

Technical Training Program

235.C0

Pharmaceutical Production Technology

Training Sector

11

Mechanical
Manufacturing

Québec 

Technical Training Program

235.CO

Pharmaceutical Production Technology

Training Sector

11

Mechanical
Manufacturing

Formation professionnelle et technique
et formation continue

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Please note the modifications that have been made to the program of study

Pharmaceutical Production Technology – 235.C0

The modification pertains to the addition of a specific admission requirement:

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

Must have passed the following secondary level courses:

- Secondary IV Mathematics, Technical and Scientific option or Science option, or the Secondary V Cultural, Social and Technical option

Change approved in 2016

The modification made involved a change to the special admission condition:

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

Must have passed the following secondary level courses:

- Secondary IV Mathematics, Technical and Scientific option or Science option

Change approved in 2009

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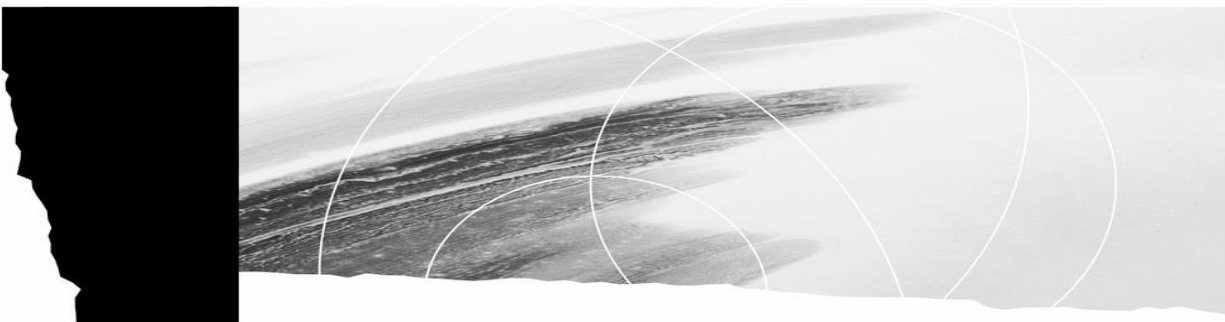
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235.C0

Pharmaceutical Production Technology

Year of approval: 2007

| | |
|---------------------------|----------------------------|
| Certification: | Diploma of College Studies |
| Number of credits: | 91 2/3 credits |
| Total duration: | 2 595 hours of instruction |

| | | |
|-------------------------------|-------|----------------------|
| General education components: | 660 | hours of instruction |
| Program-specific component: | 1 935 | hours 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, Section 2, as well as the following special conditions, where applicable:

Must have passed the following secondary level courses:

- Secondary IV Mathematics, Technical and Scientific option or Science option, or the Secondary V Cultural, Social and Technical option

Introduction to the Program

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

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

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

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

General Education Component Common to All Programs

(16 2/3 credits)

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

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

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

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

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

| | |
|------|---|
| 0330 | To analyze the job function. |
| 012X | To adapt to organizational changes in the workplace. |
| 0332 | To use a computerized workstation. |
| 0333 | To analyze manufacturing processes. |
| 051C | To perform sampling and control tests. |
| 01E2 | To process data statistically. |
| 051E | To analyze situations of noncompliance with Good Manufacturing Practices. |
| 051F | To intervene in matters of occupational health and safety. |
| 0337 | To conduct work analysis studies. |
| 0338 | To conduct method review studies. |
| 051G | To monitor dry-product manufacturing processes. |
| 051H | To ensure production quality. |
| 051J | To monitor semisolid and nonsterile liquid manufacturing processes. |
| 033B | To manage a team. |
| 051K | To ensure documentation compliance. |
| 051L | To monitor bioprocesses. |
| 033G | To plan production. |
| 033H | To plan the layout of production facilities. |
| 051M | To monitor sterile processes. |
| 051N | To monitor packaging processes. |
| 033P | To supervise production. |
| 051P | To execute validation protocols. |

Glossary

Program

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

Competency

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

Objective

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

Statement of the Competency

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

Elements of the Competency

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

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

Standard

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

Achievement Context

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

Performance Criteria

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

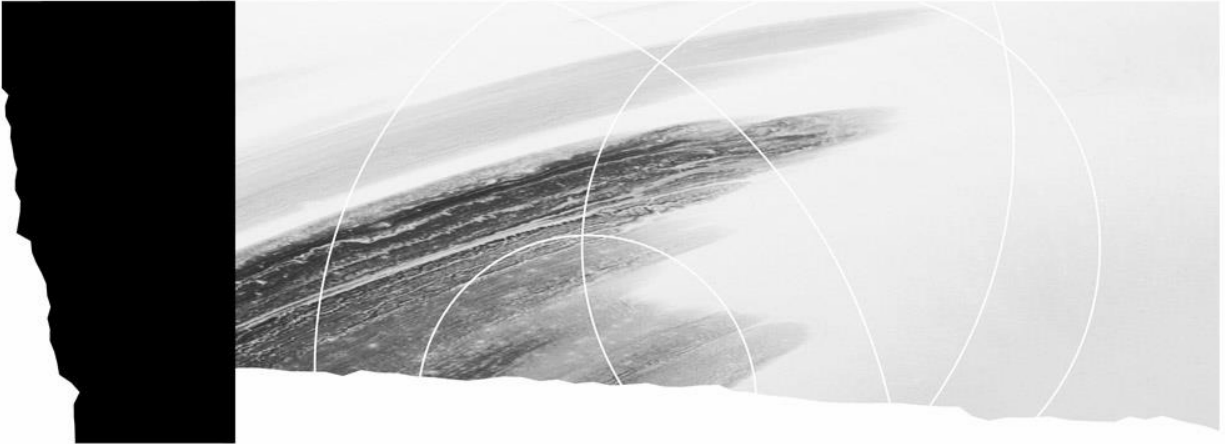
In the general education components, the performance criteria define the requirements for recognition of the attainment of the standard.

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

Learning Activities

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

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



Part I

**Goals of the General Education
Components**

**Educational Aims of the General
Education Components**

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

Goals of the General Education Components

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

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

Common Cultural Core

The common cultural core is intended to help students:

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

Generic Skills

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

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

Desirable Qualities and Attitudes

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

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

- creativity
- openness to the world

These goals apply to the three general education components:

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

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

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

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

Educational Aims of the General Education Components

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

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

English, Language of Instruction and Literature

General Education Common to All Programs

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

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

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

General Education Adapted to Programs

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

Expected Outcomes

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

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

Humanities

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

Principles

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

Expected Outcomes

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

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

Sequence of Objectives and Standards

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

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

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

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

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

Français, langue seconde

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

Principes

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

Résultats attendus

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

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

Séquence des objectifs et des standards

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

La formation générale en français, langue seconde, comporte deux ensembles prévus en séquence. Le premier, qui fait partie de la formation générale commune à tous les programmes, a pour objet de consolider les connaissances linguistiques déjà acquises et de les développer pour amener les étudiants et les étudiantes à communiquer de façon plus précise sur le plan tant du vocabulaire et de la syntaxe que de l'organisation textuelle.

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

Physical Education

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

Principles

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

Expected Outcomes

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

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

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

Sequence of Objectives and Standards

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

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

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

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

Complementary General Education

Social Sciences

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

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

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

Science and Technology

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

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

Modern Languages

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

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

Mathematics and Literacy Computer Science

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

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

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

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

Art and Aesthetics

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

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

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

Language of Instruction and Literature

Code: 0004

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

To analyze and produce various forms of discourse.

