Program of Study

# Computer Science

Subject Area: Mathematics, Science and Technology

Secteur de la formation professionnelle et technique et de la formation continue

CCBE
COMMON CORE BASIC EDUCATION

Direction de l'éducation des adultes et de l'action communautaire

Québec

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Secteur des services à la communauté anglophone
Ministère de l'Éducation, du Loisir et du Sport

© Gouvernement du Québec
Ministère de l'Éducation, du Loisir et du Sport, 2007—07-00482
ISBN 978-2-550-50543-3 (print version)
ISBN 978-2-550-50544-0 (PDF version)
Legal deposit – Bibliothèque et Archives nationales du Québec, 2007

# Subject Area: Mathematics, Science and Technology

# Computer Science

## Courses

### Literacy

Basic Computer Science — CMP-B101-2

### Presecondary

Computer Environment Awareness — CMP-P101-1
Computer Document Production — CMP-P102-2

### Secondary Cycle One

Computer Integration — CMP-1101-2
Computer Search — CMP-1102-1
Computer Network Communications — CMP-2101-1
Creative Computer Use — CMP-2102-1

# Table of Contents


Presentation of the Program of Study ..... 1

The Courses of the Program of Study ..... 2

Links Between the Program of Study and the Broad Areas of Learning ..... 4

Contribution of the Program of Study to the Orientations of the Government Policy on Adult Education and Continuing Education and Training ..... 5

Presentation of the Course *Basic Computer Science* ..... 9

Presentation of the Course Computer Environment Awareness ..... 27

Presentation of the Course Computer Document Production ..... 45

Presentation of the Course *Computer Integration* ..... 65

Presentation of the Course *Computer Search* ..... 85

Presentation of the Course Computer Network Communications ..... 105

Presentation of the Course *Creative Computer Use* ..... 125

Bibliography ..... 141

# Presentation of the Program of Study

The *Computer Science* program comprises a total of 250 hours of courses divided into three levels: Literacy, Presecondary and Secondary Cycle One. Its aim is the same as that of all the programs in Common Core Basic Education, which is to help adults deal competently with real-life situations.

The program structure is based on the premise that only a certain number of basic commands are required for effective use of the most common software applications. This allows learning to be generalized and adjusted to new contexts, with a view to understanding and becoming familiar with computer technology. Accordingly, the program uses only the most common applications—word processing, Internet browsers, e-mail applications and spreadsheets—as a means of building computer-related knowledge.

Most adult learners who enroll for Common Core Basic Education need either to learn the basics of computers or to update their knowledge in order to be able to use computer technology effectively. The course content is therefore designed to be dynamic, and is based directly on expectations and needs proposed by and for adult learners. It can be restructured to address different learning styles, modern teaching methods and different types of school organization.

# The Courses of the Program of Study

The table below lists the courses in the *Computer Science* program of study.

## Computer Science

| Literacy Course | Duration | Presecondary Courses | Duration | Secondary Cycle One Courses | Duration |
|---|---|---|---|---|---|
| Basic Computer Science | 50 hrs | Computer Environment Awareness | 25 hrs | Computer Integration | 50 hrs |
| | | Computer Document Production | 50 hrs | Computer Search | 25 hrs |
| | | | | Computer Network Communications | 25 hrs |
| | | | | Creative Computer Use | 25 hrs |

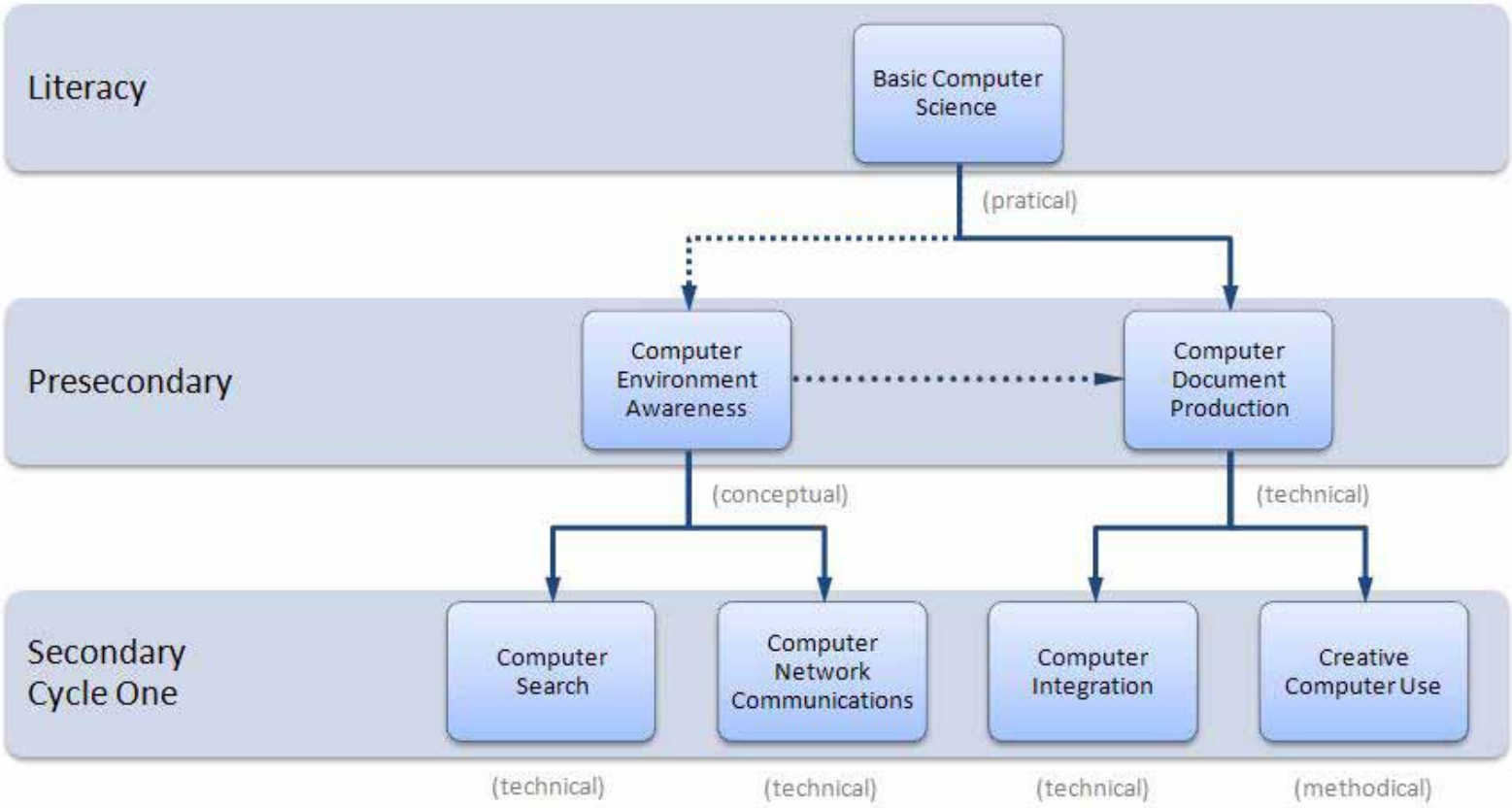
The Literacy-level course *Basic Computer Science* helps adult learners to make contact with a computer environment. It briefly introduces some common application commands through mnemonic associations with icons. This practice-oriented course, or an equivalent level of knowledge, is a prerequisite for the Presecondary-level *Computer Document Production* course.

