurate, extensively documented characterization of habitats
4. Behave responsibly when carrying out the different types of work.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and rules • Respect for other team members and other collaborators • Careful use of equipment
5. Produce a report describing the aquatic wildlife component of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation completed using the chosen method • Relevant connections made between the data in the report and the environmental data • Overall quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
Detect the presence of anomalies among wildlife species.	<ul style="list-style-type: none"> Working alone In the field, during data collection activities and work carried out on individual terrestrial, aquatic or avian wildlife specimens In collaboration with environmental professionals and laboratory technicians Based on instructions and predefined protocols, especially for sampling Using guides to wildlife diseases and parasites, dissection instruments, sampling instruments and observation techniques

Elements of the Competency	Performance Criteria
1. Record abnormal external signs.	<ul style="list-style-type: none"> Rigorous observation and description of the animal's behaviour Recording of any abnormal behaviour Accurate location and description of anomalies on the animal's body Safe handling of the animal Wearing of proper safety equipment Use of an appropriate containment method
2. Record abnormal internal signs	<ul style="list-style-type: none"> Safe handling of instruments Wearing of proper safety equipment Stringent application of an appropriate dissection technique Rigorous observation and identification of internal anomalies in the animal
3. Collect samples.	<ul style="list-style-type: none"> Use of an appropriate containment method Safe handling of instruments Stringent application of a sampling technique according to the type of sample requested Compliance with the predefined protocol Choice of an appropriate conservation method
4. Assess the nature of the anomaly in the animal observed	<ul style="list-style-type: none"> Identification of relevant connections between signs of abnormalities and standards for good health Meticulous determination of the nature of any infectious agents or parasites Verification of their diagnostic impressions with specialists in the field
5. Transmit the data on notifiable diseases to the authorities concerned.	<ul style="list-style-type: none"> Accurate distinction of notifiable diseases Accurate determination of the stakeholders concerned. Accurate determination of data transmission methods Adequate communication of relevant information

Objective**Standard**

Statement of the Competency	Achievement Context
Evaluate the population of a wildlife species in a natural environment.	<ul style="list-style-type: none"> • Working in a team • In connection with all terrestrial, aquatic and avian wildlife species, as part of periodic inventory work and impact assessments • Based on predefined directives and protocols • Using all the necessary documentation (various studies, ministerial records, inventory guidelines, work guides, identification keys, aerial photographs, maps, technical sheets, hunting, fishing and trapping statistics), all the necessary sampling, capture, measurement and harvesting instruments and other appropriate equipment
Elements of the Competency	Performance Criteria
1. Analyze the key parameters for the study.	<ul style="list-style-type: none"> • Careful analysis of the documentation • Consultation of appropriate stakeholders with an interest in the study • Careful analysis of the available data on the biophysical characteristics of the environment and the population studied • Preparation of a profile of the population and the biophysical components of the environment for reference purposes • Detailed definition of the study's objectives and the anticipated results
2. Plan the study.	<ul style="list-style-type: none"> • Selection of an inventory technique suited to the population and environment concerned • Drawing up of an appropriate sampling plan and corresponding data collection tools • Logical determination of the steps in carrying out the project and the corresponding operations • Preparation of a realistic work schedule • Accurate assessment of human resource needs, along with the roles and responsibilities of each person • Accurate assessment of material resource needs, including methods of procurement and dispatch of the resources to the site • Verification of the plan by the authority in charge

Elements of the Competency	Performance Criteria
3. Carry out the inventory of the population under study.	<ul style="list-style-type: none"> • Proper application of the inventory technique according to the established protocol • Correct use of instruments • Correct use of a data collection sheet suited to the sampling requirements • Complete, rigorous collection of qualitative and quantitative data on the population concerned • Identification of other species present, based on indicators • Accuracy of the data
4. Analyze the data to determine population dynamics.	<ul style="list-style-type: none"> • Methodical compilation and summary presentation of all the data • Determination of population growth or decline compared to the previous inventory • Adequate description of any changes observed in the distribution of age and gender groups • Brief description of the impact of other species on the population under study • Establishment of relevant connections between the basic needs of the species and the data collected
5. Produce a report.	<ul style="list-style-type: none"> • Proper use of computer and geomatics processes • Quality of the report in terms of its form, structure and content • Quality of the maps

Objective**Standard**

Statement of the Competency	Achievement Context
Manage the population of a wildlife species in a natural environment.	<ul style="list-style-type: none"> Working in a team, under supervision In connection with all terrestrial, aquatic and avian wildlife species and with due regard for forestry, agricultural and urban issues For all measures relating to conservation of biodiversity from a sustainable development perspective In collaboration with wildlife and forestry professionals and with various stakeholders in the area Based on a description of the overall problem, an established or yet to be completed profile of the population concerned, and a wildlife management plan Using all the necessary documentation (various studies, inventory guidelines, wildlife management and intervention guides, monitoring programs, identification keys, aerial photographs, maps), , all the necessary sampling, capture, measurement and harvesting instruments and other appropriate equipment

Elements of the Competency	Performance Criteria
1. Analyze all the parameters of the problem.	<ul style="list-style-type: none"> Careful analysis of the documentation Consultation with appropriate stakeholders with an interest in the study Careful analysis of the available population evaluation information Production of an inventory to obtain missing data or to verify existing data Preparation of a complete population profile Detailed definition of the management objectives and the expected outcomes
2. Plan the management work.	<ul style="list-style-type: none"> Choice of management measures suited to the objectives and expected outcomes Logical determination of the steps in carrying out the management project, along with the corresponding operations and protocols Production of a realistic work schedule Accurate assessment of human resource needs, along with the roles and responsibilities of each person Accurate assessment of material resource needs, including methods of procurement and dispatch of the resources to the site Verification of the plan by the authority in charge Necessary authorizations, permits and licences obtained

Elements of the Competency	Performance Criteria
3. Carry out the work to implement the chosen management measures.	<ul style="list-style-type: none"> • Use of appropriate management techniques according to the protocol • Effective coordination of work carried out by the team members under their responsibility • Compliance with the health and safety rules applicable to all the operations
4. Assist with the preparation of a monitoring program for wildlife resource management.	<ul style="list-style-type: none"> • Proposal of relevant monitoring operations to be carried out in the field • Identification of the logistical aspects of the monitoring operations • Effective communication of information
5. Produce a report on the management work.	<ul style="list-style-type: none"> • Proper use of data processing techniques and geomatics processes • Quality of the report in terms of its form, structure and content • Quality of the maps • Quality of the presentation of the report to the people concerned

Objective**Standard**

Statement of the Competency	Achievement Context
Manage a habitat.	<ul style="list-style-type: none"> • Working in a team, under supervision • In connection with all types of habitats and with due regard for forestry, agricultural and urban issues • For all measures relating to conservation of biodiversity from a sustainable development perspective • In collaboration with wildlife and forestry professionals and with various stakeholders in the area • Based on a description of the overall problem, an established or yet to be completed habitat profile, a complete inventory of the population concerned and a wildlife management plan • Using all the necessary documentation (various studies, inventory guidelines, wildlife intervention and management guides, identification keys, aerial photographs, maps, aerial photographs), all the necessary sampling, measurement and harvesting instruments and other appropriate equipment

Elements of the Competency	Performance Criteria
1. Analyze all the parameters of the problem.	<ul style="list-style-type: none"> • Careful analysis of the documentation • Adequate consultations with stakeholders with an interest in the project • Careful analysis of the available information on the species concerned and its habitat • Production of an inventory to obtain missing data or to verify existing data on the habitat • Preparation of a complete habitat profile • Detailed definition of the management objectives and the expected outcomes

Elements of the Competency	Performance Criteria
2. Plan the management work.	<ul style="list-style-type: none"> • Choice of management measures suited to the objectives and expected outcomes • Logical determination of the steps in carrying out the management project, along with the corresponding operations and protocols • Production of plans and specifications for the various interventions • Production of a realistic work schedule • Accurate assessment of human resource needs, along with the roles and responsibilities of each person • Accurate assessment of material resource needs, including methods for the procurement and dispatch of the resources to the site • Verification of the plan by the authority in charge • Necessary authorizations, permits and licences obtained
3. Carry out the work to implement the chosen management measures.	<ul style="list-style-type: none"> • Adaptation of the protocol to the specific constraints of the site • Use of appropriate management techniques according to the protocol • Effective coordination of work done by the team members under their responsibility • Compliance with health and safety rules applicable to all the operations • Quality of the management measures in accordance with the plans and specifications
4. Assist with the preparation of a habitat management monitoring program.	<ul style="list-style-type: none"> • Proposal of relevant monitoring operations to be carried out in the field • Identification of the logistical aspects of the monitoring operations • Effective communication of information
5. Produce a report on the management work.	<ul style="list-style-type: none"> • Proper use of data processing techniques and geomatics processes • Quality of the report in terms of its form, structure and content • Quality of maps

Objective**Standard**

Statement of the Competency	Achievement Context
Monitor the management of a wildlife species population and its habitat.	<ul style="list-style-type: none"> • Working alone or in a team, under the responsibility of a professional • In connection with managing all types of habitat and their corresponding wildlife populations and with due regard for forestry, agricultural and urban issues • In collaboration with the professionals concerned • Based on an established monitoring program and a complete file on the habitat and its wildlife population, including a description of the overall problem, a description of the habitat and the population and a description of the management work • Using all the necessary documents, all the necessary sampling, capture, measurement and harvesting instruments and other appropriate equipment

Elements of the Competency	Performance Criteria
1. Assimilate all the data concerning the intervention site.	<ul style="list-style-type: none"> • Appropriate consultation with the people involved and examination of all the related documentation • Correct explanation of the initial problem, the nature of the management work carried out and the expected outcomes • Correct explanation of the established monitoring protocol
2. Plan the monitoring work.	<ul style="list-style-type: none"> • Preparation of a realistic work schedule • Accurate assessment of human resource needs, along with the roles and responsibilities of each person • Accurate assessment of material resource needs, including methods of procurement and dispatch of the resources to the site • Verification of the plan by the authority in charge • Necessary authorizations, permits and licences obtained

Elements of the Competency	Performance Criteria
3. Assess the status of the management work carried out in the field, along with the results obtained.	<ul style="list-style-type: none"> • Timely adaptation of monitoring procedures to site access conditions where necessary • Safe, methodical application of the monitoring protocol • Rigorous description of infrastructures • Rigorous analysis of the biophysical characteristics of the habitat • Quantitative and qualitative indicators of the population • Methodical compilation of the data • Accurate assessment of the extent to which the stated objectives have been achieved in terms of actual outcomes in the field
4. Make recommendations.	<ul style="list-style-type: none"> • Proposal of remedial measures to ensure that the management work fulfills the original mandate • Proposal of relevant complementary studies • Proposal of amendments to the monitoring program in order to adapt it to changes in the environment
5. Produce and present a report on the management work.	<ul style="list-style-type: none"> • Proper use of data processing techniques and geomatics processes • Quality of the report in terms of its form, structure and content • Quality of maps