Elements of the Competency**Performance Criteria**

- | | |
|---|--|
| 1. Identify the characteristics and functions of the components of discourse. | <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 discourse. | <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. Edit the discourse. | <ul style="list-style-type: none"> • Thorough revision of form and content |

Learning Activities

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

Language of Instruction and Literature

Code: 0005

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

To apply a critical approach to literary genres.

Elements of the Competency**Performance Criteria**

- | | |
|---|---|
| 1. Distinguish genres of literary discourse. | <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 discourse within its historical and literary period. | <ul style="list-style-type: none"> • Appropriate recognition of the relationship of a text to its period |
| 4. Explain a discourse representative of a literary genre. | <ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word integrated response to a text |

Learning Activities

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

Language of Instruction and Literature

Code: 0006

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

To apply a critical 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. Explain a text from a thematic perspective. | <ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word integrated response to a text |

Learning Activities

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

Humanities

Code: 00B2

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

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

Elements of the Competency**Performance Criteria**

- | | |
|--|---|
| 1. 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 fields 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 fields 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 fields of knowledge • Accurate description of the effects of historical development and societal milieu on the limitations 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 |

Learning Activities

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

Humanities

Code: 000G

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

To apply a critical thought process to world-views.

Elements of the Competency**Performance Criteria**

- | | |
|---|--|
| 1. 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 of a 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 |

Learning Activities

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

Langue seconde (niveau I)

Code: 0017

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

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Langue seconde (niveau II)

Code: 000A

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

Communiquer en français avec une certaine aisance.

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Langue seconde (niveau III)

Code: 000B

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

Communiquer avec aisance en français.

Elements of the Competency**Performance Criteria**

- | | |
|---|--|
| 1. Produire un texte oral planifié de cinq minutes de complexité moyenne. | <ul style="list-style-type: none"> • Emploi pertinent du vocabulaire courant. • Adaptation à l'interlocuteur ou à l'interlocutrice. • Respect du niveau de langue, du code grammatical et des règles de la prononciation. • Formulation claire et cohérente du propos. • Agencement pertinent des idées. |
| 2. Commenter un texte écrit de complexité moyenne. | <ul style="list-style-type: none"> • Distinction claire des principaux éléments d'un texte comprenant entre 2 500 et 3 000 mots. • Explication précise du sens des mots dans le texte. • Distinction précise des idées principales et secondaires, des faits et des opinions. • Formulation d'éléments implicites. |
| 3. Rédiger un texte de complexité moyenne. | <ul style="list-style-type: none"> • Respect du code grammatical et orthographique. • Adaptation au lecteur ou à la lectrice. • Utilisation judicieuse des principaux éléments du corpus. • Formulation claire et cohérente des phrases, dont au moins trois sont complexes. • Articulation cohérente des paragraphes. • Rédaction d'un texte de 350 mots. |

Learning Activities

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

Langue seconde (niveau IV)

Code: 000C

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

Traiter d'un sujet culturel et littéraire.

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Physical Education

Code: 0064

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

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Physical Education

Code: 0065

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

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

Element of the Competency**Performance Criteria**

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

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

Learning Activities

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

Physical Education

Code: 0066

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

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Language of Instruction and Literature

Code: 000L

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

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Humanities

Code: 000U

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

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

Elements of the Competency**Performance Criteria**

- | | |
|---|---|
| 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 implications 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 |

Learning Activities

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

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

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

Elements of the Competency**Performance Criteria**

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

Langue seconde (niveau I)

Code: 0018

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

Learning Activities

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

Langue seconde (niveau II)

Code: 000Q

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

Communiquer en français dans un champ d'études particulier.

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Langue seconde (niveau III)

Code: 000R

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

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

Elements of the Competency**Performance Criteria**

- | | |
|--|--|
| 1. Commenter des textes propres au champ d'études. | <ul style="list-style-type: none"> • Distinction précise des caractéristiques formelles des principaux types de textes et des conventions utilisées. • Explication précise du sens des mots dans le texte. • Repérage précis de la structure du texte. • Reformulation juste des idées principales et secondaires, des faits et des opinions. • Emploi juste du vocabulaire spécialisé. |
| 2. Produire un texte sur un sujet lié au champ d'études. | <ul style="list-style-type: none"> • Respect du sujet. • Emploi pertinent du vocabulaire spécialisé et des conventions. • Respect du niveau de langue et du code grammatical. • Formulation claire et cohérente du propos. • Agencement pertinent des idées. • Adéquation entre forme et fond. |

Learning Activities

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

Langue seconde (niveau IV)

Code: 000S

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

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

Elements of the Competency**Performance Criteria**

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

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

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

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

Learning Activities

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

Social Sciences

Code: 000V

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

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

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Social Sciences

Code: 000W

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

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

Achievement Context

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

Elements of the Competency**Performance Criteria**

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

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

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

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

3. Draw conclusions.

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

Learning Activities

Hours of instruction: 45
Credits: 2

Science and Technology

Code: 000X

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

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

Achievement Context

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

Elements of the Competency**Performance Criteria**

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

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

Learning Activities

Hours of instruction: 45
Credits: 2

Science and Technology

Code: 000Y

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

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

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

Elements of the Competency**Performance Criteria**

- | | |
|---|--|
| 1. Describe the main steps of the standard scientific method. | <ul style="list-style-type: none"> • Organized 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

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

Modern Languages

Code: 000Z

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

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

Modern Languages**Code: 000Z**

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

Learning Activities

Hours of instruction: 45
Credits: 2

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

To communicate on familiar topics in a modern language.

Achievement Context

- During a conversation consisting of at least 15 sentences 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:
 - situations in everyday life
 - simple topics from everyday life
- Using reference materials

Elements of the Competency**Performance Criteria**

1. Understand the meaning of a verbal message.

Learning a modern language requires becoming aware of the culture of the people who use the language.

- 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.

- 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 verbally, using sentences of average complexity.

- Appropriate use of language structures in main or subordinate clauses
- Appropriate application of grammar rules
- Use of verbs in the present indicative
- Appropriate use of enriched basic vocabulary and idiomatic expressions
- Comprehensible pronunciation
- Coherent sequence of sentences of average complexity
- Coherent dialogue of average complexity

Modern Languages**Code: 0010**

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

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

Learning Activities

Hours of instruction: 45
Credits: 2

Modern Languages

Code: 0067

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

To communicate with relative ease in a modern language.

Achievement Context

- Working alone
- During a conversation consisting of at least 20 sentences 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 a verbal message in everyday language.

- Learning a modern language requires being aware of the culture of the people who use the language.
- 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.

- Accurate explanation of the general meaning and essential ideas of the text
- Clear identification of structural elements of the language

3. Have a conversation about a subject.

- 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.

- 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

Learning Activities

Hours of instruction: 45
Credits: 2

Mathematics Literacy and Computer Science

Code: 0011

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

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

Achievement Context

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

Elements of the Competency**Performance Criteria**

- | | |
|---|---|
| 1. Demonstrate the acquisition of basic general knowledge in mathematics or informatics. | <ul style="list-style-type: none"> • Identification of basic notions and concepts • Identification of main branches of mathematics or informatics • Appropriate use of terminology |
| 2. Describe the evolution of mathematics or informatics. | <ul style="list-style-type: none"> • Descriptive summary of several major phases |
| 3. Recognize the contribution of mathematics or informatics 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 informatics 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 informatics on individuals and organizations. | <ul style="list-style-type: none"> • Identification of several major influences • Explanation of the way in which mathematics or informatics have changed certain human and organizational realities • Recognition of the advantages and disadvantages of these influences |

Learning Activities

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

Mathematics Literacy and Computer Science

Code: 0012

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

To use various mathematical or computer concepts, procedures and tools for common tasks.