The *Computer Environment Awareness* course is the program's first Presecondary-level course. Its content is similar to that of the *Basic Computer Science* course, but at a higher level, since it provides an introduction to the principal commands in common software applications, and presents the basic concepts underlying the computer environment. During the course, adult learners discover and explore similarities between the applications. The next course, *Computer Document Production*, allows adult learners to use or transfer their prior learning to produce different types of simple documents using a variety of applications. *Basic Computer Science* and *Computer Environment Awareness* may be considered prerequisites for this particular course, which is the last at the Presecondary level, but an equivalent level of knowledge may also be recognized.

Each Secondary Cycle One course introduces a different field of application, and the courses may be taken in any order. *Computer Search* teaches the basics of the search function, while *Computer Network Communications* introduces adult learners to different types of computer-based communication techniques. Both courses require a limited knowledge of computing concepts, equivalent to that acquired in the *Computer Environment Awareness* course. *Computer Integration* shows adult learners how to assemble a document from source texts produced using different applications. Lastly, *Creative Computer Use* is an open course in which adult learners use computer-based methods to construct a

document individually or as part of a group, in response to a specific need. These last two courses allow adult learners to integrate all the notions and techniques learned in the Presecondary-level course *Computer Document Production.*

The following diagram shows the connections described above. In Secondary Cycle One, each course introduces its own specific content and there are no prerequisites at this level. The solid lines are used in the diagram to show the path that most students will use to progress through the *Computer Science* program, while the dotted lines show an alternative path for adult learners who find it difficult to understand the basic notions. In the solid line paths, the Presecondary course, or an equivalent level of knowledge, is a prerequisite for the Secondary Cycle One courses in the same path.



# Links Between the Program of Study and the Broad Areas of Learning

Computers are versatile communication tools. For example, word processing and Web editing applications are used to format texts produced for a variety of purposes. Due to its intrinsic nature, Computer Science is therefore related to the four broad areas of learning, and plays a role at every level of the adult's learning process.

The *Computer Science* program is related to the *Citizenship* broad area of learning in that it fosters the exploration of different aspects of social life, provides adult learners with the means to develop an open attitude to different cultural values and specificities, and helps them to become responsible members of society. It is also related to *Health and Well-Being* because it helps adult learners to forge interpersonal relationships and to become familiar with information sources that build their awareness of health and well-being. The broad area of learning *World of Work* is designed to help adult learners acquire the tools they need to implement their career plan, while in *Environmental and Consumer Awareness*, computers provide access to a range of information and serve as a means of expression through which adult learners can clarify their relationship with the environment and make more responsible consumer choices.

# Contribution of the Program of Study to the Orientations of the Government Policy on Adult Education and Continuing Education and Training

This program of study addresses the orientations of the *Government Policy on Adult Education and Continuing Education and Training* by promoting cultural awareness, improvement in the quality of language, the exercise of citizenship rights and responsibilities, and the integration of information and communications technologies.

## Cultural Awareness

Computers are an excellent means of accessing aspects of knowledge and culture that were, until quite recently, the exclusive province of elite groups. The free circulation of information over the Internet, combined with on-line or electronic access to museums and works of art, e-conferences by the world's experts and on-line editions of daily newspapers from around the world, have combined to ensure that even the most basic mastery of computers offers an unparalleled path to cultural enhancement.