Objective**Standard**

Statement of the Competency	Achievement Context
Prepare a comprehensive wildlife management plan.	<ul style="list-style-type: none"> Working alone In collaboration with wildlife and forestry professionals Planning of work covering projected management interventions in the short-term (within the following year) and in the medium term (within the following three years) for a particular territorial division Based on a request from the government body responsible for wildlife, a structured area with a large number of users, and all available data on the wildlife populations and habitats in the area concerned Using the necessary documentation covering all the characteristics of the area in question, along with information describing all forms of human activity in the area, and a computer workstation

Elements of the Competency	Performance Criteria
1. Organize all the information.	<ul style="list-style-type: none"> Rigorous analysis of all the available information Methodical sorting of information according to the different species and different users Rigorous selection of information relevant to the management plan Demonstration of good judgment in sorting the information to be kept
2. Summarize the information on each species present in the area.	<ul style="list-style-type: none"> Production of a rigorous profile of each species, including a description of: <ul style="list-style-type: none"> its abundance the quality of its habitat Quality of the data mapping
3. Define zones within the area designated for species optimization purposes.	<ul style="list-style-type: none"> Analysis of habitats using habitat quality and species abundance criteria Identification of the most productive habitats for each species Classification of habitats in declining order of productivity Quality of maps showing the distribution of wildlife optimization zones for all the species
4. Determine possible management interventions to optimize species.	<ul style="list-style-type: none"> Assessment of the feasibility of different potential management techniques Choice of the management interventions best suited to the environmental conditions

Elements of the Competency	Performance Criteria
5. Establish priorities for management interventions by referring to proposed land uses.	<ul style="list-style-type: none"> • Rigorous analysis of information on anticipated human activities in the area • Realistic estimate of the probable impact of these activities on habitats and on the wildlife population • Feasibility assessment of the initial projected management interventions in light of this new parameter • Selection of the most appropriate management interventions
6. Plan the work for the duration of the period covered by the management plan.	<ul style="list-style-type: none"> • Realistic estimate of the cost of carrying out the management interventions and monitoring operations • Realistic estimate of anticipated revenues slated for environmental management • Determination of the impact of material and human conditions on the feasibility of the management plan • Final selection of management and monitoring interventions • Adequate preparation of work schedule
7. Draft the management plan and submit it to the regulatory body for verification.	<ul style="list-style-type: none"> • Compliance of the plan with laws and regulations • Proper use of data processing techniques and geomatics processes • Quality of the report in terms of its form, structure and content • Quality of maps • Clear explanation of the steps taken and the reasoning for the decisions made • Amendment of the management plan as per corrections required

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the aquatic wildlife component of a natural environment.	<ul style="list-style-type: none"> Working alone or in a team In collaboration with environmental professionals In response to requests for site, environment or area management projects (stand surveys, habitat indicators, studies on recreotourism potential, etc.) Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents on water, air and soil, and the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> Precise determination of the scope of the study Collection, critical analysis and verification of relevant information available Description of the general characteristics of the survey area for planning purposes Choice of a sampling plan suited to the survey Choice of appropriate inventory techniques Choice and preparation of appropriate materials Accurate location, on aerial photographs and maps, of potential sampling sites that are representative of the environment and its diversity Production of data collection tools
2. Carry out the inventories provided for in the work plan.	<ul style="list-style-type: none"> Proper application of inventory techniques suited to the species concerned Compliance with the chosen methodology Demonstration of autonomy in adapting methods and techniques to the constraints of the different sampling areas Adequate sampling of specimens or partial specimens for identification purposes and to determine age Precision and quality of the information collected: <ul style="list-style-type: none"> identification of species present at the site list of species present at the site delineation of the ranges of species present at the site Measurements taken using the chosen protocol Appropriate use of vernacular and scientific terminology Rigorous and methodical data entry in compliance with the working protocol

Elements of the Competency	Performance Criteria
3. Assess the extent to which species' requirements are met by the quality of their habitats.	<ul style="list-style-type: none"> • Appropriate examination of relevant documentation to determine the nutritional, reproduction and shelter requirements of the different species • Accurate, extensively documented characterization of habitats
4. Behave responsibly when carrying out the different work.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and rules • Respect for other team members and other collaborators • Careful use of equipment
5. Produce a report describing the aquatic wildlife component of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation completed using the method chosen • Relevant connections made between the data in the report and the environmental data • General quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the cultural heritage of a given site.	<ul style="list-style-type: none"> Working alone for the purpose of designing interpretation activities or planning heritage development Based on a mandate from a promoter Using all the necessary documentation, including databanks, the resource people concerned, the necessary apparatus (camera, recording equipment, video camera), a computer and the necessary software

Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> Research and careful reading of relevant documents Methodical consultation with resource people Assessment of the relevance of expanding the inventory Precise delimitation of the field of study: <ul style="list-style-type: none"> the site itself relevant elements of the adjacent area Identification of the relevant aspects of the heritage site to be surveyed Selection of appropriate inventory techniques and the necessary materials
2. Collate data on the ethnological, archaeological and anthropological aspects	<ul style="list-style-type: none"> Detailed description of the steps taken Accurate location and precise description of the archaeological elements Brief description of past and present habits and customs
3. Collate data on the built heritage.	<ul style="list-style-type: none"> Detailed description of the steps taken Accurate location of buildings of interest from a heritage standpoint Brief description of heritage buildings
4. Collate data on cultural and recreotourism activities	<ul style="list-style-type: none"> Detailed description of the steps taken Complete inventory of existing cultural activities
5. Collate data on the cultural landscape.	<ul style="list-style-type: none"> Detailed description of the steps taken Precise delimitation of human occupation Brief description of how the site is used Rigorous inventory of cultural landscape characteristics
6. Prepare a report.	<ul style="list-style-type: none"> Rigorous compilation of the data collected General quality of the report in terms of its form, structure and content Appropriate mapping of data

Elements of the Competency	Performance Criteria
7. Conserve all the materials collected.	<ul style="list-style-type: none"> • Proper identification and classification of all the materials collected • Respect for physical integrity of elements during handling and storage

Objective**Standard**

Statement of the Competency	Achievement Context
Draw up a profile of potential users	<ul style="list-style-type: none"> Working alone for the purpose of designing interpretation activities or planning heritage development Based on a mandate from a promoter Using data on regional tourist activities, regional socio-economic data, all the necessary documentation including databanks, the resource people concerned, a computer and the necessary software

Elements of the Competency	Performance Criteria
1. Analyze all the available data.	<ul style="list-style-type: none"> Identification of relevant information sources Complete review of the documentation for the purposes of rigorous data selection Determination of missing information on potential users
2. Prepare the survey process.	<ul style="list-style-type: none"> Precise determination of survey parameters and methods Clear formulation of survey questions Adequate validation of the questionnaire
3. Carry out the planned work.	<ul style="list-style-type: none"> Adequate administration of the questionnaire to selected users, based on the methods chosen Respectful behaviour towards respondents Rigorous and methodical execution of the work
4. Analyze all the data collected.	<ul style="list-style-type: none"> Appropriate choice and proper application of a compilation method Rigorous processing of data Accurate interpretation of the results obtained Accurate determination of the target user profile: <ul style="list-style-type: none"> economic and demographic profile cultural and educational profile fields of interest and leisure activities vacation plans
5. Prepare a report	<ul style="list-style-type: none"> Quality of the report in terms of its structure, form and content Quality of data representations

Objective**Standard**

Statement of the Competency	Achievement Context
Design and structure an interpretation activity.	<ul style="list-style-type: none"> Working in a team on static or dynamic interpretation activities such as guided visits, talks, experiments, lectures or game-based situational reconstructions Based on a document containing proposals for natural and cultural heritage development of a given site, along with a mandate describing the guidelines pursued Using all the studies characterizing the various components of the site, all the necessary scientific work, a computer and appropriate software

Elements of the Competency	Performance Criteria
1. Analyze all the data and parameters.	<ul style="list-style-type: none"> Careful analysis of site biophysical, sociocultural and sensory data Careful analysis of user group data Careful analysis of site development proposals
2. Decide on the educational objectives and content of the interpretation activity.	<ul style="list-style-type: none"> Detailed, operational definition of the activity's objectives based on the characteristics of the environment and of the user group Identification of relevant content suited to the cognitive and affective objectives Structuring of content according to broad learning principles
3. Prepare the scenario for the interpretation activity.	<ul style="list-style-type: none"> Careful structuring and drafting of the message and the corresponding texts Appropriate determination of corresponding technical and human means Determination of the activity's duration Sequencing of the scenario's different elements according to the basic principles of effective communication Originality and dynamism of the scenario Quality of the language
4. Present the interpretation activity scenario for verification.	<ul style="list-style-type: none"> Clarity of the presentation, the reasons given for the steps taken and the results obtained Open-minded approach to subsequent discussions Changes made to the proposals based on feedback received Production of a document in the required format

Elements of the Competency	Performance Criteria
<p>5. Plan the monitoring and evaluation of the interpretation activity and its implementation.</p>	<ul style="list-style-type: none"> • Preparation of clear, relevant questions on the following aspects: <ul style="list-style-type: none"> ○ identification and characterization of users ○ communication effectiveness ○ quality of the message ○ user satisfaction ○ quality of the facilitation of the activity • Determination of specific indicators for future evaluation of the activity's impact on the environment • Determination of evaluation methods, including the people concerned and the timing and frequency of evaluation

Objective**Standard**

Statement of the Competency	Achievement Context
Produce interpretative materials.	<ul style="list-style-type: none"> Working alone or in a team In connection with the production of audiovisual material, educational kits, leaflets, interpretation boards, and all the materials, other than infrastructures, required for theme-based exhibitions Based on a mandate, interpretation scenarios, specific instructions and a pre-established budget With the help of suppliers and specialists, using all the necessary documentation, construction and craft tools and the materials provided, audiovisual equipment, a computer and appropriate software
Elements of the Competency	Performance Criteria
1. Decide on the materials to be produced.	<ul style="list-style-type: none"> Meticulous analysis of the scenario with a view to understanding the targeted objectives, content and corresponding strategies Formulation of well thought-out preliminary proposals for relevant types of materials and their components Verification of the proposals by the client representative Proposal adjustments reflect the requested corrections Conclusion of an agreement concerning the materials to be produced
2. Plan the production of the materials.	<ul style="list-style-type: none"> Listing of all significant elements required for production of the interpretive materials Consideration of constraints relating to environmental protection and production of the materials Determination of the necessary human, material and financial resources Ordered sequence of production steps Production of a plan and quality specification with respect to form, structure, content and feasibility
3. Produce the various elements of the materials.	<ul style="list-style-type: none"> Adequate handling of the apparatus required to produce the necessary visual and sound elements Proper, safe handling of the various production tools Technical and artistic quality of the various elements produced High quality, clear, structured text with an original message