Achievement Context

- 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 informatics. | <ul style="list-style-type: none"> • Brief definition of concepts • Correct execution of basic operations • Appropriate use of terminology |
| 2. Select mathematical or computer tools and procedures on the basis of specific needs. | <ul style="list-style-type: none"> • List of numerous possibilities available with mathematical and computer tools and procedures • Analysis of concrete situations and recognition of the usefulness of mathematical or computer tools and procedures • Appropriate choice according to needs |
| 3. Use mathematical or computer tools and procedures to carry out tasks and solve problems. | <ul style="list-style-type: none"> • Planned, 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 computer tools and procedures. | <ul style="list-style-type: none"> • Accurate interpretation, given the context • Clear, precise formulation of the interpretation |

Learning Activities

Hours of instruction: 45
Credits: 2

Art and Aesthetics

Code: 0013

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

To consider various forms of art produced by aesthetic practices.

Achievement Context

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

Elements of the Competency**Performance Criteria**

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

Learning Activities

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

Art and Aesthetics

Code: 0014

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

To produce a work of art.

Achievement Context

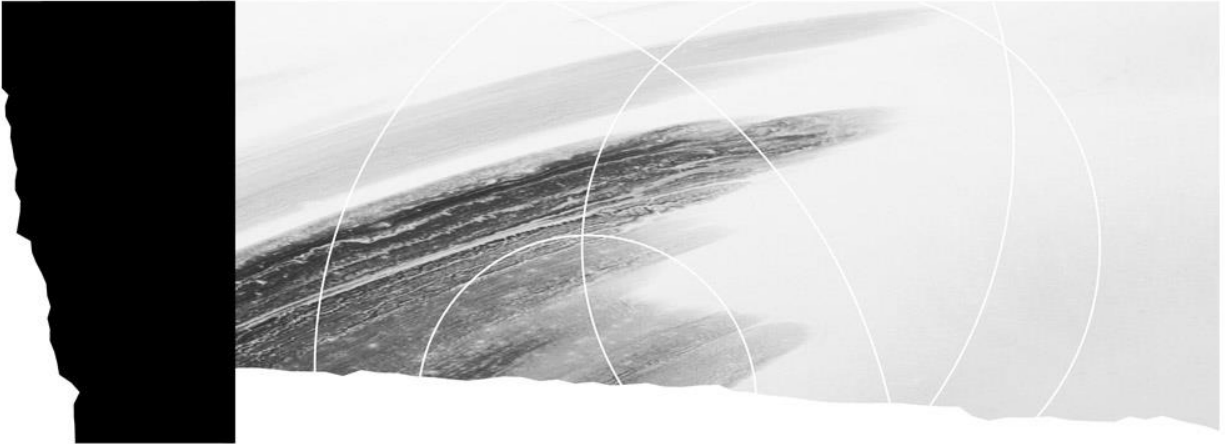
- Working alone
- During a practical exercise
- In the context of a creation or an interpretation
- Using the basic elements of the language and techniques specific to the medium selected

Elements of the Competency**Performance Criteria**

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

Learning Activities

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



Part II

**Goals of the Program-Specific
Component**

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

Grid of Competencies

Harmonization

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

Goals of the Program-Specific Component

The *Pharmaceutical Production Technology* program trains technicians to ensure the proper functioning and quality of production processes in the pharmaceutical industry.

At the outset, most employers require pharmaceutical production technicians to learn to master the processes used in their companies. The technicians' duties therefore consist in making sure that processes run smoothly. Then, depending on the technicians' abilities and the company's organizational structure, technicians may gradually monitor more complex processes, participate in problem solving, and eventually become team leaders or supervisors. As such, they oversee production quality and personnel safety. They also help plan production and organize the work environment. At all times, they must ensure that personnel comply with regulations and optimize production performance.

Technicians may also be required to provide quality assurance services, verify technical documentation or execute validation protocols for processes, equipment and systems. They may be called upon to act as resource persons for optimization, research and development projects, during which they make use of their skills to produce a time study or methodology analysis.

In all pharmaceutical production companies, activities are tightly regulated, given the nature of the operations and the impact that products may have on consumers' health. All of the activities performed by technicians that affect the quality and safety of manufactured products are therefore supervised, verified and controlled by a person in authority.

Because of the rigour of their work, technicians must be meticulous, able to follow instructions to the letter, and possess integrity as well as the intellectual skills needed to analyze data and make decisions. They must also be able to communicate information clearly and ensure they have understood what others are saying.

Pharmaceutical production technicians may work for companies of various sizes that employ bioprocesses as well as processes used to manufacture and package dry, semisolid, liquid, sterile and nonsterile pharmaceutical products. The ability to work with these processes prepares technicians to work in other related industries such as natural health products, cosmetics and medical instruments.

The goals of the program-specific component of the *Pharmaceutical Production 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 of the Program-Specific Component

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

The following is a description of the aims of the program-specific component of the *Pharmaceutical Production Technology* program:

To develop:

- versatility as a basic trait
- the ability to work in a team, communicate effectively and develop harmonious work relations
- leadership skills
- analytical and synthesis skills
- critical thinking skills, in order to detect problems
- the ability to solve problems and make innovative suggestions, in order to improve production and the quality of life at work
- proactiveness
- rigour and attention to detail

More specifically, since technicians' work is tightly regulated by Good Manufacturing Practices and other regulations leaving very little leeway, employers require above all the following qualities:

- integrity
- the ability to follow instructions precisely
- receptiveness to criticism

Grid of Competencies

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

The grid of competencies includes:

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

The grid of competencies shows the relationship between the general competencies on the horizontal axis and the specific competencies on the vertical axis. The symbol (○) indicates a correlation between a general and a specific competency.

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

| GRID OF COMPETENCIES | | | | | | | | | | | | | |
|--|-------------------|-----------------------------|---|-----------------------------------|------------------------------------|---------------------------------------|-------------------------------|---|---|-------------------------------------|---------------------------|------------------|--|
| PHARMACEUTICAL PRODUCTION TECHNOLOGY | Competency number | | | | | | | | | | | | |
| | | To analyze the job function | To adapt to organizational changes in the workplace | To use a computerized workstation | To analyze manufacturing processes | To perform sampling and control tests | To process data statistically | To analyze situations of non-compliance with Good Manufacturing Practices | To intervene in matters of occupational health and safety | To conduct work measurement studies | To conduct method studies | To manage a team | |
| SPECIFIC COMPETENCIES | Competency number | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 14 | |
| To monitor dry-product manufacturing processes | 11 | | | | | | | | | O | O | O | |
| To ensure production quality | 12 | | | | | | | | | | | O | |
| To monitor semisolid and nonsterile liquid manufacturing processes | 13 | | | | | | | | | O | O | O | |
| To ensure documentation compliance | 15 | | | | | | | | | | | O | |
| To monitor bioprocesses | 16 | | | | | | | | | O | O | O | |
| To plan production | 17 | | | | | | | | | | | | |
| To plan the layout of production facilities | 18 | | | | | | | | | | | | |
| To monitor sterile processes | 19 | | | | | | | | | O | O | O | |
| To monitor packaging processes | 20 | | | | | | | | | O | O | O | |
| To supervise production | 21 | | | | | | | | | | | | |
| To execute validation protocols | 22 | | | | | | | | | O | O | O | |

Harmonization

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

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

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

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

Harmonization of the *Pharmaceutical Production 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, Technologie de la production pharmaceutique*.