## Quality of Language

Proper use of computer applications gives access to a host of language tools including electronic dictionaries, integrated grammatical reference books, on-line encyclopedias, courseware, drill and practice software and tutorials. Adult learners are therefore fully equipped to understand and make the best possible use of written and oral information. By using computer applications, they improve their ability to communicate effectively with their colleagues and with society as a whole, while at the same time enhancing the quality of their language skills.

## Citizenship

Governments, organizations and associations all offer on-line access to their services, and post their charters and legal texts on the Internet. Adult learners who are able to master computers therefore have free access to these valuable sources of information. They can also produce computerized documents such as letters, reports, slide shows, tables and so on. Because they are properly informed, they are able to express themselves almost instantaneously to society, in their capacity as individual citizens.

## Integration of Information and Communications Technologies

Information and communications technologies (ICT) derive from a combination of computers, telecommunications and audio-visual media. The *Computer Science* program helps adult learners to understand and use ICTs and grasp some of their educational possibilities.

Course

# Basic Computer Science

# CMP-B101-2

Literacy

"Curiosity leads to many things—from listening through keyholes to discovering the Americas."

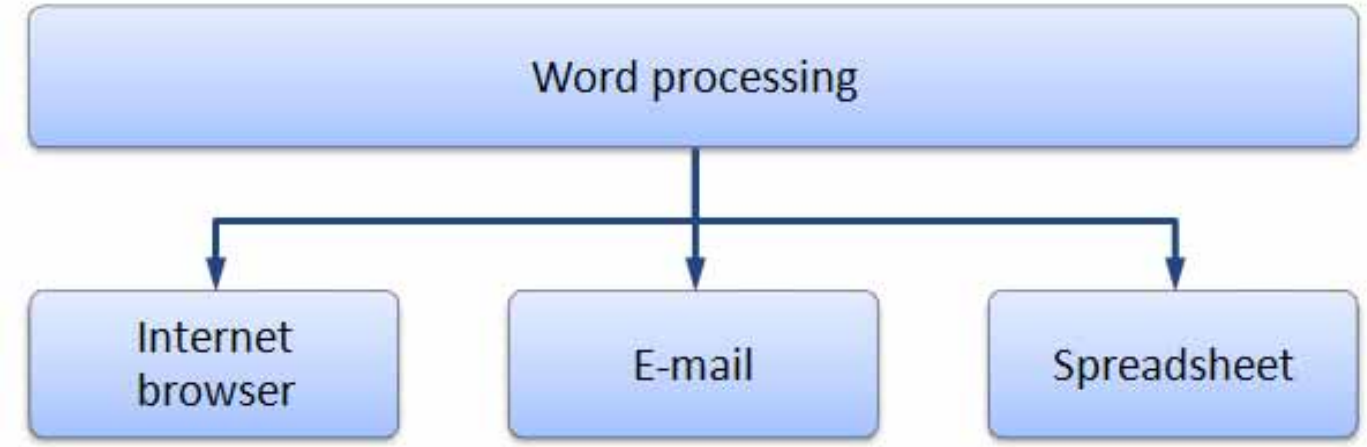
José Maria Eça de Queiros

# Presentation of the Course *Basic Computer Science*

The course *Basic Computer Science* is designed to help adult learners deal competently with real-life situations in which they must interact within a computer environment.

The course prepares adult learners to use common applications by exploring certain icons and commands from the principal menus, and by introducing them to the keyboard and mouse. In practice, the word processing application serves as a foundation from which adult learners can move on to discover other applications as they recognize that the most common icons and commands are shared by all bundled applications. Generalization and transfer of knowledge are key concepts in the course.

During the course, adult learners associate the icons with the appropriate actions in the applications. They learn to use both the icons and certain commands that are common to the various software applications. As a result, they are able to use the word processing application, the Web browser and e-mail, and can also apply what they have learned to other common applications, such as spreadsheets, to support their learning of language and mathematics.



# Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Exposure to a computer environment*.

Adult learners will inevitably use computers in their everyday lives, sometimes for pleasure and sometimes because they are obliged to do so. In many real-life situations, they will be required to perform Internet searches, write short messages or make calculations. Accordingly, they need to learn a certain number of basic functions, so that they are gradually able to develop their ability to use computers autonomously.

| Class of Situations | Examples of Real-Life Situations |
|---|---|
| Exposure to a computer environment | ▪ Searching for images or information on the Internet<br>▪ Exchanging e-mails with friends<br>▪ Using courseware or drill-and-practice software as part of a course or a self-learning process<br>▪ Using a word processor to transcribe a list<br>▪ Using a word processor to write a short message<br>▪ Creating a greeting card<br>▪ Monitoring expenditures |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Exploring an application with the use of a mouse | ▪ Surfs the Web<br>▪ Sends and receives e-mails<br>▪ Uses courseware or drill-and-practice software<br>▪ Uses a word processing application<br>▪ Uses a spreadsheet |
| ▪ Keyboarding a document | ▪ Transcribes a recipe<br>▪ Composes birthday greetings<br>▪ Writes an e-mail to a friend<br>▪ Enters and calculates daily expenditures |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

**Class of Situations**

Exposure to a computer environment

**Categories of Actions**

- Exploring an application with the use of a mouse
- Keyboarding a document

**Operational Competencies**

Acts methodically

- Checks his/her understanding of the steps in the task
- Carefully follows instructions
- Identifies the actions required (icons, commands)
- Evaluates the steps of the task completed

**Essential Knowledge**

- Recognizing the main components and peripherals of a microcomputer
- Glossary
- Using the mouse
- Using the keyboard
- Desktop elements
- How an application works

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

**End-of-Course Outcomes**

In order to deal with situations in the class *Exposure to a computer environment*, adult learners learn a process that enables them to use a computer application, to enter a short document and to acquire practical knowledge of the terms, graphics and language resources that will be useful to them.