Elements of the Competency	Performance Criteria
4. Assemble the various elements of the materials.	<ul style="list-style-type: none"> • Safe handling of the various assembly tools • Compliance with the specifications and constraints described in the plan • Quality of the interactions and transactions with the various suppliers • Adequate control over the quality of each step in the production process • Smooth integration of the different elements of each production process
5. Submit the product to the client representative for verification.	<ul style="list-style-type: none"> • Quality of the presentation of the materials • Clarity of the underlying reasons • Positive attitude to the comments made and changes proposed • Adjustment of interpretation materials to reflect the corrections requested
6. Ensure the availability, maintenance and storage of the materials produced.	<ul style="list-style-type: none"> • Careful preparation and storage of the materials • Regular verification of stored materials • Correct execution of minor repairs • Correct application of a maintenance procedure as needed

Objective**Standard**

Statement of the Competency	Achievement Context
Manage and maintain ecotourism infrastructures.	<ul style="list-style-type: none"> • Working alone or in a team • In connection with relatively minor tasks carried out on sites in the natural environment: trails, benches, culverts, look-out points, etc. • Based on general plans, specifications and technical drawings, instructions for planned interpretation activities, the heritage interpretation and development plan and current standards • With the help of the resource people concerned, using management and construction guides, guidance instruments, construction tools, all-terrain vehicles, various equipment, procurement forms, a computer and appropriate software
Elements of the Competency	Performance Criteria
1. Plan the infrastructure management work.	<ul style="list-style-type: none"> • Careful analysis of the mandate and related documents • Methodical consultation with the people concerned • Accurate location of the site and rigorous analysis of its characteristics • Amendment to the plan and specifications based on site-specific constraints • Consideration of the importance of respecting the site's integrity • Precise determination of the type and quantity of materials required • Adequate planning of the steps and work schedule • Realistic estimate of the cost of the work
2. Organize the execution of the infrastructure management work.	<ul style="list-style-type: none"> • Acquisition of materials in accordance with the project's technical, budgetary and environmental specifications • Adequate selection and preparation of tools, equipment and means of transportation • Safe transportation of the resources to the site
3. Perform infrastructure construction work.	<ul style="list-style-type: none"> • Proper, safe use of tools and equipment • Proper, safe application of construction techniques • Quality construction in compliance with the plans and specifications • Maximum use of natural materials available at the site • Respect for the site's visual integrity

Elements of the Competency	Performance Criteria
4. Carry out infrastructure maintenance work.	<ul style="list-style-type: none"> • Regular and meticulous examination of the infrastructures • Precise determination of any repairs needed • Precise determination of the materials needed • Correct performance of maintenance and repairs

Objective**Standard**

Statement of the Competency	Achievement Context
Promote activities relating to heritage facilities.	<ul style="list-style-type: none"> • Working alone • Based on a mandate to promote existing natural and cultural heritage facilities and interpretation activities in a given area • Based on a complete, detailed description of the facilities and activities to be promoted • Based on the financial and time-related constraints defined by the client representative • With help from the resource people concerned, and using communication tools, a computer and appropriate software

Elements of the Competency	Performance Criteria
1. Plan a promotional activity.	<ul style="list-style-type: none"> • In-depth knowledge of the interpretation facilities and activities to be promoted • Perfect knowledge of information on schedules, costs, related services and access to the activity • Determination of promotion parameters: <ul style="list-style-type: none"> ○ characteristics of target users ○ characteristics of the available media • Determination of a promotion strategy and the corresponding methods, including distribution methods • Precise determination of the human and material resources needed, and the related costs • Production of a realistic schedule
2. Design and produce promotional tools.	<ul style="list-style-type: none"> • Original, relevant design for the content and form of the message • Consideration of all the parameters set out in the mandate • Choice of appropriate media and support tools • Aesthetic and technical quality of the tools produced • Quality of the language • Verification of tools by the client representative • Tools adjusted as per corrections requested
3. Implement the promotional tools.	<ul style="list-style-type: none"> • Delivery of the promotional materials in compliance with the proposed strategy • Proper dissemination of the information • Quality of the communication adapted to the situation and to the specific features of the audience • Quality of interactions with the audience • Quality of personal presentation • Projection of a professional image

Elements of the Competency	Performance Criteria
4. Evaluate the results of the promotional activity.	<ul style="list-style-type: none"> • Determination of an appropriate evaluation strategy • Evaluation of attendance levels associated with each promotional tool • Effective informal questioning of users about the promotional tools • Proposal of relevant corrections based on the results obtained: <ul style="list-style-type: none"> ○ elimination of certain tools ○ improvements to certain tools ○ new methods and strategies ○ identification of new potential user groups

Objective**Standard**

Statement of the Competency	Achievement Context
Present an interpretation activity.	<ul style="list-style-type: none"> Working alone or in a team As part of educational or information activities in a natural environment Based on presentation scenarios including an evaluation protocol for the implementation and animation of the activity Using all the necessary interpretation material and adequate equipment

Elements of the Competency	Performance Criteria
1. Prepare to carry out the activity.	<ul style="list-style-type: none"> Rigorous review of the scenario and sufficient mastery of the corresponding content Adaptation of the scenario and content according to the materials available, audience characteristics and local conditions Adequate restoration of damaged materials and accessories Updating of the interpretation content Appropriate psychological preparation Adequate preparation of the appropriate clothing
2. Welcome participants.	<ul style="list-style-type: none"> Warm, dynamic, professional welcome Client-centred approach Clear communication of the purpose and instructions for the activity, adapted to the audience Rapid adaptation of the scenario to the audience
3. Present the activity.	<ul style="list-style-type: none"> Application of presentation techniques adapted to the audience and to the specific features of the activity Application of communication techniques adapted to the audience and to the specific features of the activity Adequate management of interactions with the audience and the general atmosphere Adequate management of unexpected events and security-related aspects Flexibility and adaptability to changing circumstances Dynamic, warm, professional interactions with the audience at all times Quality of the language

Elements of the Competency	Performance Criteria
<p>4. Evaluate the interpretation activity and the quality of the presentation, with a view to making improvements.</p>	<ul style="list-style-type: none"> • Proper application of the evaluation process using the protocol proposed in the scenario • Methodical analysis of feedback • Relevance of suggested corrections to the scenario, the content of the activity and the methods used • Relevant review of their strengths and elements of the presentation to be improved • Determination of appropriate means of improving their presentation style and techniques • Accuracy of the evaluation of the activity's impact on the integrity of the site and its components • Relevance of maintaining the activity or not, given its impact on the environment

Objective**Standard**

Statement of the Competency	Achievement Context
Conduct a site characterization for the purpose of heritage development.	<ul style="list-style-type: none"> Working alone or in a team Based on a mandate and a site delimited by the client representative, budget-related constraints, the work schedule and current regulations in force, as defined by the representative, inventories of abiotic and biotic area components, cultural heritage inventories and target user surveys With the help of the resource people concerned, and using site potential analysis grids, the necessary apparatus, equipment and materials, a computer and appropriate software
Elements of the Competency	Performance Criteria
1. Analyze all the existing data.	<ul style="list-style-type: none"> Complete, methodical analysis of the available data Rigorous sorting of data of interest from a heritage standpoint, as well as data on target users Accurate determination of missing data and data to be verified Appropriate planning of work in the field Production of effective data collection tools
2. Collect the missing data.	<ul style="list-style-type: none"> Systematic verification, in the field, of the data collected Proper, safe application of collection techniques to obtain the missing data Adequate perceptual sensitivity Complete, relevant inventory of the site's sensory characteristics Collection of all relevant data
3. Determine the site's potential.	<ul style="list-style-type: none"> Adequate use of potential analysis grids for each site component Classification of components in order of importance Accurate summary of the site's development and interpretation potential

Elements of the Competency	Performance Criteria
4. Define the limits of the site's different development and interpretation areas.	<ul style="list-style-type: none"> • Consideration of the following aspects: <ul style="list-style-type: none"> ○ the relative importance of the various components ○ access to the site ○ existing reception structures ○ the promoter's guidelines and directives ○ other uses that may influence the site • Precise delimitation of potential areas for future use • Quality of the mapping of these areas
5. Define a theme for the site.	<ul style="list-style-type: none"> • Relevance of the connections made between the chosen themes and the specific attractions of different areas • Quality of the statements and their compliance with the rules of communication • Quality of the language
6. Present a summary profile of the site to whom it may concern.	<ul style="list-style-type: none"> • Clarity of the presentation and the reasons underlying the steps taken and the results obtained • Open-minded approach in subsequent discussions • Changes made to the zoning and choice of themes, based on the feedback received • Production of a document in compliance with the required format

Objective**Standard**

Statement of the Competency	Achievement Context
Plan heritage management and interpretation activities for a particular site.	<ul style="list-style-type: none"> • Working alone or in a team • As part of an ecotourism management project • Based on instructions from a client representative, including a set budget and work schedule, the site-specific heritage development plan, a site profile, including its management and interpretation areas and the corresponding theme, and all the necessary surveys • With the help of the resource people concerned, and using site potential analysis grids, the necessary apparatus, equipment and materials, a computer and appropriate software
Elements of the Competency	Performance Criteria
1. Determine the project's objectives.	<ul style="list-style-type: none"> • Careful analysis of the project documentation concerning the theme and the site-specific heritage development plan • Collaboration with the client representative • Consistency between the objectives and the different parameters considered: <ul style="list-style-type: none"> ○ orientations defined by themes ○ attractions specific to particular zones ○ characteristics of users ○ guidelines imposed by the client representative • Clarity of the statements of targeted objectives
2. Prepare proposals for heritage management and interpretation activities.	<ul style="list-style-type: none"> • Relevant proposal of interpretation and management activities • Summary presentation of proposals • Relevant recommendations for the location of the various facilities • Proposals that comply with: <ul style="list-style-type: none"> ○ health and safety aspects ○ the specific features of the site, its different areas and the corresponding themes ○ constraints relating to the targeted objectives ○ environmental constraints ○ legal constraints • Demonstration of originality in preparing the proposals