Code: 0330

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

To analyze the job function.

Achievement Context

Using recent and forecast data on the practice of the occupation, companies in the target sectors, and the production process in general

Elements of the Competency**Performance Criteria**

1. Describe the characteristics of companies that employ pharmaceutical production technicians and the different types of work organization they adopt.

- Accurate differentiation among different types of companies
- Relevant differentiation made with regard to management approach and work organization
- Identification of direct links between a company and its outside environment

2. Describe a production process and the various occupations involved.

- Accurate representation of a type of production process as well as the manufacturing processes used
- Relevant associations made between occupations and the main production activities

3. Describe the characteristics of the occupation and its employment conditions.

- Relevant information gathered
- Thorough examination of the general characteristics of the occupation and its employment conditions, based on the target sectors
- Identification of job opportunities in the target sectors
- Accurate delimitation of the responsibilities of pharmaceutical production technicians in relation to similar occupations
- Identification of the current regulations

4. Examine the tasks and activities of the occupation.

- Adequate examination of activities, the conditions under which they are performed, and the performance criteria for each task
- Accurate determination of the tasks' relative importance
- Relationships established between the steps in the work process and the tasks of the occupation

Code: 0330

5. Examine the skills, attitudes and behaviours required to practise the occupation.

- Relevant links established between skills, attitudes and behaviours and the various tasks of the occupation
- Relevant links established between the program of study and the occupation

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

To adapt to organizational changes in the workplace.

Achievement Context

- Working in a team
- Based on complete information regarding the operations of a given manufacturing company
- Using relevant documentation
- In an atmosphere of respect and openness

Elements of the Competency**Performance Criteria**

1. Identify the production management methods of the company and their effects on the organization of work.

- Identification of the company's management philosophy, particularly Taylorism and added value
- Appropriate description of the type of organizational structure adopted:
 - hierarchical organization
 - semi-autonomous teams
 - autonomous teams
- Identification of the company's production process
- Accurate assessment of the effect of management methods on production and the evolution of tasks in the company

2. Identify the means used to continuously improve productivity.

- Accurate differentiation among instruments or techniques used in the company
- Relevant links established between the means used and the company's ability to meet the requirements of the new economy, such as:
 - reducing response time to meet market needs
 - economies of scale
 - waste elimination
- Recognition of the contribution of personnel to productivity improvement

3. Communicate orally with colleagues.
 - Choice of questions required to obtain relevant information
 - Appropriate rephrasing of areas of agreement and disagreement in a discussion
 - Accurate rephrasing and reflection of message
 - Constructive, accurate feedback in order to:
 - try to improve a behaviour
 - recognize and encourage the positive contribution of others
 - Relevant, persuasive expression of one's point of view
 - Understanding of potentially controversial comments
 - Use of an effective communication approach to deal with emotionally charged behaviour
4. Solve problems.
 - Appropriate choice of tools and techniques, in accordance with the complexity of the problem to be solved
 - Clear description of the problem
 - Accurate determination of the causes and effects of the problem
 - Best solution, in accordance with established criteria
 - Realistic plan of action
 - Clear definition and scheduling of follow-up mechanisms
5. Work in a multidisciplinary team.
 - Accurate determination of the goals and results to be attained, in accordance with the company's mission and values
 - Team rules established by consensus
 - Determination of the area of responsibility of each team member
 - Proper planning of work
 - Consensus decision making
 - Accurate identification of the participation style of team members
 - Descriptive list of factors that can help or hinder each stage of the team's work

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

To use a computerized workstation.

Achievement Context

- Working on a workstation connected to a network and the Internet
- Using word-processing, spreadsheet and database management software in English and in French
- Working with relevant technical documentation

Elements of the Competency**Performance Criteria**

1. Prepare the workstation.

- Accurate location and identification of the computer's components and peripherals
- Methodical verification of connections
- Functional, ergonomic organization of the workstation

2. Use the basic functions of an operating system.

- Proper use of the main functions of a graphic environment, such as windows, dialogue boxes and menu, and tool and scroll bars
- Observance of the procedures for creating, saving and printing documents
- Observance of the procedure for navigating and transferring data between applications
- Proper use of the main file management functions of various media
- Observance of the procedures for compressing and decompressing files
- Proper personalization of a graphic environment, in accordance with needs
- Observance of the shutdown procedures
- Thorough application of safety measures to protect data integrity

3. Solve problems related to software use, using the Help function.

- Effective search of the Help function
- Accurate interpretation and implementation of solutions
- Accurate translation of French software terminology, if applicable

4. Produce a short document by using a word-processing application.
 - Appropriate choice of basic tools and formatting tools, according to their respective functions
 - Use of appropriate commands for:
 - modifying a text
 - formatting
 - page numbering
 - creating a table
 - using a dictionary
 - inserting page and section breaks
5. Produce a document using a spreadsheet.
 - Appropriate choice of basic tools and formatting tools, according to their respective functions
 - Use of appropriate commands for:
 - creating a work sheet
 - copying and moving cells
 - entering and copying data
 - modifying data
 - modifying rows and columns
 - calculating data
6. Use the Internet.
 - Choice of appropriate communication software functions
 - Effective search for information
 - Observance of the procedure for creating a bookmark
 - Observance of the procedure for processing e-mail
 - Observance of the procedures for importing and printing texts, drawings and images
7. Create a basic database.
 - Proper use of database terminology
 - Use of appropriate commands for:
 - creating fields and records
 - creating simple queries
 - creating simple forms and reports
 - Accurate entry and modification of information in the database

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

To analyze manufacturing processes.

Achievement Context

- For at least three sectors of activity
- Based on products of the target sectors, technical data sheets and various information sources on technological innovations
- Using computerized search tools and technical documentation in English and in French

Elements of the Competency**Performance Criteria**

1. Describe the components involved in manufacturing a product.
2. Study the manufacturing process of a product.
3. Search for information on the company's processes and products.
4. Keep abreast of technological developments.

- Identification of the components of a product
- Accurate identification of the components' properties in the technical documentation
- Accurate relationships established between the components and their transformation capacity
- Appropriate links established between the manufacturing process and the type of production
- Clear understanding of the manufacturing steps
- Proper matching of techniques with the different manufacturing steps
- Recognition of the capabilities of the process and equipment, in accordance with requirements
- Appropriate relationship established between economic constraints and production objectives
- Effective search techniques
- Varied sources of information
- Substantial and relevant information found
- Methodical classification of information
- Relevant information gathered
- Documented list of professional business organizations and contacts in the field
- Accurate assessment of potential improvements in production
- Structured classification and archiving of information

Code: 051C

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

To perform sampling and control tests.