When using an application with the use of a mouse, adult learners first ensure that they understand the steps in the process, and follow the instructions carefully. They launch an application from the Desktop and activate the icons or commands required to complete the task successfully. When launching a Web browser, they use the address provided or open the *list of bookmarks* to display a specific site. They recognize hyperlinks and use them to navigate from one page to the next. They save pages of interest in the *list of bookmarks*, and print them, if necessary.

When using the keyboard to enter information, adult learners identify and perform the necessary actions. They enter, save and print short documents of several lines, based on their mastery of language and mathematics. Lastly, they evaluate the various steps in the task completed, with a view to improving their computer skills.

## Evaluation Criteria

- Correctly explores an application using a mouse
- Correctly enters a short document using the keyboard

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all the courses taken together contribute to their development.

In this course, only the following operational competency is addressed: *Acts methodically*.

| Contribution of the Operational Competency *Acts methodically* | |
|---|---|
| The operational competency *Acts methodically* helps adult learners to deal effectively with situations related to the class *Exposure to a computer environment*. It helps adult learners to make effective use of a common computer application. | Adult learners begin by ensuring that they understand the various steps in the task, such as entering, saving and printing a document. They launch and use the application, carefully following the instructions, and identify the actions required (icons and commands) to perform the task. The document production process includes formatting, revising, saving and, where necessary, printing. When evaluating the process, adult learners review the various steps of the task completed and identify avenues for improvement. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Recognizing the main components and peripherals of a microcomputer**

- Keyboard, mouse, central processing unit, CD-DVD drives, screen, printer

**Glossary**

- Icons:
  - Buttons and toolbars
  - Correspondence with menu commands
- Basic computer vocabulary:
  - Main components
  - Main actions (menus and commands)

**Using the mouse**

- Pointing, clicking, double-clicking
- Selecting and moving text

**Using the keyboard**

- Posture
- Lowercase, uppercase, accented letters, punctuation
- Deleting characters

**Desktop elements**

- Desktop menu and icons

**Using an application**

- Launching and quitting an application
- Saving and printing a document
- Opening an existing document
- Window elements
  - Toolbars and icons, title bars, menu bars and workspace
- Formatting a document
  - Character attributes (size, colour, bold and italic)
  - Inserting Clipart
- Word processing
  - Entering a short text
    - Applying a page layout
    - Automatic spell check while typing
- Internet browser
  - Elements: Address bars, favourites, home page
  - Browsing (hyperlink, previous page and next page)
- E-mail
  - Reading and answering mail
  - Sending a new message (recipient's address, subject, message)

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Perseverance |
| --- | --- |
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features, and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Adult learners who work hard understand that every person develops at his or her own pace, and that mistakes are an integral part of progress. Adults who are able to develop perseverance have the psychological resources required to progress and succeed in life. |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resource | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Computer, printer<br>▪ Operating system<br>▪ Word processing application<br>▪ Internet connection and browser<br>▪ E-mail (software or Web application)<br>▪ Digital projector<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages and Mathematics, Science and Technology, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| Subject Area: Languages |
|---|
| **Program of Study: *English, Language of Instruction*** |
| Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:<br>▪ Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)<br>▪ Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)<br>▪ Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software) |

| Subject Area: Mathematics, Science and Technology |
|---|
| **Program of Study: *Mathematics*** |
| Course: *Numeracy* (Basic Mathematics 1)<br>▪ Reading information containing numbers<br>▪ Writing information containing numbers<br>▪ Determining a number |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force and function in their social and cultural environment and in their training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own aptitudes, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**My New Address Book**

One of the real-life situations proposed for the *Basic Computer Science* course is to transcribe a list using a word processing application. The ensuing learning situation is similar, in that adults are asked to enter contact information in their e-mail application address book.

When preparing the learning situation, the teacher ensures that every adult learner has an e-mail address, and then obtains telephone directories, prepares a handwritten excerpt from an address book, and transcribes a version of the address book into his or her own e-mail application. Adult learners are asked to bring contact information for their own friends, relatives and acquaintances.