Elements of the Competency	Performance Criteria
3. Assess the feasibility of the proposals.	<ul style="list-style-type: none"> • Realistic estimate of each proposal's needs for human, material and financial resource • Analysis of the proposals based on constraints relating to the set budget, the work schedule and the environment • Prior consideration of the potential impact of the proposals on the environment's integrity, depending on the level of fragility • Classification of the proposals in priority order and by level of feasibility
4. Present the proposals for verification	<ul style="list-style-type: none"> • Clarity of the presentation, the reasoning for the steps taken, and the results obtained • An open-minded approach in subsequent discussions • Changes made to the proposals based on the feedback received • Production of a document in the required format

Objective**Standard**

Statement of the Competency	Achievement Context
Inventory the aquatic wildlife component of a natural environment.	<ul style="list-style-type: none"> Working alone or in a team In collaboration with environmental professionals In response to requests for projects on site, environment or area management (population surveys, habitat characterization, recreotourism potential studies, etc.) Using the necessary documentation: maps, aerial photographs, identification keys, field guides, site surveys, reference documents on water, air and soils, the necessary instruments and apparatus: compasses, global positioning systems (GPS), measuring instruments, computer and appropriate software
Elements of the Competency	Performance Criteria
1. Prepare the inventory work.	<ul style="list-style-type: none"> Precise determination of the nature and scope of the work Collection, critical analysis and verification of the relevant information available Description of the general characteristics of the survey zone for planning purposes Choice of a sampling plan suited to the area Choice of appropriate inventory techniques Choice and preparation of appropriate materials Accurate location, on aerial photographs and maps, of potential sampling sites representative of the environment and its diversity Production of data collection tools
2. Carry out the inventories provided for in the work plan.	<ul style="list-style-type: none"> Proper application of inventory techniques suited to the species concerned Compliance with the chosen methodology Demonstration of autonomy in adapting methods and techniques to the constraints of different sampling sites Adequate sampling of specimens or partial specimens for identification purposes and to determine age Precision and quality of the information collected: <ul style="list-style-type: none"> identification of species present at the site list of species present at the site delineation of the ranges of species present at the site Measurements taken using the chosen protocol Appropriate use of vernacular and scientific technology Meticulous and methodical entry of data in compliance with the working protocol

Elements of the Competency	Performance Criteria
3. Assess the extent to which species' requirements are met by the quality of their habitats.	<ul style="list-style-type: none"> • Appropriate survey of relevant documentation to determine the nutritional, reproduction and shelter requirements of the different species • Accurate, extensively documented characterization of habitats
4. Behave responsibly when carrying out different types of work.	<ul style="list-style-type: none"> • Respect for the physical integrity of the work area • Safe behaviour at all times • Behaviour in compliance with current standards and rules • Respect for other team members and other collaborators • Careful use of equipment
5. Produce a report describing the aquatic wildlife component of the survey zone.	<ul style="list-style-type: none"> • Choice of an appropriate compilation method • Compilation in compliance with method chosen • Relevant comparison of data in the report with the environmental data • General quality of the report in terms of its form, structure and content

Objective**Standard**

Statement of the Competency	Achievement Context
Analyze how micro-organisms live in and adapt to their environment.	<ul style="list-style-type: none"> Working alone in a research setting requiring characterization of biotic and abiotic resources in natural and controlled environments Work relating to the organisms and micro-organisms present in the natural or controlled environment Based on water, soil and organism samples, information on the environment and on the living conditions of the micro-organisms, and established or standardized research protocols Using swabs, apparatus and appropriate microbiological and biochemical tests, as well as the necessary documentation, procedures and databases
Elements of the Competency	Performance Criteria
1. Process the samples to isolate the micro-organisms.	<ul style="list-style-type: none"> Accurate determination and proper, safe application of sampling and sample processing techniques Appropriate use of the necessary apparatus Stringent application of the necessary aseptic procedures Isolation and conservation of all the micro-organisms present in the sample
2. Describe the different micro-organisms for identification purposes.	<ul style="list-style-type: none"> Stringent application of the techniques and methods for culturing, subculturing and identification of micro-organisms Use of the apparatus associated with the identification of micro-organisms, in accordance with established or standardized protocols Proper application of health, safety and aseptic measures Accurate description of the anatomical and morphological characteristics of the micro-organisms Relevant explanation of the specific elements of the micro-organisms' principal physiological mechanisms Identification of the micro-organisms present at the required taxonomical level according to the research parameters
3. List the different micro-organisms.	<ul style="list-style-type: none"> Stringent application of enumeration methods in accordance with established standards Formulation of accurate diagnostic impressions based on the parameters set out in the research framework

Elements of the Competency	Performance Criteria
<p>4. Explain the connections between the micro-organisms and their living environment.</p>	<ul style="list-style-type: none"> • Relevant explanation of the role played by the micro-organisms in their living environment • Accurate description of the factors that influence the relative abundance and diversity of the micro-organisms • Predictive evaluation of the impact of environmental changes on the survival capacities of these micro-organisms

Objective**Standard**

Statement of the Competency	Achievement Context
Carry out laboratory analyses.	<ul style="list-style-type: none"> • In all types of research work, focused mainly on ecosystem characterization but not excluding conservation and restoration • Biochemical, physico-chemical and genetic analysis • Usually working alone, under supervision and in compliance with ethical considerations • Based on defined or standardized research methods and protocols, including gravity and non-gravity separation, microscopy, photometry, electrochemistry, soil, water or organism samples, along with all relevant information, a set budget and timeframe and predefined data input formats • Using all necessary procedural documentation, apparatus, instruments and basic tools, and the necessary logistical means
Elements of the Competency	Performance Criteria
1. Plan to carry out the work under their responsibility.	<ul style="list-style-type: none"> • Determination of the sequence of steps in the performance of the work • Determination of all the necessary organizational and material resources and the procedures for their implementation • Compliance with budgetary constraints • Compliance with time-related constraints due to the nature of the protocols and the established timeframe • Consideration of all major health and safety aspects
2. Perform all the pre-analysis tasks.	<ul style="list-style-type: none"> • Mounting, adaptation and calibration of apparatus • Precision of the calculations regarding dilution and concentration of solutions • Accuracy of concentration unit conversions • Methodical preparation of solutions using volumetric instruments, and other necessary materials • Preparation and pre-processing of samples for the types of analysis required

Elements of the Competency	Performance Criteria
3. Carry out biochemical, physico-chemical and genetic analyses.	<ul style="list-style-type: none"> • Determination of one or more analysis methods, depending on the chosen protocol • Relevant proposal of minor adaptations, depending on the chosen protocol • Rigorous application of the analysis methods and sufficient mastery of the corresponding working techniques • Proper use of apparatus • Results in compliance with the parameters set out in the study framework • Stringent application of health and safety measures and compliance with current standards • Accurate interpretation of safety data sheets for the products used
4. Collate all the data.	<ul style="list-style-type: none"> • Complete, accurate entry of data into the data sheets • Regular, methodical verification of data validity and completeness
5. Carry out tasks complementary to the analyses.	<ul style="list-style-type: none"> • Normal maintenance of laboratory equipment in compliance with the manufacturer's recommendations • Management of hazardous materials and biological waste in compliance with current laws and regulations
6. Prepare a technical journal.	<ul style="list-style-type: none"> • Complete description of the operations carried out, in sequential order • Complete list of the materials and products used and the organisms studied

Objective**Standard**

Statement of the Competency	Achievement Context
Carry out a natural or disturbed environment characterization.	<ul style="list-style-type: none"> Under supervision, working in small teams, based on a mandate from the person in charge Based on a natural or disturbed environment, as part of an impact assessment, environmental monitoring program or environmental audit Based on an established reference system: environmental standards, regulations and criteria Using existing data and the necessary documentation: maps, aerial photographs, identification keys, reference documents on water, air, soil, vegetation and wildlife, inventory reports and various studies, etc., as well as the necessary instruments and apparatus, a computer and the necessary software

Elements of the Competency	Performance Criteria
1. Plan the procedure under their responsibility.	<ul style="list-style-type: none"> Precise description of the nature and objectives of the study Precise description of the study parameters Accurate description of the techniques and methods for performing the work Precise location of the work to be performed Rigorous analysis of the existing data Adequate logistical preparation
2. Carry out inventory work.	<ul style="list-style-type: none"> Demonstration of sound judgment throughout the process Adaptation of techniques and working protocol to the site conditions Application of appropriate protection and prevention measures Proper use of apparatus and instruments Precision, consistency and reliability of inventory measurements and data, including data on noise, odours and radiation Complete inventory report on the environmental components, based on the established parameters
3. Take samples.	<ul style="list-style-type: none"> Proper use of sampling techniques appropriate to the various components of the environment Proper, safe use of sampling techniques for hazardous products Demonstration of autonomy in adapting methods and techniques to the constraints of the environment Safe behaviour at all times Optimal quality of the samples taken Accurate identification of samples Proper conservation of samples

Elements of the Competency	Performance Criteria
4. Analyze the different samples taken.	<ul style="list-style-type: none"> • Determination of the analysis to be performed on site • Forwarding of the remaining samples to the designated laboratories • Correct use of portable analysis instruments • Stringent application of current health and safety measures • Precision, consistency and reliability of the data • Respect for the environment
5. Analyze all the data collected.	<ul style="list-style-type: none"> • Relevant choice of data compilation and processing methods • Relevant choice and correct use of computer tools • Compilation and processing performed in compliance with method chosen • Careful comparison of the analysis results with the established reference framework • Accurate assessment of the general condition of the site
6. Keep a technical journal.	<ul style="list-style-type: none"> • Complete list of the materials and products used • Complete, sequential description of the operations performed • Rigorous entry of all relevant additional data: methodology, context and working conditions
7. Prepare and present a report.	<ul style="list-style-type: none"> • General quality of the report in terms of its form, structure and content • Structured presentation of qualitative and quantitative data • Proper use of computer tools

Objective**Standard**

Statement of the Competency	Achievement Context
Propose intervention and monitoring measures for environmental protection.	<ul style="list-style-type: none"> Working alone For an environmental problem pertaining to measures involving prevention, confinement, correction, mitigation and restoration Based on a mandate, and on a characterization report and other available studies on the environment in question With the help of the resource people concerned, and using technical documentation, laws and regulations and the necessary instruments and apparatus

Elements of the Competency	Performance Criteria
1. Analyze all the data on the situation.	<ul style="list-style-type: none"> Meticulous data analysis: <ul style="list-style-type: none"> biophysical data results of environmental inventories diagnosis of the situation Methodical consultation with the people concerned Careful analysis of documentation on environmental protection measures Determination of the work to be done in the field to verify the profile of the situation
2. Verify the condition of the sites in the field.	<ul style="list-style-type: none"> Rigorous application, in the field, of a verification procedure for the data provided Methodical application of the inventory techniques required to complete the data Confirmation of the site condition diagnosis Assessment of the urgency and level of hazard
3. Prepare a preliminary intervention proposal.	<ul style="list-style-type: none"> Careful identification of valid links between the biophysical data and the elements of the problem Determination of appropriate short-, medium- and long-term intervention measures Ranking of the proposed measures in priority sequence
4. Prepare a preliminary monitoring program proposal.	<ul style="list-style-type: none"> Precise determination of the program's objectives and methods Compliance of the program with current laws, regulations and standards
5. Determine the ways of applying the proposed measures.	<ul style="list-style-type: none"> Precise determination of each measure's needs for human, material and financial resource Determination of the legal and regulatory constraints to be taken into account Description of the technical constraints and requirements to be considered when applying the measures