Achievement Context

- During chemical, physical and microbiological control tests, taking into account developments in manufacturing technology
- Within the limits of one's area of responsibility
- Based on products, operating procedures and product specifications
- Referring to regulations, technical documents and pharmacopoeia
- Using measuring instruments and equipment

Elements of the Competency**Performance Criteria**

1. Detect chemical and microbiological contamination risks.

- Accurate identification of contamination sources
- Correct application of detection methods
- Accurate evaluation of the impact on product quality
- Recognition of contamination transmission and propagation modes
- Appropriate choice of contamination control measures

2. Identify anomalies in the properties of the product.

- Accurate detection of the sources of anomalies
- Accurate evaluation of the impact on product quality
- Appropriate choice of measures to control the anomaly

3. Take samples.

- Establishment of a representative sampling plan
- Determination and application of an appropriate sampling method
- Integrity of the samples taken

4. Prepare the environment for testing.

- Selection of an appropriate method of analysis
- Determination of appropriate environmental conditions
- Thorough verification of the equipment chosen
- Accurate preparation of reactants and solutions
- Accurate sample preparation
- Accurate adjustment of analysis parameters

Code: 051C

5. Perform control tests.

- Proper application of method
- Proper use of instruments
- Accurate measurement readings and calculations
- Determination of the validity of the results
- Accurate interpretation of the results
- Recommendation of relevant preventive and corrective measures

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

To process data statistically.

Achievement Context

- Based on instructions and protocols
- Using a calculator, computer and appropriate software
- Using the required technical documentation
- With a concern for accuracy and precision

Elements of the Competency**Performance Criteria**

1. Present data.

- Organization of data
- Proper preparation of a data distribution table
- Appropriate graphic presentation of data

2. Analyze data.

- Accurate calculation of measures of central tendency
- Accurate calculation of measures of spread
- Accurate determination of the confidence interval:
 - when the experimental standard deviation is a good approximation of the population standard deviation
 - when the population standard deviation is unknown
- Proper application of least squares method to experimental results
- Accurate determination of the:
 - slope
 - intercept point
 - standard deviation of the residuals
 - standard deviation on the slope
 - standard deviation of the intercept
 - standard deviation of results obtained using a calibration curve
 - correlation coefficient
- Appropriate graphic representation

Code: 01E2

3. Evaluate the results.
 - Correct assessment of the accuracy and precision of the results
 - Accurate distinction between random errors and systematic errors
 - Proper determination of the following for a given probability:
 - agreement between an experimental mean value and its predicted value
 - agreement between two experimental means
 - agreement between two series of measurements (accuracy)
 - Correct decision to reject eccentric values
 - Accurate determination of a variable's normal values
 - Accurate comparison between two methods
4. Use control charts.
 - Proper use of control charts

Code: 051E

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

To analyze situations of noncompliance with Good Manufacturing Practices.

Achievement Context

- In order to implement Good Manufacturing Practices for pharmaceuticals, natural health products and cosmetics
- Referring to Canadian and international regulations

Elements of the Competency**Performance Criteria**

- | | |
|--|---|
| 1. Detect noncompliance situations. | <ul style="list-style-type: none"> • Effective observation and vigilance • Attentiveness to comments from team members • Accurate detection of potential problems |
| 2. Search for information in the regulations. | <ul style="list-style-type: none"> • Effective search • Relevant information gathered on problems detected • Accurate identification and interpretation of regulatory requirements |
| 3. Analyze noncompliance issues. | <ul style="list-style-type: none"> • Determination of the discrepancy between the current situation and regulatory requirements • Accurate assessment of the impact on product quality and the integrity of operations • Accurate assessment of the degree of severity • Appropriate choice of measures to control the anomaly (or anomalies) |
| 4. Recommend preventive and corrective measures. | <ul style="list-style-type: none"> • Accurate determination of the causes • Relevant suggestions |

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

To intervene in matters of occupational health and safety.

Achievement Context

- Referring to occupational health and safety legislation and regulations
- Using protective and safety equipment, and first-aid materials
- Using material safety data sheets and technical data sheets

Elements of the Competency**Performance Criteria**

1. Identify hazardous situations.

- Thorough identification of situations that are hazardous or harmful to health
- Accurate estimate of the degree of severity
- Realistic proposal of preventive measures

2. Implement safe work practices.

- Accurate interpretation of material safety data sheets
- Use of appropriate protective equipment
- Proper handling of hazardous materials
- Clear communication of instructions to the team
- Rigorous implementation of regulations
- Proper exercise of authority

3. Intervene during an incident or accident.

- Correct application of first-aid techniques
- Observance of emergency procedures
- Proper control of the situation
- Effective communication with the individuals concerned

4. Produce a report of the incident or accident.

- Clear, concise report
- Effective communication of the facts
- Demonstration of objectivity
- Respect for confidentiality
- Appropriate, realistic suggestions for corrective measures and intervention priorities

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

To conduct work analysis studies.

Achievement Context

- Working alone and in teams
- For measurement methods such as surveys, time studies and predetermined time systems
- Based on a description of the method used by the company
- Using software and data acquisition tools, stopwatches and predetermined time standards

Elements of the Competency**Performance Criteria**

1. Define the scope of the work to be studied.

- Accurate interpretation of the study's objectives
- Clear definition of the study's limits
- Consideration of regulations and the company's methods and policies

2. Collect data.

- Appropriate choice of data collection method
- Constitution of a meaningful sample
- Appropriate choice of materials
- Clear explanation of the study's objective to the individuals concerned
- Accurate description of the work elements to be measured
- Work accomplished with discernment, tact and respect
- Observance of steps, in accordance with the method chosen
- Accurate data collected

3. Analyze data.

- Accurate compilation of data
- Thorough examination of the data, in accordance with the method used
- Accurate calculations
- Rigorous interpretation
- Relevant conclusions

4. Determine how much time is required to complete the job.

- Accurate time estimates
- Accurate evaluation of the performance rating, in accordance with the method used
- Accurate estimate of allowances
- Accurate calculation of standard time
- Accurate information recorded in the files
- Clear communication of information to the individuals concerned

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

To conduct method review studies.

Achievement Context

- Working alone and in teams
- Based on plans and data about the workstation to be studied
- Using a digital camera, and process illustration and image processing software

Elements of the Competency**Performance Criteria**

1. Define the scope of the work to be studied.

- Accurate interpretation of the study's objectives
- Clear definition of the study's limits
- Consideration of regulations and the company's methods and policies

2. Record facts about the current situation.

- Accurate use of conventional symbols to represent different types of activities
- Proper use of graphics and diagrams for the method study
- Relevant collection of data
- Accurate illustration of the current process

3. Examine the operation from a productivity perspective.

- Appropriate choice of method
- Correct application of the method chosen
- Appropriate critical judgment
- Accurate sketch of the situation

4. Examine the work from an ergonomic perspective.

- Careful analysis of work postures
- Methodical verification of the workstation's conformity with ergonomic principles and regulations
- Appropriate critical judgment

5. Explore new methods.

- Consideration given to comments from the individuals affected by future changes
- Active participation in brainstorming session
- Suggestion of varied, innovative alternatives
- Clear definition of evaluation criteria, within the scope of the regulations governing the sector
- Appropriate evaluation of solutions
- Optimal method chosen for the situation

Code: 0338

6. Propose a new work method.

- Clear representation of the proposed method
- Accurate illustration of the new process
- Clear, accurate description of the proposed method
- Objective, persuasive presentation given to the individuals affected by the change
- Planning of an appropriate strategy to introduce and monitor the change

Code: 051G

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

To monitor dry-product manufacturing processes.