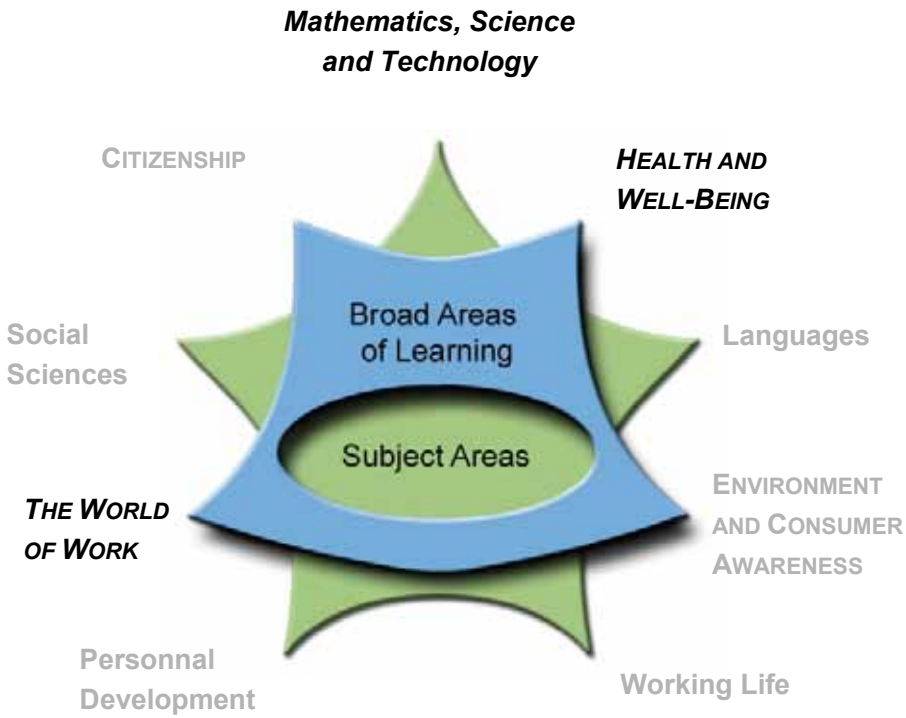
To give meaning to the learning, the teacher presents an excerpt from a handwritten address book with hastily scribbled addresses, some of which have been crossed out or erased. The teacher leads a short discussion on the relevance of using e-mail to enter, sort and store contact information. During the discussion, the teacher distributes a page from his or her address book. Using a digital projector, the teacher displays a computerized list of contacts containing names, Internet addresses, civic addresses and telephone numbers. The discussion leads to a question period on how to enter an address book into a file on the computer. The various steps in the activity are explained, and the teacher gives a short demonstration using the digital projector. Working individually, adult learners copy the example into their computers. The teacher ensures that everyone has understood what to do, and gives instructions for the learning situation.

The adult learners then enter addresses into their own e-mail applications. The addresses may be those of their friends and relatives, or from the page distributed by the teacher or from a telephone directory. The teacher walks around the classroom, providing guidance, reviewing the activity and proposing adjustments, where necessary. Although this is an individual task, adult learners who are more comfortable with it may help their classmates. The activity provides an opportunity to build knowledge on how to enter letters (lowercase, uppercase, accented characters) and numbers, and how to delete characters. The adult learners also learn or review the correct posture and keyboard skills.

To complete the learning situation, the teacher leads a final activity in which the group reviews the task. The teacher uses the handwritten address book as an example, and asks the adult learners to comment on their production. The group members discuss what they have learned, and the teacher points out that the task required them to act methodically. After a short summary of the various steps, the adult learners suggest situations in which they will be able to reinvest their learning (e.g. updating their address books, entering contact information in a letter, completing an on-line form, etc.).

## Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Exposure to a computer environment | |
| **Learning Situation** | |
| My New Address Book | |
| **Categories of Actions** | |
| ▪ Exploring the functions of an application with the use of a mouse<br>▪ Keyboarding a document | |
| **Operational Competency** | **Essential Knowledge** |
| ▪ Acts methodically | ▪ Entering text using the keyboard<br>- Uppercase, highlighted letters, punctuation, numbers<br>▪ How an application works |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Internet browser<br>▪ E-mail | ▪ Address book (belonging to the adult learner or teacher)<br>▪ Telephone directory |



Course

# Computer Environment Awareness

# CMP-P101-1

Presecondary

**"Discovery consists of seeing what everybody has seen and thinking what nobody has thought."**

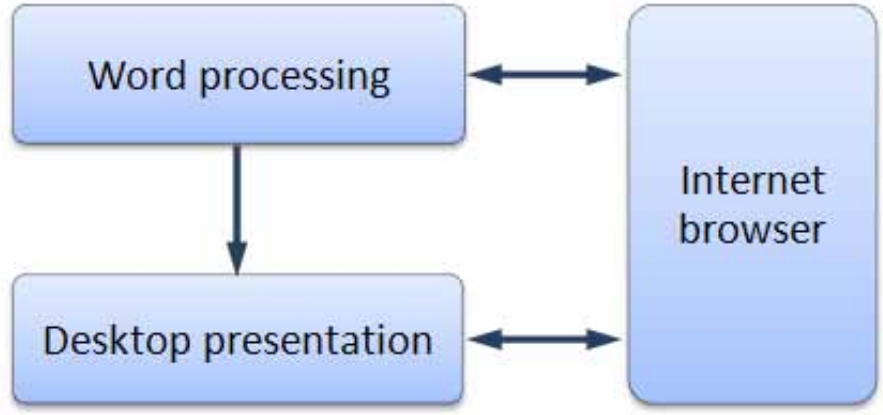
**Albert Szent-Gyorgyl**

# Presentation of the Course Computer Environment Awareness

The course *Computer Environment Awareness* is designed to help adult learners deal competently with real-life situations that require familiarity with a computer environment.

The course prepares adult learners to understand and to use the basic functions of different computer applications. It includes practical learning about certain notions of word processing, Web searches and the use of desktop presentation software. As a result, adult learners are able to discover some of the concepts they need to make effective use of a computer environment.

By the end of the course, adult learners will be able to apply what they have learned to situations in their everyday lives and in their training and education.



# Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situation, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Becoming more familiar with the computer environment*.