Elements of the Competency	Performance Criteria
6. Submit the preliminary proposals to the client representative for verification.	<ul style="list-style-type: none"> • Clarity of the presentation and reasons given for the steps taken and the results obtained • Respectful attitude towards the client representative • Changes made to the proposals in response to the feedback received
7. Inform the people or authorities concerned about the intervention and monitoring measures to be applied.	<ul style="list-style-type: none"> • Quality of the communication content and form • Clarity and relevance of the arguments given to support the measures proposed • General attitude consistent with an advisory role • Demonstration of interpersonal skills, diplomacy and a level-headed approach

Objective**Standard**

Statement of the Competency	Achievement Context
Implement means of control and treatment processes.	<ul style="list-style-type: none"> • Based on a request or a need • Under the supervision of a person responsible for certain steps • In a laboratory or workshop, in the workplace or at a computer workstation, depending on the activities • Based on appropriate technical specifications • In collaboration with resource people and specialized equipment suppliers • Using appropriate software • In compliance with current regulations and standards • Using reference documents and appropriate technical documents

Elements of the Competency	Performance Criteria
1. Analyse the situation and needs.	<ul style="list-style-type: none"> • Effective use of appropriate research tools • Collection of data on the nature of the contaminant or risk and on the options for control • Complete overview of the constraints and control options • Relevance of treatability tests • Determination of appropriate means of control and applicable treatment processes
2. Choose and adjust personal protective equipment.	<ul style="list-style-type: none"> • Relevance of trials • Adequate precision of evaluation criteria • Preparation of adapted evaluation grids • Effective consultation with people using the protective equipment • Appropriate choice and adjustment of the equipment • Periodic verification to ensure that the equipment is properly adjusted
3. Choose and adapt means of contaminant control and collective protective equipment.	<ul style="list-style-type: none"> • Preparation of clear diagrams and sketches of control means and collective protective equipment suited to the situation • Effective consultation with the people concerned • Appropriate choice of the control means or protective equipment • Appropriate adaptation of the control means or protective equipment to the situation

Elements of the Competency	Performance Criteria
4. Participate in the choice, implementation and monitoring of waste treatment processes.	<ul style="list-style-type: none"> • Appropriate choice of the process to be used according to type of waste • Effective collaboration with the people concerned • Effective implementation of the process chosen • Compliance with the operational criteria provided by the technical personnel at the start of the process • Verification of the process efficiency • Stringent periodic monitoring of process efficiency after implementation
5. Participate in the decontamination work.	<ul style="list-style-type: none"> • Stringent monitoring of indicators in the decontamination specification • Appropriate supervision of decontamination work • Compliance with the inherent limits of their position • Correct installation of the equipment as per specifications • Rigorous compliance with rules of hygiene and safety
6. Evaluate the functioning and efficiency of the means of control and treatment processes.	<ul style="list-style-type: none"> • Relevance of the evaluation methods and evaluation frequency • Accurate location of control points • Accurate determination of evaluation parameters • Correct use of the evaluation method of the parameters • Accurate diagnosis of control and treatment equipment malfunctions and their causes • Relevance and quality of preventive maintenance • Compliance with health and safety rules

Objective**Standard**

Statement of the Competency	Achievement Context
Provide technical support for environmental protection.	<ul style="list-style-type: none"> Working alone, in performing the role of an advisor to individuals or organizations In emergencies or during implementation and monitoring of environmental protection programs Based on a request or observation requiring follow-up With the help of resource people (environmental professionals, engineers, public safety officers), and using all existing information on the situation, all relevant documentation (maps, aerial photographs, field guides, plans and specifications, technical drawings), surveying instruments, sampling and measuring equipment, a computer and software
Elements of the Competency	Performance Criteria
1. Analyze the problem associated with the request.	<ul style="list-style-type: none"> Rigorous collection of appropriate data Quick, efficient data analysis Accurate comparison of findings with established standards Accurate evaluation of the findings' compliance with established standards Attentive and respectful listening to the person making the request
2. Clarify the nature of their intervention with the person making the request.	<ul style="list-style-type: none"> Accurate determination of needs Accurate definition of their own role with respect to the situation Determination of the type of support to be given: <ul style="list-style-type: none"> occasional or ongoing support analysis and characterization services technical advice
3. Determine the elements of the technical solutions to recommend.	<ul style="list-style-type: none"> Establishment of realistic, appropriate preventive measures Establishment of realistic, appropriate mitigation measures Accurate assessment of the needs for human and material resources Identification of conditions based on current standards and regulations
4. Intervene with the person or organization in question.	<ul style="list-style-type: none"> Clear formulation of appropriate advice Quality of the information given on the techniques, methods and constraints associated with the recommended interventions General attitude consistent with an advisory role Demonstration of interpersonal skills, diplomacy and a level-headed approach

Elements of the Competency	Performance Criteria
5. Provide technical support in an emergency situation.	<ul style="list-style-type: none"> • Determination of appropriate technical support for the situation concerned • Accurate assessment of the level of danger of the situation and potential risks to the environment • Determination of relevant, realistic prevention and mitigation measures • Demonstration of good organizational skills • Adequate stress management • Preparation of a good quality situational report
6. Ensure follow up of their various interventions in their role as an advisor.	<ul style="list-style-type: none"> • Stringent, methodical verification of the rules for applying the recommended measures • Evaluation of the results obtained in accordance with the rules of good practice • Identification of the causes of any unsatisfactory results • Formulation of new, relevant recommendations
7. Evaluate their interventions in their role as an advisor.	<ul style="list-style-type: none"> • Accurate evaluation of the interpersonal aspect of their advisory role • Accurate evaluation of the technical aspect of their interventions • Determination of possible points for improvement

Objective**Standard**

Statement of the Competency	Achievement Context
Apply waste treatment measures.	<ul style="list-style-type: none"> • With respect to treatment measures applied for the recovery, storage or elimination of waste materials • For waste materials including biological, chemical or physical waste and products generated by various human activities • Based on instructions from a responsible professional, all relevant information provided, predefined protocols and established procedures • With help from the resource people concerned, and using residual waste data provided, all relevant documents, and all the necessary sampling and testing equipment
Elements of the Competency	Performance Criteria
1. Analyze all available data on the waste materials.	<ul style="list-style-type: none"> • Safe analysis of sample using the established protocol. • Accurate determination of the physical, chemical and biological properties of the waste materials • Accurate determination of the toxic and pathogenic properties of the waste materials • Accurate determination of the source of the waste materials • Accurate determination of the economic value of the waste materials • Accurate determination of the impacts of the waste materials on the environment
2. Determine treatment measures.	<ul style="list-style-type: none"> • Determination of the type of relevant treatment based on the characteristics of the waste materials • Consideration of current laws, regulations and standards • Verification of the proposed measures with the person or authority in charge

Elements of the Competency	Performance Criteria
3. Ensure the recovery of the waste materials for treatment.	<ul style="list-style-type: none"> • Precise evaluation of the inherent risks of handling the waste materials • Determination of appropriate recovery methods: collection, transportation and temporary storage • Safe handling, transportation and storage of the waste materials • Determination and adequate application of product stabilization measures • Compliance with current standards and regulations
4. Oversee the application of measures for waste recovery or elimination.	<ul style="list-style-type: none"> • Choice of appropriate recovery or elimination methods for the type of waste materials concerned • Rigorous monitoring of processes • Rigorous monitoring of compliance with current standards and regulations • Methodical recording of data and results
5. Oversee the application of long-term measures for waste storage.	<ul style="list-style-type: none"> • Choice of appropriate storage measures for the type of waste materials concerned • Determination of a periodic verification schedule for the stored materials • Monitoring of the verification plan in accordance with the established protocol • Rigorous monitoring of compliance with current standards and regulations governing storage • Methodical recording of data and results obtained • Regular, accurate evaluation of site condition • Formulation of relevant recommendations in the event of deteriorating storage conditions

General Education Component Common to All Programs and General Education Component Specific to the Program

English, Language of Instruction and Literature

Code: 4EA0

Objective

Standard

Statement of the Competency

Analyze and produce various forms of discourse.

Elements of the Competency	Performance Criteria
1. Identify the characteristics and functions of the components of literary texts.	<ul style="list-style-type: none"> • Accurate explanation of the denotation of words • Adequate recognition of the appropriate connotation of words • Accurate definition of the characteristics and function of each component
2. Determine the organization of facts and arguments of a given literary text.	<ul style="list-style-type: none"> • Clear and accurate recognition of the main idea and structure • Clear presentation of the strategies employed to develop an argument or thesis
3. Prepare ideas and strategies for a projected discourse.	<ul style="list-style-type: none"> • Appropriate identification of topics and ideas • Adequate gathering of pertinent information • Clear formulation of a thesis • Coherent ordering of supporting material
4. Formulate a discourse.	<ul style="list-style-type: none"> • Appropriate choice of tone and diction • Correct development of sentences • Clear and coherent development of paragraphs • Formulation of a 750-word discourse
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
 Weighting: 2-2-4 or 1-3-4
 Credits: 2½

Objective

Standard

Statement of the Competency

Apply an analytical approach to literary genres.

Elements of the Competency	Performance Criteria
1. Distinguish genres of literary texts.	<ul style="list-style-type: none"> • Clear recognition of the formal characteristics of a literary genre
2. Recognize the use of literary conventions within a specific genre.	<ul style="list-style-type: none"> • Accurate recognition of the figurative communication of meaning • Adequate explanation of the effects of significant literary and rhetorical devices
3. Situate a work within its historical and literary period.	<ul style="list-style-type: none"> • Appropriate recognition of the relationship of a text to its period
4. Write a critical analysis of a literary genre.	<ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
Weighting: 2-2-3
Credits: 2½

Objective

Standard

Statement of the Competency

Apply an analytical approach to a literary theme.