Achievement Context

- Working alone or in a team
- Within the limits of one's area of responsibility
- For tablets, soft and hard gel capsules
- Based on a production plan and manufacturing orders
- Following Good Manufacturing Practices regulations
- Using equipment and materials for dry powder mixing: granulation, encapsulation, compression and coating
- Using control instruments
- Using personal protective equipment and sterilization materials

Elements of the Competency**Performance Criteria**

1. Produce the work plan.

- Accurate interpretation of work instructions, in accordance with the type of process used
- Identification of the data needed to plan production and of critical operating parameters
- Determination of conditions for handling ingredients, in accordance with their properties
- Coordination of the availability of necessary resources
- Thorough verification of ingredient, equipment and work area compliance
- Proper assembly of equipment
- Methodical preparation of production and sterilization materials

Code: 051G

2. Carry out the manufacturing steps.
 - Observance of regulations and occupational health and safety standards
 - Proper use of conventional or automated equipment
 - Observance of the manufacturing protocol
 - Observance of mixing, granulation and compression parameters
 - Completion of required documentary forms (documentation)
 - Careful monitoring of sources of contamination
 - Concern for optimizing production
 - Segregation of noncompliant products
 - Meticulous labelling of containers
 - Proper use of equipment for transferring products to the next step in the process
 - Proper handling of in-process products
3. Carry out prescribed controls.
 - Observance of the prescribed sampling frequency
 - Meticulous labelling of containers
 - Observance of the sampling techniques and schedule
 - Proper use of instruments
 - Observance of control methods in operation
 - Prompt identification of noncompliant results
 - Accurate records in logbook and relevant inspection sheets
 - Effective adjustment of parameters to correct noncompliance issues
4. Help solve production-related problems.
 - Accurate diagnosis of the sources of the problem
 - Relevant suggestions for solving problems or optimizing production
 - Recognition of the limits of one's area of intervention
5. Maintain work areas and equipment.
 - Thorough preparation of solutions, in accordance with cleaning charts and sterilization protocols
 - Correct execution of cleaning steps
 - Observance of sampling methods to validate the cleaning process
 - Preventive equipment maintenance

Code: 051H

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

To ensure production quality.

Achievement Context

- Working alone or in a team
- Working within the limits of one's area of responsibility
- Based on a production plan and quality management objectives
- Based on control and observation data
- Based on standardized procedures
- Referring to Good Manufacturing Practices
- Using quality control sheets, following a list of audit criteria and a report template

Elements of the Competency**Performance Criteria**

1. Plan the appropriate controls.

- Establishment of control priorities
- Determination of all data to be collected and controls to be conducted
- Preparation of statistical control sheets or any other data collection tool
- Appropriate choice of human and material resources

2. Analyze control data.

- Logical organization of information
- Accurate statistical calculations
- Accurate determination of variances, deviations and tendencies

3. Evaluate the compliance of production operations.

- Accurate implementation of regulations
- Accurate implementation of audit techniques
- Tactful verification of documentation and techniques used by personnel
- Identification of all anomalies or deviations
- Logical organization of observations

4. Produce reports and summaries.

- Accurate recommendations
- Clear, accurate information presentation
- Use of appropriate terminology
- Observance of data presentation standards
- Prompt communication of information to relevant individuals
- Demonstration of integrity, reliability and excellent communication

Code: 051H

5. Ensure continuous system improvement.

- Objective determination of causes of deviations or variances
- Relevant suggestions for preventive and corrective actions for improvement
- Relevant suggestions for a monitoring system

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

To monitor semisolid and nonsterile liquid manufacturing processes.

Achievement Context

- Working alone or in a team
- Within the limits of one's area of responsibility
- For ointments, creams and nonsterile liquids
- Based on a production plan and manufacturing orders
- Using equipment and materials for the aqueous phase and oil phase, such as emulsion tanks (depending on technological developments)
- Using control instruments
- Using personal protective equipment and sterile materials

Elements of the Competency**Performance Criteria**

1. Produce the work plan.

- Accurate interpretation of procedural instructions, in accordance with the type of process used
- Identification of the data needed to plan production and of critical operating parameters
- Determination of conditions for handling ingredients, in accordance with their properties
- Coordination of the availability of necessary resources
- Thorough verification of ingredient, equipment and work area compliance
- Proper assembly of equipment
- Methodical preparation of production and sterile materials

2. Carry out the manufacturing steps.

- Observance of regulations and occupational health and safety standards
- Proper use of conventional or automated equipment
- Observance of the manufacturing protocol
- Observance of emulsion parameters
- Forms completed according to documentary requirements
- Careful monitoring of sources of contamination and other anomalies
- Concern for optimizing production
- Segregation of noncompliant products
- Meticulous labelling of containers
- Proper use of equipment for transferring products to the next step in the process

Code: 051J

- | | |
|--|---|
| 3. Carry out prescribed controls. | <ul style="list-style-type: none">• Observance of the prescribed sampling frequency• Observance of the sampling technique and schedule• Meticulous labelling of samples• Proper use of instruments• Observance of sampling and control methods• Prompt identification of noncompliant results• Accurate results recorded in logbook and relevant forms• Effective adjustment of parameters to correct noncompliance issues |
| 4. Help solve production-related problems. | <ul style="list-style-type: none">• Accurate diagnosis of the sources of the problem• Relevant suggestions for solving problems or optimizing production• Recognition of the limits of one's area of intervention |
| 5. Maintain work areas and equipment. | <ul style="list-style-type: none">• Thorough preparation of solutions, in accordance with cleaning charts and schedule• Proper cleaning of equipment• Correct execution of cleaning steps• Observance of sampling methods to validate the cleaning process• Preventive equipment maintenance |

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

To manage a team.

Achievement Context

- Working alone and in cooperation with the individuals of a team
- With regard to the human aspects of work
- Understanding legislation, collective agreements and company policies
- Using the required documentation or computer with appropriate office software

Elements of the Competency**Performance Criteria**

1. Help recruit the staff in one's area of responsibility.

- Consideration of legislation, collective agreements, regulations and company policies regarding personnel recruitment and hiring
- Understanding the boundaries of one's responsibilities in recruitment matters
- Accurate description of job-related tasks and qualifications
- Accurate anticipation of staff changes
- Effective application of the recruitment process

2. Coordinate training.

- Clear understanding of boundaries in one's area of responsibility, in accordance with industry regulations or company policy
- Relevant information provided to develop a human resources plan
- Proper planning of the personnel training plan
- Appropriate choice of the resources needed for a specific training program
- Supervision of training activities
- Appropriate planning of follow-up

3. Communicate information and instructions.

- Observance of the company's mission and objectives
- Proper planning of communication strategies
- Use of appropriate communication and motivation techniques
- Complete technical documentation available at the workstations at all times
- Strict implementation of regulations and occupational health and safety standards
- Appropriate monitoring of the implementation of instructions

Code: 033B

- | | |
|---|---|
| 4. Facilitate meetings. | <ul style="list-style-type: none">• Structured planning of meetings• Clear communication• Efficient meetings• Receptiveness to suggestions and comments• Accurate information gathering during meetings• Appropriate follow-up of recommendations and requests |
| 5. Solve interpersonal problems. | <ul style="list-style-type: none">• Critical, constructive assessment of a conflict• Appropriate intervention in a conflict, in keeping with the limits of one's responsibilities• Respectful, tactful communication• Respect for employees' rights and observance of the collective agreement• Thorough follow-up of solutions |
| 6. Evaluate the employees under one's responsibility. | <ul style="list-style-type: none">• Accurate determination of performance standards• Objective evaluation of employee performance• Clear, honest communication of positive and negative aspects of the results• Relevant recommendations for the achievement of performance standards |
| 7. Ensure the continuous improvement of the work environment. | <ul style="list-style-type: none">• Establishment of employee recognition measures in keeping with the organizational culture• Appropriate choice of management methods to promote employee participation |

Code: 051K

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

To ensure documentation compliance.