Computers are present in many aspects of human activity, and adults must use computer technology on a daily basis in their personal, professional and family lives, as well as for their education. For example, real-life situations such as writing letters, keeping up with current events and helping children with their homework all require the use of computer applications. Consequently, adult learners must be familiar with the computer environment and with the use of basic computer equipment and applications.

| Class of Situations | Examples of Real-Life Situations |
|---|---|
| Becoming more familiar with the computer environment | ▪ Corresponding with other people, for personal or business reasons<br>▪ Using a computer to help children with their homework<br>▪ Keeping up with current events using a computer<br>▪ Using a word processing program to transcribe schoolwork |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Using the appropriate software application | ▪ Makes a purchase<br>▪ Creates a short slide show using desktop presentation software<br>▪ Sends e-mails<br>▪ Writes short letters<br>▪ Uses courseware or drill-and-practice software<br>▪ Consults help files<br>▪ Obtains information on the Internet |
| ▪ Managing files and folders | ▪ Files documents<br>▪ Deletes unwanted files and folders<br>▪ Locates and restores lost or deleted documents |
| ▪ Organizing the desktop environment | ▪ Arranges elements on the desktop<br>▪ Personalizing the display parameters, including the wallpaper, resolution and colour scheme |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when developing learning situations.

**Class of Situations**

Becoming more familiar with the computer environment

**Categories of Actions**

- Using the appropriate software application
- Managing files and folders
- Organizing the desktop environment

**Operational Competencies**

Acts methodically

- Follows instructions to the letter
- Identifies the requirements of the task at hand
- Selects the appropriate application and commands
- Determines the sequence of steps
- Evaluates the process

**Essential Knowledge**

- Basic elements
- Elements of a software application
- Arranging the desktop and windows
- Glossary

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

**End-of-Course Outcomes**

In order to deal with situations in the class *Becoming more familiar with the computer environment*, adult learners identify the requirements of the task to be performed using a computer, select the appropriate software application and commands, and determine the sequence of steps.

When performing the task, adult learners carefully follow all instructions and arrange the desktop elements and windows in order to achieve the best possible working environment. After launching the application, they use the toolbar and menus so as to work as effectively as possible. During the process, they regularly assess their process and product, and make any adjustments that may be required. Where necessary, they use the application's "Help" function.

When entering data or text, they demonstrate their knowledge of key combinations and are comfortable handling the mouse.

Once the task is complete, they must save the document. To do this, they record their work on a storage medium and build a filing system that allows them to access their files easily. They give meaningful names to the documents they produce, and save them in the appropriate folders. Where necessary, they create, rename, move and delete files or folders to ensure proper file management. As a result, they are able to save the documents they use or create, and find them quickly when they need them.

## Evaluation Criteria

- Correctly uses an application
- Manages files and folders efficiently
- Arranges the computer environment appropriately

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in the course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competency is addressed: *Acts methodically*.

| Contribution of the Operational Competency *Acts methodically* | |
|---|---|
| The operational competency *Acts methodically* helps adult learners deal effectively with situations related to the class *Becoming more familiar with the computer environment*. It helps adult learners to identify the requirements of the task and perform it effectively using a computer.<br><br>Adult learners consider the task to be performed and follow the instructions carefully. They select an appropriate application and commands, organize the desktop environment, manage their folders, identify the commands and determine the steps required to enter, save and print a document. When assessing their work, they may make improvements and reinvest what they have learned by identifying other contexts in which their learning can be applied and expand their knowledge. | The operational competency *Acts methodically* therefore allows adult learners to gather the resources they need to deal with a given situation, and to select an effective working method that will enable them to complete the task successfully. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Basic elements**

- Switching hardware on and off, launching and quitting software applications, and starting and ending sessions
- Keyboarding
  - Posture
  - Key combinations (uppercase, accented characters, typographic symbols)
  - Deleting letters
  - Keyboard shortcuts:
    - Cut-copy-paste, save, print
- Using the mouse
  - Selecting and moving text
  - Right-clicking to activate pop-up menus
- Organizing windows
  - Structural elements:
    - Work area, title bars, menus, tools and scrolling
  - Active elements:
    - Icons, commands
- Managing documents
  - Creating and deleting folders
  - Copying and moving files and folders
  - Changing file and folder names
  - Recovering lost or deleted files

**Application elements**

- Word processing applications, desktop presentation applications, Internet browsers
- File management commands:
  - New, open, save, print, close, exit
- Editing commands:
  - Cut, copy, paste, undo, restore
- Formatting commands:
  - Character attributes (font, size, colour, bold, italic, underline)
  - Paragraph alignment
- Insertion commands (inserting an image)
- Correction commands (spelling, grammar, synonyms)
- On-line help
- Desktop presentations:
  - Slides, transitions, animation, text box
- Internet browser:
  - Address bar, favourites, back, forward

**Organizing the desktop environment and windows**

- Arranging icons on the desktop
- Arranging windows
  - Size, display, hide

**Glossary**

- Usual symbols
- Basic computer vocabulary (components, menus and commands)

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Perseverance |
|---|---|
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Adult learners who work hard understand that every person develops at his or her own pace, and that mistakes are an integral part of progress. Adults who are able to develop perseverance have the psychological resources required to progress and succeed in life. |
| **Attention to Detail** | |
| Attention to detail is needed to produce good quality work. Adults learn to work accurately and to improve their standards when revising their documents and making any necessary corrections. Their goal is to hand in a finished product with which they are satisfied. Attention to detail is reflected in every area of the adult learner's activities. | |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resource | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Computer, printer<br>▪ Operating system<br>▪ Word processing application, desktop presentation software<br>▪ Browser, utilities<br>▪ Digital projector<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| Subject Area: Languages |
| --- |
| **Program of Study: *English, Language of Instruction*** |
| Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:<br>▪ Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)<br>▪ Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)<br>▪ Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software) |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force, function in their social and cultural environment and in their education and training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**Applying for a Job**

One of the real-life situations chosen for the course *Computer Environment Awareness* involves maintaining correspondence using a word processing application. In this learning situation, adults are asked to write a letter in response to an offer of employment.