Elements of the Competency	Performance Criteria
1. Recognize the treatment of a theme within a literary text.	<ul style="list-style-type: none"> • Clear recognition of elements within the text, which define and reinforce a theme and its development • Adequate demonstration of the effects of significant literary and rhetorical devices
2. Situate a literary text within its cultural context.	<ul style="list-style-type: none"> • Appropriate recognition of a text as an expression of cultural context • Adequate demonstration of the effects of significant literary and rhetorical devices
3. Detect the value system inherent in a literary text.	<ul style="list-style-type: none"> • Appropriate identification of expression (explicit/implicit) of a value system in a text
4. Write an analysis on a literary theme.	<ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
Weighting: 2-2-3
Credits: 2½

Objective

Standard

Statement of the Competency

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

Elements of the Competency

Performance Criteria

1. Identify the forms of discourse appropriate to given fields of study.

- Accurate recognition of specialized vocabulary and conventions
- Accurate recognition of the characteristics of the form of discourse
- Exploration of a variety of topics

2. Recognize the forms of discourse appropriate to given fields of study.

- Clear and accurate recognition of the main ideas and structure
- Appropriate distinction between fact and argument

3. Formulate an oral and a written discourse.

- Examine ways to address and structure a given topic
- Appropriate choice of tone and diction
- Correctly developed sentences
- Clearly and coherently developed paragraphs
- Appropriate use of program-related communication strategies including media and technology
- Formulation of a 1000-word discourse

4. Revise the work.

- Appropriate use of revision strategies
- Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
Periods of instruction: 60
Credits: 2

Humanities

Code: 4HU0

Objective

Standard

Statement of the Competency

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

Elements of the Competency

Performance Criteria

1. Recognize the basic elements of a field of knowledge.	<ul style="list-style-type: none"> • Appropriate description of the basic elements • Appropriate use of terminology relevant to a field of knowledge
2. Define the modes of organization and utilization of a field of knowledge.	<ul style="list-style-type: none"> • Adequate definition of the dimensions, limits, and uses of a field of knowledge
3. Situate a field of knowledge within its historical context.	<ul style="list-style-type: none"> • Accurate identification of the main components in the historical development of a field of knowledge • Accurate description of the effects of historical development and social context on the limits and uses of a field of knowledge
4. Organize the main components into coherent patterns.	<ul style="list-style-type: none"> • Coherent organization of the main components
5. Produce a synthesis of the main components.	<ul style="list-style-type: none"> • Appropriate analysis of the components • Coherent synthesis of the main components • Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of the organization and uses of knowledge • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: Humanities
Weighting: 3-1-3
Credits: 2½

Objective

Standard

Statement of the Competency

Apply a critical thought process to world views.

Elements of the Competency	Performance Criteria
1. Describe world views.	<ul style="list-style-type: none"> • Accurate description of a society or group with a distinctive world view • Appropriate use of terminology relevant to these societies or groups
2. Explain the major ideas, values, and implications associated with a given world view.	<ul style="list-style-type: none"> • Adequate explanation of the salient components of a world view
3. Organize the ideas, values and experiences of a world view into coherent patterns.	<ul style="list-style-type: none"> • Coherent organization of ideas about a world view • Appropriate expression, including a significant individual written component, of an analysis of the context, importance, and implications of world views
4. Compare world views.	<ul style="list-style-type: none"> • Comparative analysis of these world views • Appropriate inclusion of central elements, relationships, and organizational principles of the societies or groups in the analysis
5. Convey the ideas, attitudes, and experiences of the societies or groups studied.	<ul style="list-style-type: none"> • Coherent integration of the importance and implications of the world views for the given societies or groups • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

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

Objective

Standard

Statement of the Competency

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

Elements of the Competency

Performance Criteria

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

Learning Activities

Discipline:	Humanities
Periods of instruction:	45
Credits:	2

Objective

Standard

Statement of the Competency

Apply basic concepts for communicating in standard French.

Elements of the Competency

Performance Criteria

1. Write and revise a simple text.

- Clear, coherent formulation of a text of about 250 words
- Adequate development of the text: intention, topic, reader
- Formulation of simple, well-constructed sentences
- Use of adequate vocabulary for the task
- Satisfactory application of the rules of grammar, in particular agreement in gender and number; regular verbs; verb tenses in the present, compound past and simple future
- Satisfactory correction of errors in spelling or grammar
- Appropriate use of revision strategies

2. Understand the meaning of a simple text.

- Accurate description of the general meaning and essential ideas of a 500-word text
- Accurate identification of the difficulties in understanding the text
- Appropriate use of reading techniques
- Accurate identification of the main elements of the text

3. Convey a simple oral message.

- Clear and coherent formulation of an oral presentation of at least four minutes
- Appropriate use of standard vocabulary
- Clear and coherent statements

4. Understand the meaning of a simple oral message.

- Accurate identification of the general meaning and essential ideas of an oral message of at least four minutes
- Accurate identification of the difficulties in understanding the message
- Accurate description of the general meaning and essential ideas of the message

Learning Activities

Discipline: French as a Second Language
Weighting: 2-1-3
Credits: 2

Objective

Standard

Statement of the Competency

Communicate in standard French with some ease.

Elements of the Competency

Performance Criteria

1. Write and revise a simple text.

- Writing of a text of about 350 words
- Respect for grammar and spelling rules
- Appropriate use of the main elements of the corpus
- Clear, coherent formulation of sentences
- Coherent organization of paragraphs
- Appropriate use of revision strategies
- Satisfactory correction of spelling and grammatical errors

2. Interpret a written text.

- Accurate identification of the main ideas and structure of a text of 700 to 1 000 words
- Accurate identification of the main elements of the text
- Accurate explanation of the meaning of the words of the text

3. Produce a planned oral text.

- Clear and coherent formulation of an oral presentation of at least five minutes
- Appropriate use of standard vocabulary
- Respect for the level of language and rules of grammar and pronunciation

4. Interpret a simple oral text.

- Accurate identification of the main elements of an oral text of at least five minutes
- Accurate identification of the ideas and subjects dealt with in the text
- Accurate explanation of the meaning of the words of the text

Learning Activities

Discipline: French as a Second Language

Weighting: 2-1-3

Credits: 2

Objective

Standard

Statement of the Competency

Communicate with ease in standard French.

Elements of the Competency	Performance Criteria
1. Write a text of moderate complexity.	<ul style="list-style-type: none"> • Writing of a text of about 450 words • Respect for grammar and spelling rules • Adaptation to the intended audience • Appropriate use of the main elements of the corpus • Clear and coherent formulation of sentences, including at least three that are complex • Coherent organization of paragraphs
2. Revise and correct a text of moderate complexity.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of the text
3. Comment on a written text of moderate complexity.	<ul style="list-style-type: none"> • Accurate identification of the main elements of a text of between 2 500 and 3 000 words • Accurate explanation of the meaning of the words of the text • Accurate identification of the main and secondary ideas, of facts and opinions • Accurate identification of what is implicit and what is explicit
4. Produce a planned oral text of moderate complexity.	<ul style="list-style-type: none"> • Clear and coherent formulation of an oral presentation of at least five minutes • Appropriate use of standard vocabulary • Respect for the level of language and rules of grammar and pronunciation • Adaptation to the intended audience • Appropriate sequencing of ideas

Learning Activities

Discipline: French as a Second Language
Weighting: 2-1-3
Credits: 2

Objective

Standard

Statement of the Competency

Explore a cultural and literary topic.

Elements of the Competency

Performance Criteria

1. Write a text on a cultural or literary topic.

- Clear and coherent formulation of a text of about 550 words
- Respect for the topic
- Respect for grammar and spelling rules
- Adaptation to the intended audience
- Appropriate use of the main elements of the corpus
- Clear articulation of a personal point of view

2. Revise and correct a text on a cultural or literary topic.

- Appropriate use of revision strategies
- Appropriate revision of the text

3. Analyze a cultural or literary text.

- Personal formulation of the main elements of the text
- Identification of the main themes
- Identification of clues that help situate the text in its sociocultural and historical context
- Accurate identification of the values expressed
- Accurate identification of the structure of the text
- Clear articulation of a personal point of view

Learning Activities

Discipline: French as a Second Language

Weighting: 3-0-3

Credits: 2

Objective

Standard

Statement of the Competency

Apply basic concepts for communicating in French in relation to the student's field of study.

Elements of the Competency	Performance Criteria
1. Write and revise a short text related to the student's field of study.	<ul style="list-style-type: none"> • Accurate identification of difficulties in writing • Appropriate use of writing techniques • Appropriate use of standard and specialized vocabulary • Clear and coherent formulation of the text • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors
2. Understand the meaning and characteristics of a text related to the student's field of study.	<ul style="list-style-type: none"> • Accurate identification of difficulties in understanding the text • Accurate identification of the characteristics of the text • Accurate identification of specialized vocabulary • Accurate identification of the main elements of the text • Accurate description of the general meaning and essential ideas of the text
3. Convey a simple oral message related to the student's field of study.	<ul style="list-style-type: none"> • Accurate identification of the difficulties in oral expression • Appropriate use of techniques of oral expression • Appropriate use of standard and specialized vocabulary • Intelligible expression of the message
4. Understand the meaning of a simple oral message related to the student's field of study.	<ul style="list-style-type: none"> • Accurate identification of difficulties in understanding the message • Accurate identification of the characteristics of the message • Accurate identification of specialized vocabulary • Accurate identification of the main elements of the message • Accurate description of the general meaning and essential ideas of the message

Learning Activities

Discipline: French as a Second Language
Periods of instruction: 45
Credits: 2

Objective

Standard

Statement of the Competency

Communicate in French on topics related to the student's field of study.

Elements of the Competency

Performance Criteria

- | | |
|--|---|
| 1. Write a text related to the student's field of study. | <ul style="list-style-type: none"> • Appropriate use of specialized vocabulary and of conventions specific to different types of texts • Respect for the level of language and rules of grammar and spelling • Clear and coherent formulation of the text • Appropriate use of writing techniques |
| 2. Revise and correct a text on a topic related to the student's field of study. | <ul style="list-style-type: none"> • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors |
| 3. Differentiate the types of texts specific to the student's field of study. | <ul style="list-style-type: none"> • Accurate identification of the formal characteristics of each of the main types of texts and the conventions used |
| 4. Analyze texts representative of the student's field of study. | <ul style="list-style-type: none"> • Accurate identification of the main elements of the text • Accurate interpretation of specialized vocabulary • Accurate identification of the ideas and subjects dealt with • Appropriate use of reading and listening techniques |

Learning Activities

Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

Objective

Standard

Statement of the Competency

Communicate with ease in French on topics related to the student's field of study.