Achievement Context

- For documents produced by production staff, such as records, batch records and reports
- For technical documentation such as procedures, specifications and protocols
- Based on prescribed computer security measures
- Referring to Good Manufacturing Practices and normative documents
- Using computer equipment

Elements of the Competency**Performance Criteria**

1. Organize one's work.

- Appropriate determination of priorities for document review
- Verification of the completeness of a document
- Logical scheduling of tasks to be done

2. Check the documents provided by the production department.

- Thorough verification of:
 - observance of standardized procedures and regulations
 - observance of prescribed sequences of operations
 - data integrity
 - accuracy of calculations
- Systematic, appropriate identification of:
 - errors with respect to procedures and regulations
 - product noncompliance
- Application of problem-solving techniques
- Relevant consultation of concerned departments
- Clear description of the corrective actions requested
- Effective, tactful communication of the corrective actions requested
- Appropriate assessment of the corrective actions taken within the regulatory framework

Code: 051K

3. Update technical documentation.
 - Accurate identification of new requirements
 - Accurate evaluation of discrepancies between current documents and new requirements
 - Thorough list of modifications to be made
 - Recommendations justified to persons in authority
 - Accurate inclusion of requirements in the documentation
4. Keep abreast of regulatory changes.
 - Careful comparison of current versions and new requirements
 - Communication of new information to all concerned individuals
5. Produce reports.
 - Clear, accurate information
 - Use of appropriate terminology
 - Observance of data presentation standards

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

To monitor bioprocesses.

Achievement Context

- Working alone or in a team
- Within the limits of one's area of responsibility
- For prokaryotic or mammalian cell preparations
- Based on a production plan and manufacturing orders
- Referring to Good Manufacturing Practices regulations
- Using equipment and materials for fermentation, centrifugation, clarification, purification, etc. (depending on technological developments)
- Using control instruments and aseptic technique
- Using personal protective equipment and sterilized materials

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Accurate interpretation of work instructions, in accordance with the type of process used
- Identification of the data needed to plan production and of critical operating parameters
- Determination of conditions for handling ingredients, in accordance with their properties
- Coordination of the availability of necessary resources
- Thorough verification of ingredient, equipment and work area compliance
- Methodical preparation of production and sterilized equipment
- Proper assembly of equipment
- Verification of the quantity of nutrients to be used for fermentation

2. Carry out the manufacturing steps.
 - Observance of regulations and occupational health and safety standards
 - Application of contamination prevention measures and aseptic techniques
 - Rigorous application of methods for handling inoculums
 - Application of microbiology principles during inoculation stages
 - Proper use of conventional or automated equipment
 - Observance of the manufacturing protocol
 - Careful monitoring of sources of contamination
 - Forms completed according to documentary requirements
 - Concern for optimizing processes
 - Proper use of equipment for transferring products to the next step in the process
3. Carry out prescribed controls.
 - Observance of the prescribed sampling frequency
 - Observance of the sampling method and the quantities to be taken
 - Meticulous labelling of containers
 - Proper use of instruments
 - Prompt identification of noncompliant results
 - Accurate results recorded on the control forms
 - Effective adjustment of parameters to correct noncompliance issues
4. Help solve production-related problems.
 - Accurate diagnosis of the source of the problem
 - Relevant suggestions for solving the problem or optimizing production
 - Recognition of the limits of one's area of intervention
5. Maintain work areas and equipment.
 - Thorough preparation of solutions, in accordance with cleaning charts and sterile procedures
 - Proper cleaning of equipment
 - Correct execution of cleaning steps
 - Observance of sampling methods to validate the cleaning process
 - Preventive equipment maintenance

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

To plan production.

Achievement Context

- Working alone or in a team
- For interrupted, continuous or other types of production, depending on the context
- Based on an order backlog, standard manufacturing and setup times, sequences of operations, work methods, quality standards and so on
- Using production planning and scheduling software, relevant documents in English and in French, and product data sheets

Elements of the Competency**Performance Criteria**

1. Analyze data.

- Relevant data collection including:
 - production objectives
 - sales forecasts
 - order backlog
 - production in progress
- Accurate inventory of stock levels
- Consideration of production parameters and regulations
- Accurate identification of required human and material resources
- Accurate determination of production quantities
- Thorough verification of stock compliance

2. Schedule production.

- Establishment of a logical sequence of operations
- Accurate determination of manufacturing and setup times
- Correct distribution of workloads
- Clear, complete preparation of documents, such as flow-process grids or manufacturing orders

Code: 033G

3. Analyze feasibility.
 - Consideration of regulations and all relevant data
 - Accurate calculation of the production system's capacity
 - Consideration of production and inventory costs
 - Consideration of the availability of human and material resources
 - Appropriate choice of planning and production strategy
 - Presentation of conclusions in a realistic comprehensive production plan
4. Prepare a production plan and related documents.
 - Preparation of a realistic master production plan, in accordance with workstation capacity and stock levels
 - Consideration of bottlenecks
 - Realistic scheduling of work orders
 - Accurate determination of a production schedule
 - Clear, explicit production work orders
 - Proper use of production planning and scheduling software
5. Keep computerized data up to date.
 - Timely updating of data
 - Periodical review of adherence to the production schedule
 - Systematic verification of data accuracy

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

To plan the layout of production facilities.

Achievement Context

- Working alone or in a team
- Based on layout plans, capacity reports and production data
- Using drafting tools

Elements of the Competency**Performance Criteria**

1. Define the scope of the mandate.

- Accurate summary of needs, expectations and constraints
- Clear definition of strategies to be implemented in order to meet needs

2. Analyze data.

- Relevant data collection
- Search for relevant information on new production trends
- Accurate determination of the causes that slow or block production
- Identification of factors to consider with respect to ergonomics, safety, quality and regulatory compliance

3. Determine space needs.

- Consideration of results from space requirement analysis
- Accurate determination of needs
- Accurate determination of circulation areas
- Clear, accurate diagram of areas involved in the redesign
- Accurate determination of stockpoints

4. Propose a new layout of the facilities.

- Varied, innovative suggestions
- Clear determination of criteria for evaluating suggestions
- Quantitative analysis of production flow, for each proposal
- Accurate cost analysis
- Rational decision making
- Annotated presentation of recommendations to decision makers
- Logical, persuasive arguments
- Receptiveness to comments

Code: 033H

5. Draw the layout of the facilities.
 - Compliance with measurements taken
 - Proper use of drafting tools
 - Methodical verification of the drawings with the actual amount of physical space available
 - Observance of regulations and company requirements, as needed
6. Determine an implementation strategy for the new layout.
 - Establishment of a realistic schedule
 - Proper planning and follow-up
 - Logical arguments used to explain the changes

Code: 051M

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

To monitor sterile processes.