At this stage in the process, adult learners have already begun to learn about word processing. For example, they have been introduced to the notions of character attributes and paragraph alignment, and have performed practice exercises. When preparing the learning situation, the teacher writes and prints a short offer of employment, making sure he or she has one or more model letters of application. To cover all possibilities, the teacher should also bring some newspapers to class, and identify a number of job search Web sites.

The teacher motivates the class by pointing out that the summer vacation is fast approaching, and it is time to start thinking about finding a summer job. He or she asks about the adult learners' plans for the summer, encouraging them to talk about their interests and expectations, and then begins the learning activity by handing out copies of the offer of employment. The offer is from a municipality that is looking for volunteers to lead its summer leisure activities. As the discussion continues, the teacher asks the adult learners for their impressions. Would they respond positively or negatively to the offer? How would they set out their letter (elements, layout, typeface, etc.), and what tone or level of language would they adopt?

The teacher then hands out a model letter of application, which the adult learners can either use as a basis for their own letter, or adjust to suit the situation at hand. Using the digital projector, the teacher and class identify the basic page layout elements. The adult learners write the instructions directly on their model letters. The teacher then asks them to prepare an individual response to the offer. Using a word processing application, they enter, save and print a one-page letter of application, following the page layout instructions and using the model letter as their basis. Newspapers containing offers of employment and Internet job search sites are also available for those adult learners who prefer to answer a different offer.

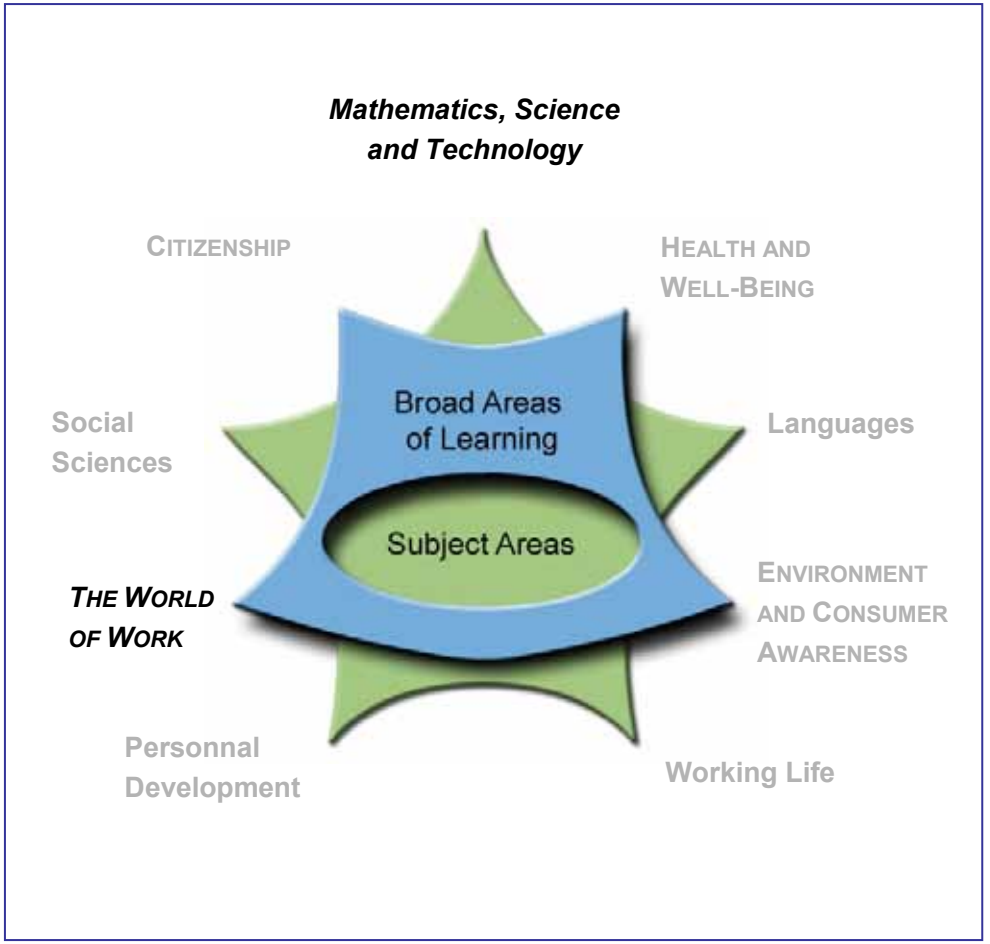
During the activity, the teacher walks around the classroom, provides guidance to adult learners, and interrupts the process where necessary to review certain points or make adjustments. The adult learners keyboard their letter, adjusting the content of the model to suit their own needs. They refer to the formatting and page layout guidelines, save their document as instructed by the teacher, and print out a copy. When rereading their text, they make sure the various elements have been properly formatted, and that there are no spelling mistakes. Where necessary, they may consult the application's help function, use a reference book or open the Web browser to search for additional information. Although this is an individual project, the more advanced adult learners may help their peers, taking care not to do the exercise for them.