Elements of the Competency

Performance Criteria

- | | |
|--|--|
| 1. Produce a text on a topic related to the student's field of study. | <ul style="list-style-type: none"> • Respect for the topic • Appropriate use of specialized vocabulary and the conventions specific to different types of texts • Respect for the level of language and rules of grammar and spelling • Clear and coherent formulation of the text • Appropriate sequencing of ideas • Appropriate form for the content |
| 2. Revise and correct a text on a topic related to the student's field of study. | <ul style="list-style-type: none"> • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors |
| 3. Comment on texts specific to the student's field of study. | <ul style="list-style-type: none"> • Accurate identification of the formal characteristics of the main types of texts and the conventions used • Accurate explanation of the meaning of the words in the text • Accurate identification of the structure of the text • Accurate reformulation of the main and secondary ideas, of the facts and opinions • Accurate use of specialized vocabulary |

Learning Activities

Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

Objective

Standard

Statement of the Competency

Produce a text in French on a topic related to the student's field of study.

Elements of the Competency

Performance Criteria

- | | |
|--|---|
| 1. Write a text on a topic related to the student's field of study. | <ul style="list-style-type: none"> • Respect for the topic • Appropriate use of specialized vocabulary and the conventions specific to different types of texts • Appropriate choice of the main elements of the corpus based on the type of text • Clear and coherent formulation of the text • Respect for the level of language and rules of grammar and spelling • Clear articulation of a personal point of view |
| 2. Revise and correct a text on a topic related to the student's field of study. | <ul style="list-style-type: none"> • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors |
| 3. Analyze a text related to the student's field of study. | <ul style="list-style-type: none"> • Precise differentiation of the formal characteristics of specific types of texts • Personal formulation of the main elements • Listing of the main themes • Accurate identification of the structure of the text • Identification of clues that help situate the text in its context • Clear articulation of a personal point of view • Accurate association of elements of the text with the topic |

Learning Activities

Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

Objective

Standard

Statement of the Competency

Analyze one's physical activity from the standpoint of a healthy lifestyle.

Elements of the Competency

Performance Criteria

1. Establish the relationship between one's lifestyle habits and health.

- Proper use of documentation from scientific research or the media
- Recognition of the influence of social and cultural factors on the practice of physical activity
- Pertinent links made between one's lifestyle habits and the impact they have on health

2. Be physically active in a manner that promotes one's health.

- Respect for the rules specific to the physical activity practised
- Respect for codes of ethics, safety rules and regulations when being physically active
- Respect for one's abilities when practising physical activities

3. Recognize one's needs, abilities and motivational factors with respect to regular and sufficient physical activity.

- Appropriate use of strategies for the quantitative and qualitative evaluation of one's physical condition
- Overall assessment of one's needs and abilities in terms of physical activity
- Overall assessment of one's motivational factors with respect to being sufficiently active on a regular basis

4. Propose physical activities that promote one's health.

- Appropriate choice of physical activities according to one's needs, abilities and motivational factors
- Use of clear reasoning to explain the choice of physical activity

Learning Activities

Discipline: Physical Education

Weighting: 1-1-1

Credits: 1

Objective

Standard

Statement of the Competency

Improve one's effectiveness when practising a physical activity.

Elements of the Competency

Performance Criteria

1. Plan an approach to improve one's effectiveness when practising a physical activity.

- Initial assessment of one's abilities and attitudes when practising a physical activity
- Statement of one's expectations and needs with respect to the ability to practise the activity
- Appropriate formulation of personal objectives
- Appropriate choice of the means to achieve one's objectives
- Use of clear reasoning to explain the choice of physical activity

2. Use a planned approach to improve one's effectiveness when practising a physical activity.

- Respect for the rules and regulations of the physical activity
- Respect for codes of ethics, safety rules and regulations when being physically active
- Appropriate use of strategies for the quantitative and qualitative evaluation of one's motor skills
- Periodic assessment of one's abilities and attitudes when practising a physical activity
- Meaningful interpretation of progress made and the difficulties encountered in the practice of physical activity
- Pertinent, periodic and proper adjustments of one's objectives or means
- Appreciable improvement in one's motor skills, techniques or complex strategies required by the physical activity

Learning Activities

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

Objective

Standard

Statement of the Competency

Demonstrate one's ability to assume responsibility for maintaining a healthy lifestyle through the continued practice of physical activity.

Elements of the Competency

Performance Criteria

1. Plan a personal physical activity program.

- Mention of priorities according to one's needs, abilities, and motivational factors with respect to being sufficiently active on a regular basis
- Proper and appropriate formulation of personal objectives
- Appropriate choice of physical activity or activities to achieve personal objectives
- Appropriate planning of the conditions for performing the physical activity or activities in personal program

2. Combine the elements of a regular and sufficient practice of physical activity as part of a healthy lifestyle.

- Respect for the rules and regulations of the physical activity
- Respect for codes of ethics, safety rules and regulations when being physically active
- Regular and sufficient practice of a physical activity while maintaining a balance between effectiveness and health-promoting factors

3. Manage a personal physical activity program.

- Appropriate choice of criteria for measuring the attainment of program objectives
- Appropriate use of strategies for the quantitative and qualitative evaluation of one's physical activity
- Periodic assessment of the time invested and activities practised during the program
- Appropriate, periodic and proper adjustment of personal objectives or means used
- Meaningful interpretation of the progress made and difficulties encountered in the practice of physical activities
- Recognition of the effect of physical activity on one's lifestyle

Learning Activities

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

Complementary General Education Component

Social Sciences

Code: 000V

Objective

Standard

Statement of the Competency	Achievement Context
Estimate the contribution of the social sciences to an understanding of contemporary issues.	<ul style="list-style-type: none"> 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 field of social sciences
Elements of the Competency	Performance Criteria
1. Recognize the focus of one or more of the social sciences and their main approaches.	<ul style="list-style-type: none"> Formulation of the focus specific to one or more of the social sciences Description of the main approaches used in the social sciences
2. Identify some of the issues currently under study in the social sciences.	<ul style="list-style-type: none"> Association of issues with the pertinent areas of research in the social sciences
3. Demonstrate the contribution of one or more of the social sciences to an understanding of contemporary issues.	<ul style="list-style-type: none"> Presentation of contemporary issues by highlighting the interpretation of the social sciences Illustration of the interaction between certain social changes and the contribution of the social sciences
Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>Use the 300 or 400 series of codes (except codes 300 and 360) to link a course to objective 000V.</p> <p>Use code 305 for a multidisciplinary course.</p> <p>Codes 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Analyze one of the major problems of our time using one or more social scientific approaches.	<ul style="list-style-type: none"> Working alone In an essay of approximately 750 words on a topic related to human existence Using reference materials from the field of social sciences

Elements of the Competency	Performance Criteria
1. Formulate a problem using one or more social scientific approaches.	<ul style="list-style-type: none"> Presentation of the background to the problem Use of appropriate concepts and language Brief description of individual, collective, spatio-temporal and cultural aspects of the problem
2. Address an issue using one or more social scientific approaches.	<ul style="list-style-type: none"> Clear formulation of an issue Selection of pertinent reference materials Brief description of historical, experimental and survey methods
3. Draw conclusions.	<ul style="list-style-type: none"> Appropriate use of the selected method Determination of appropriate evaluation criteria Identification of strengths and weaknesses of the conclusions Broadening of the issue analyzed

Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>Use the 300 or 400 series of codes (except codes 300 and 360) to link a course to objective 000W.</p> <p>Use code 305 for a multidisciplinary course.</p> <p>Codes 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Explain the general nature of science and technology and some of the major contemporary scientific or technological issues.	<ul style="list-style-type: none"> Working alone Using 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 scientific method.	<ul style="list-style-type: none"> Brief description of the essential characteristics of scientific thinking, including quantification and demonstration Ordered list and brief description of the essential characteristics of the main steps in the standard scientific method
2. Demonstrate how science and technology are complementary.	<ul style="list-style-type: none"> Definition of terms and description of the primary ways in which science and technology are interrelated: logical and temporal connections, and mutual contributions
3. Explain the context and the stages related to several scientific and technological discoveries.	<ul style="list-style-type: none"> Pertinent and coherent explanation of the relationship between the determining contexts related to several scientific and technological discoveries Listing of the main stages of scientific and technological discoveries
4. Deduce different consequences and questions resulting from certain recent scientific and technological developments.	<ul style="list-style-type: none"> 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	
Periods of instruction:	45
Credits:	2
Note:	Use the 100 or 200 series of codes to link a course to objective 000X. Use code 105 for a multidisciplinary course. Codes 109, 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.

Objective**Standard**

Statement of the Competency	Achievement Context
Resolve a simple problem by applying the basic scientific method.	<ul style="list-style-type: none"> Working alone or in groups Applying the standard scientific method to a given, simple scientific and technological problem 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"> Ordered list and brief description of the characteristics of the steps of the standard scientific method
2. Formulate a hypothesis designed to solve a simple scientific and technological problem.	<ul style="list-style-type: none"> Clear, precise description of the problem Observance of the principles for formulating a hypothesis (observable and measurable nature of data, credibility, etc.)
3. Verify a hypothesis by applying the fundamental principles of the basic experimental method.	<ul style="list-style-type: none"> Pertinence, reliability and validity of the experimental method used Observance of established experimental method Appropriate choice and use of instruments Clear, satisfactory presentation of results Validity of the connections established between the hypothesis, the verification and the conclusion

Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>Use the 100 or 200 series of codes to link a course to objective 000Y.</p> <p>Use code 105 for a multidisciplinary course.</p> <p>Codes 109, 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Communicate with limited skill in a modern language.	<ul style="list-style-type: none"> For modern Latin-alphabet languages: <ul style="list-style-type: none"> during a conversation consisting of at least eight lines of dialogue in a written text consisting of at least eight sentences For modern non-Latin-alphabet languages: <ul style="list-style-type: none"> during a conversation consisting of at least six lines of dialogue in a written text consisting of at least six sentences Based on learning situations on familiar themes Using reference materials

Elements of the Competency	Performance Criteria
1. Understand the meaning of an oral message.	<ul style="list-style-type: none"> Accurate identification of words and idiomatic expressions Clear recognition of the general meaning of simple messages Logical connection between the various elements of the message
2. Understand the meaning of a written message.	<ul style="list-style-type: none"> Accurate identification of words and idiomatic expressions Clear recognition of the general meaning of simple messages Logical connection between the various elements of the message
3. Express a simple message orally.	<ul style="list-style-type: none"> Appropriate use of language structures in main and coordinate clauses Appropriate application of grammar rules Use of verbs in the present indicative Appropriate use of basic vocabulary and idiomatic expressions Clear pronunciation Coherent sequencing of simple sentences Spontaneous and coherent sequencing of sentences in a conversation
4. Write a text on a given subject.	<ul style="list-style-type: none"> Appropriate use of language structures in main and coordinate clauses Appropriate application of basic grammar rules Use of verbs in the present indicative Appropriate use of basic vocabulary and idiomatic expressions Coherent sequencing of simple sentences Acceptable application of graphic rules for writing systems that do not use the Latin alphabet

Learning Activities

Periods of instruction: 45

Credits: 2

Note: The acquisition of a modern language requires an awareness of the culture of its native speakers.
“Limited skill” refers to the limited use of language structures, grammar and vocabulary. This limitation varies depending on the complexity of the modern language.
Use the 600 series of codes to link a course to objective 000Z, with the exception of codes 601, 602, 603 and 604.