Achievement Context

- Working alone or in a team
- Within the limits of one's area of responsibility
- For sterile injectable or noninjectable preparations (ointments, creams, liquids or solids) and bioprocessing procedures
- Based on a production plan and manufacturing orders
- Using equipment and materials for the preparation of solutions, filtration, sterilization, etc. (depending on technological developments)
- Using control instruments
- Using personal protective equipment and sterile materials

Elements of the Competency**Performance Criteria**

1. Plan the work.

- Accurate interpretation of work instructions, in accordance with the type of process used
- Identification of the data needed to plan production and critical operating parameters
- Determination of conditions for proper handling of ingredients
- Determination of potential sources of contamination and related preventive measures
- Coordination of the availability of necessary resources
- Thorough verification of ingredient, equipment and work area compliance
- Proper assembly of equipment
- Methodical preparation of production and sterile work environment

Code: 051M

- | | |
|--|--|
| 2. Carry out the manufacturing steps. | <ul style="list-style-type: none"> • Observance of regulations and occupational health and safety standards • Application of aseptic procedure • Application of microbiology principles • Proper use of conventional or automated equipment • Observance of the manufacturing protocol • Observance of manufacturing parameters • Proper use of equipment for transferring products to packaging • Forms completed according to documentary requirements • Rigorous application of sterilization methods • Concern for minimizing rejects • Segregation of noncompliant products or contaminated products • Meticulous labelling of containers |
| 3. Carry out prescribed controls. | <ul style="list-style-type: none"> • Observance of the prescribed sampling frequency and quantity • Proper use of instrumentation • Observance of sampling and testing methods while minimizing contamination risks • Meticulous labelling of samples • Prompt identification of noncompliant results or contaminated results • Accurate results recorded on the control forms • Effective adjustment of parameters to correct noncompliance issues |
| 4. Help solve production-related problems. | <ul style="list-style-type: none"> • Accurate detection of the source of contamination, equipment malfunction or other production-related problem • Relevant suggestions for solving the problem or optimizing production • Recognition of the limits of one's area of intervention |
| 5. Maintain work areas and equipment. | <ul style="list-style-type: none"> • Thorough preparation of solutions, in accordance with cleaning charts and aseptic protocol • Proper cleaning of equipment • Correct execution of cleaning steps • Observance of equipment and material sterilization methods • Preventive equipment maintenance |

Code: 051N

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

To monitor packaging processes.

Achievement Context

- Working in a team
- Within the limits of one's area of responsibility
- Based on a packaging protocol
- Using filling, crimping, sealing, labelling, wrapping, boxing, palletization and other materials, procedures and equipment (depending on technological developments)
- Using control instruments

Elements of the Competency**Performance Criteria**

1. Analyze the packaging protocol.

- Accurate interpretation of work instructions, in accordance with the type of process used
- Identification of the data needed to plan packaging
- Accurate identification of packaging components

2. Organize one's work.

- Consideration of how packaging fits into production plan
- Coordination of the availability of necessary resources
- Thorough verification of packaging elements, equipment and work area compliance
- Methodical preparation of packaging and sterile equipment and materials

3. Carry out the packaging steps.

- Observance of regulations and occupational health and safety standards
- Proper use of conventional or automated equipment
- Observance of the packaging protocol
- Observance of packaging parameters
- Forms completed according to packaging standards
- Careful monitoring of sources of anomalies
- Concern for optimizing packaging process
- Proper segregation of noncompliant products
- Meticulous labelling of containers

Code: 051N

- | | |
|--|---|
| 4. Carry out prescribed controls. | <ul style="list-style-type: none">• Observance of the prescribed sampling frequency, method and quantities• Meticulous labelling of samples• Proper use of packaging equipment• Observance of sampling and testing methods• Prompt identification of noncompliant results• Accurate results recorded on the control forms• Effective adjustment of parameters to correct noncompliance issues |
| 5. Solve production-related problems. | <ul style="list-style-type: none">• Accurate diagnosis of the sources of the problem• Relevant suggestions for solving the problem or optimizing packaging• Recognition of the limits of one's area of intervention |
| 6. Maintain the packaging assembly line and work area. | <ul style="list-style-type: none">• Thorough preparation of solutions, in accordance with cleaning charts• Correct execution of cleaning steps• Observance of sampling methods to validate the cleaning process• Preventive equipment maintenance |
| 7. Prepare a reconciliation of packaging materials. | <ul style="list-style-type: none">• Thorough analysis of the packaging process• Accurate calculations and invention• Determination of measures to be taken to investigate abnormalities |

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

To supervise production.

Achievement Context

- Working alone and in a team
- In cooperation with the individuals concerned
- Based on company directives and policies, and a production plan
- Using technical documentation, production data, and production planning and scheduling software

Elements of the Competency**Performance Criteria**

1. Produce the work plan.

- Accurate interpretation of the production plan and its requirements
- Consideration of the type of production and of relevant regulations
- Observance of the technical specifications of the products to be manufactured, time constraints and budgets
- Planning of all necessary resources
- Feasibility of the work processes, equipment and techniques selected for each manufacturing step
- Proper task assignments, in accordance with employee competencies and collective agreement stipulations
- Logical, practical production scheduling, in accordance with priorities

2. Implement the production start-up procedure.

- Consideration of all manufacturing parameters
- Availability confirmed of all resources at the various workstations
- Use of appropriate personnel training strategies and techniques, within the limits of the area of responsibility prescribed by regulations
- Clear, explicit work orders

Code: 033P

3. Direct operations.
 - Adequate employee motivation and supervision
 - Rigorous control of the:
 - achievement of objectives
 - observance of occupational health and safety rules
 - observance of production regulations
 - Effective team coordination
 - Effective problem solving during production
 - Relevant interventions to correct or optimize the production plan
4. Control production quality.
 - Consideration of the company's quality standards
 - Careful periodical verification of product compliance with technical specifications and regulations
 - Effective coordination of quality control and the application of corrective measures
 - Relevant reminders of the responsibilities of the various individuals involved
 - Effective communication to the individuals concerned of the corrective actions taken
5. Prepare production reports.
 - Detailed production reports
 - Clear, concise presentation of results
 - Relevant recommendations for improving productivity

| Objective | Standard |
|---|---|
| <p>Statement of the Competency</p> <p>To execute validation protocols.</p> | <p>Achievement Context</p> <ul style="list-style-type: none"> • Working alone or in a team • Within the limits of one's area of responsibility • For the validation of equipment, services, manufacturing and packaging processes, and analytical and cleaning methods • Based on validation protocols • Using technical documentation for procedures and equipment • Using regulatory guides for validation • Using measuring instruments • Using a report template |
| Elements of the Competency | Performance Criteria |
| 1. Organize one's work. | <ul style="list-style-type: none"> • Appropriate choice of instruments • Verification of instrument availability and compliance • Coordination of operations with the departments concerned • Verification of the availability of resources and documentation |
| 2. Carry out the steps of the protocol. | <ul style="list-style-type: none"> • Observance of regulations • Application of validation principles • Proper use of instruments • Observance of the validation protocols • Forms completed according to data collection standards • Rigorous application of measuring techniques |
| 3. Report situations that arise during validation. | <ul style="list-style-type: none"> • Determination of the nature of the incident and its consequences • Duly completed incident forms • Relevant consultation with the quality assurance department • Application of investigation techniques for nonstandard cases • Determination of relevant corrective actions • Thorough verification of corrective actions taken • Proper planning of resumed activity following corrective actions |

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4. Analyze results.
 - Thorough compilation of data
 - Accurate calculations
 - Accurate interpretation of results, in accordance with accepted limits
 - Systematic detection of noncompliance issues
 - Prompt communication of information to the individuals concerned
5. Produce a report.
 - Relevant suggestions for corrective actions
 - Clear, accurate information
 - Use of appropriate terminology
 - Observance of data collection standards