Objective**Standard**

Statement of the Competency	Achievement Context
Communicate on familiar topics in a modern language.	<ul style="list-style-type: none"> During a conversation that includes at least 15 lines of dialogue In a written text consisting of at least 20 sentences for Latin-alphabet languages In a written text consisting of at least 10 sentences for non-Latin-alphabet languages Based on: <ul style="list-style-type: none"> common situations in everyday life simple topics from everyday life Using reference materials

Elements of the Competency	Performance Criteria
1. Understand the meaning of an oral message.	<ul style="list-style-type: none"> Accurate identification of words and idiomatic expressions Clear recognition of the general meaning and essential ideas of messages of average complexity Logical connection between the various elements of the message
2. Understand the meaning of a written message.	<ul style="list-style-type: none"> Accurate identification of words and idiomatic expressions Clear recognition of the general meaning and essential ideas of messages of average complexity Logical connection between the various elements of the message
3. Express a simple message orally, using sentences of average complexity.	<ul style="list-style-type: none"> Appropriate use of language structures in main or subordinate clauses Appropriate application of grammar rules Use of verbs in the present indicative Appropriate use of enriched basic vocabulary and idiomatic expressions Clear pronunciation Coherent sequencing of sentences Dialogue
4. Write a text on a given subject, using sentences of average complexity.	<ul style="list-style-type: none"> 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 sequencing of sentences of average complexity Acceptable application of graphic rules for writing systems that do not use the Latin alphabet

Learning Activities

Periods of instruction: 45

Credits: 2

Note: The acquisition of a modern language requires an awareness of the culture of its native speakers.
Use the 600 series of codes to link a course to objective 0010, with the exception of codes 601, 602, 603 and 604.

Objective**Standard**

Statement of the Competency	Achievement Context
Communicate with relative ease in a modern language.	<ul style="list-style-type: none"> Working alone During a conversation consisting of at least 20 lines of dialogue In a written text of medium length (at least 25 sentences for Latin-alphabet languages and 15 sentences for other languages) Given documents of a sociocultural nature Using reference materials for the written text

Elements of the Competency	Performance Criteria
1. Understand the meaning of an oral message in everyday language.	<ul style="list-style-type: none"> Accurate explanation of the general meaning and essential ideas of the message Clear identification of structural elements of the language
2. Understand the meaning of a text of average complexity.	<ul style="list-style-type: none"> Accurate explanation of the general meaning and essential ideas of the text Clear identification of structural elements of the language
3. Have a conversation on a subject.	<ul style="list-style-type: none"> Appropriate use of the structural elements of the language according to the message to be expressed Appropriate use of everyday vocabulary Accurate pronunciation and intonation Normal flow in a conversation in everyday language Coherence of the message expressed Pertinent responses to questions
4. Write a text of average complexity.	<ul style="list-style-type: none"> Appropriate use of the structural elements of the language according to the text to be written Accurate vocabulary Coherence of the text as a whole Observance of presentation and writing rules applicable to the text

Learning Activities

Periods of instruction:	45
Credits:	2
Note:	<p>The acquisition of a modern language requires an awareness of the culture of its native speakers.</p> <p>Use the 600 series of codes to link a course to objective 0067, with the exception of codes 601, 602, 603 and 604.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Recognize the role of mathematics or computer science in contemporary society.	<ul style="list-style-type: none"> Working alone In an essay of approximately 750 words Using different personally selected concrete examples

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

Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>Only the following codes can be used to link a course to objective 0011: 105, 201, 204, 420.</p> <p>Use code 204 for a multidisciplinary course.</p> <p>Codes 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Use various mathematical or computer science concepts, procedures and tools for common tasks.	<ul style="list-style-type: none"> Working alone While carrying out a task or solving a problem based on everyday needs Using familiar tools and reference materials

Elements of the Competency	Performance Criteria
1. Demonstrate the acquisition of basic functional knowledge in mathematics or computer science.	<ul style="list-style-type: none"> Brief definition of concepts Correct execution of basic operations Appropriate use of terminology
2. Select mathematical or computing tools and procedures on the basis of specific needs.	<ul style="list-style-type: none"> Listing of numerous possibilities available through the use of mathematical and computing tools and procedures Analysis of concrete situations and recognition of the usefulness of mathematical or computing tools and procedures Appropriate choice according to needs
3. Use mathematical or computing tools and procedures to carry out tasks and solve problems.	<ul style="list-style-type: none"> Use of a planned and methodical process Correct use of tools and procedures Satisfactory results, given the context Appropriate use of terminology specific to a tool or procedure
4. Interpret the quantitative data or results obtained using mathematical or computing tools and procedures.	<ul style="list-style-type: none"> Accurate interpretation, given the context Clear, precise formulation of the interpretation

Learning Activities

Periods of instruction:	45
Credits:	2
Note:	<p>Only the following codes can be used to link a course to objective 0012: 105, 201, 204 and 420.</p> <p>Use code 204 for a multidisciplinary course.</p> <p>Codes 340 and 345 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Consider various forms of art produced according to aesthetic practices.	<ul style="list-style-type: none"> Working alone Given a specified work of art In a written commentary of approximately 750 words

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

Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	Use the 500 series of codes (except 502) to link a course to objective 0013. Use code 504 for a multidisciplinary course. Codes 340, 345, 601, 602, 603 and 604 may be used, provided the courses are not related to the objectives of common or specific general education.

Objective**Standard**

Statement of the Competency	Achievement Context
Produce a work of art.	<ul style="list-style-type: none"> Working alone During a practical exercise In the context of creating or interpreting a work of art Using the basic elements of the language and techniques specific to the medium selected

Elements of the Competency	Performance Criteria
1. Recognize the primary forms of expression of an artistic medium.	<ul style="list-style-type: none"> Identification of specific features: originality, essential qualities, means of communication, styles, genres
2. Use the medium.	<ul style="list-style-type: none"> Personal, coherent use of elements of language Satisfactory application of artistic techniques Compliance with the requirements of the method of production

Learning Activities

Periods of instruction:	45
Credits:	2
Note:	<p>Use the 500 series of codes to link a course to objective 0014, with the exception of code 502.</p> <p>Use code 504 for a multidisciplinary course.</p> <p>Codes 340, 345, 601, 602, 603 and 604 may be used, provided the courses are not related to the objectives of common or specific general education.</p>

Contemporary Issues

Code: 021L

Objective**Standard**

Statement of the Competency	Achievement Context
Consider contemporary issues from a transdisciplinary perspective.	<ul style="list-style-type: none"> • Individually or in groups • Drawing on different fields of knowledge • Using documents and data from various disciplines
Elements of the Competency	Performance Criteria
1. Identify major contemporary issues.	<ul style="list-style-type: none"> • Exploration of various contemporary issues • Description of the main perspectives concerning these issues • Clear formulation of objects to study related to these issues
2. Recognize the specific role of several disciplines in the understanding of an issue.	<ul style="list-style-type: none"> • Identification of some of the theories used in analyzing the issue • Clear description of the concepts and methods used
3. Demonstrate the contribution of several disciplines to the understanding of an issue.	<ul style="list-style-type: none"> • Clear formulation of the perspectives of the issue • Precise description of the main contributions of the disciplines • Pertinent explanation of the interaction among various disciplines • Appropriate use of language and concepts from the disciplines
Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>This objective lends itself to teaching by one or more teachers.</p> <p>Use code 365 to link a course to objective 021L in order to maintain the transdisciplinary nature of the competency.</p>

Objective**Standard**

Statement of the Competency	Achievement Context
Explore a contemporary issue from a transdisciplinary perspective.	<ul style="list-style-type: none"> • Individually or in groups • Drawing on different fields of knowledge • Using documents and data from various disciplines
Elements of the Competency	Performance Criteria
1. Present a research problem.	<ul style="list-style-type: none"> • Justification of the choice of research problem • Brief description of the main issues involved in the problem • Clear formulation of the main dimensions of the problem • Appropriate use of language and concepts from the disciplines • Clear formulation of the research question
2. Analyze the research problem.	<ul style="list-style-type: none"> • Relevant description of a research approach or method • Appropriate selection of research data • Proper application of the approach or method used • Appropriate use of an analytical framework
3. Propose solutions.	<ul style="list-style-type: none"> • Clear description of the main contributions from the disciplines • Pertinent explanation of the interaction among various disciplines • Justification of solutions proposed • Assessment of the strengths and weaknesses of the proposed solutions
Learning Activities	
Periods of instruction:	45
Credits:	2
Note:	<p>This objective lends itself to teaching by one or more teachers.</p> <p>Use code 365 to link a course to objective 021M in order to maintain the transdisciplinary nature of the competency.</p>

Additional Information

Vocabulary Used in Technical Programs

Program

A program is an integrated set of learning activities leading to the achievement of education objectives based on set standards (*College Education Regulations*, s. 1). All college programs include a general education component common to all programs; a general education component adapted to the specific program; a complementary general education component; and a program-specific component (*College Education Regulations*, s. 6).

Competency

In the program-specific component of a technical program, a competency is defined as the ability to act, succeed and evolve in order to adequately perform tasks or work-related activities, based on an organized body of knowledge (including elements 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 is defined as the competency, skills or knowledge to be acquired or mastered (*College Education Regulations*, s. 1). Each objective is formulated in terms of a competency and includes a statement of the competency and its elements. The achievement of objectives and respect for the standards ensure the acquisition or mastery of the college-level general education competencies.

Statement of the Competency

In the program-specific component of a technical program, the statement of the competency is the result of an analysis of the needs of the job situation, the general goals of technical training and (in some cases) other factors. In the general education components, it is the result of an analysis of the needs of general education.

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 and master the competency. They refer to the major steps involved in performing a task or to the main components of the competency.

In the general education components, the elements of an objective, formulated in terms of a competency, specify the main aspects of the competency.

Standard

A standard is defined as the level of performance at which an objective is considered to be achieved (*College Education Regulations*, s. 1). In the program-specific component of a technical program, it is composed of an achievement context and performance criteria.

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 hence of the competency itself. The performance criteria are based on the requirements at entry level on the job market. 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.

In both components, all the criteria must be respected for the objective to be recognized as having been attained.

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.

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 applying the program-based approach.

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 number of contact hours, the number of credits and any details deemed essential.

Harmonization

The Ministère de l'Éducation et de l'Enseignement supérieur 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 *Natural Environment Technology* 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, Techniques du milieu naturel*,

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