Throughout the learning situation, adult learners apply their prior knowledge (e.g. word processing application, keyboarding text, document management) and build new knowledge (e.g. formatting a business letter) in a context that is relevant to their own lives.

The teacher then proposes a final activity to complete the learning situation. In this activity, the teacher plays the role of a potential employer, presents some of the letters to the class, and comments on them. He or she then asks the adult learners to talk about what they have learned and any problems they encountered. The teacher then summarizes what they have learned and lists the operational competencies addressed by the exercise.

# Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Becoming more familiar with the computer environment | |
| **Learning Situation** | |
| Applying for a Job | |
| **Categories of Actions** | |
| ▪ Using the appropriate software application<br>▪ Managing files and folders | |
| **Operational Competency** | **Essential Knowledge** |
| ▪ Acts methodically | ▪ Basic elements<br>▪ Elements of an application<br>▪ Organizing the desktop and windows<br>▪ Glossary |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Word processing, help files, instructions for users<br>▪ Internet browser | ▪ Newspapers<br>▪ Internet job search sites<br>▪ Model letters |



Course

# Computer Document Production

# CMP-P102-2

Presecondary

**“One only understands the things that one tames.”**

**Antoine de Saint-Exupéry**

# Presentation of the Course Computer Document Production

The course *Computer Document Production* is designed to help adult learners deal competently with real-life situations in which they must produce documents using a computer.

The course prepares adult learners to make effective use of computer tools. Among other things, it shows them how to use word processing and desktop publishing applications, Web editing software, spreadsheets and computer graphics to produce different types of documents.

## Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Producing a computer document*.

Computers have enabled more people to produce meticulous documents with less difficulty. Because modern computers are relatively easy to use, adults are required to deal with real-life situations involving computers on a daily basis, for example to write letters, manage their budget or distribute information on the Internet or by means of a multimedia presentation. However, if they are to be able to use computers properly, they must be familiar with the basic elements of computer document production.

| Class of situations | Examples of Real-Life Situations |
|---|---|
| Producing a computer document | ▪ Maintaining personal or business correspondence<br>▪ Monitoring his/her health or diet<br>▪ Managing his/her budget<br>▪ Planning a purchase<br>▪ Looking for a job<br>▪ Distributing cultural, artistic or other information<br>▪ Preparing a cultural activity<br>▪ Making travel arrangements<br>▪ Performing an activity at school or work<br>▪ Preparing a personal leisure activity<br>▪ Creating a visual work |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Identifying a communication need | ▪ Enters a personal letter<br>▪ Creates the layout of a business letter, a request for information, a letter of complaint, etc.<br>▪ Creates a résumé layout<br>▪ Creates a presentation on a topic in the news<br>▪ Promotes a cause by creating a Web page<br>▪ Calculates material quantities and costs for a renovation project<br>▪ Plans an expense (e.g. purchase, rental travel, etc.)<br>▪ Expresses an opinion or supports a cause by producing an advertising poster<br>▪ Creates an invitation or greeting card<br>▪ Plans a trip, showing how to get to a certain location |
| ▪ Selecting the appropriate application | ▪ Considers the families of applications<br>▪ Identifies the features of the word processing application<br>▪ Identifies the features of the desktop presentation software<br>▪ Identifies the features of the Web editing software<br>▪ Identifies the features of the spreadsheet software<br>▪ Identifies the features of the computer graphics software<br>▪ Compares the possibilities offered by the different applications<br>▪ Determines selection criteria based on the functions of the various applications<br>▪ Selects an application |

| Categories of Actions | Examples of Actions |
| --- | --- |
| ▪ Applying the steps in the document production process | ▪ Prepares a model<br>▪ Prepares content<br>▪ Enters the content<br>▪ Revises the content<br>▪ Formats the content<br>▪ Revises the product<br>▪ Distributes the final product |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

**Class of Situations**

Producing a computer document

**Categories of Actions**

- Identifying a communication need
- Selecting the appropriate application
- Applying the steps in the document production process

**Operational Competencies**

Acts methodically

- Follows instructions carefully
- Identifies the constraints associated with production of the document
- Plans the steps in the document production process
- Selects the appropriate page layout options
- Assesses the result and the process

Communicates

- Considers the communication intention
- Produces a clear message
- Adjusts the message to the receiver
- Applies the rules of language

**Essential Knowledge**

- Document layout
- Preparing a spreadsheet
- Creating a computer graphic composition

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

| End-of-Course Outcomes |
| --- |
| In order to deal with the situations in the class *Producing a computer document*, adult learners identify the communication need, select the appropriate application that allows them to produce a document, and apply the steps in the document production process.<br><br>To identify the communication need, they determine the purpose(s) for which the communication is required and plan the steps leading up to document production.<br><br>To select the appropriate application, they consider the communication intention and identify any constraints associated with the type of document to be produced. They then select the appropriate application.<br><br>To apply the steps in the document production process, they carefully follow the instructions. They take the necessary steps to produce and format a clear message that is adapted to the recipient. They must also comply with language rules and select the options required for a suitable page layout. They use the options and commands correctly. Once the task has been completed, they save the document and distribute it to the recipient concerned. They then examine their method and the results obtained, noting down their observations if necessary, so that they can use their evaluation to improve future documents.<br><br>By the end of the course, adult learners will be able to produce, format, revise and distribute simple documents using a computer, in order to respond to communication needs in their everyday lives. |

## Evaluation Criteria

- Accurately identifies the communication need
- Selects the appropriate application
- Methodically applies the steps in the document production process

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in the course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Acts methodically* and *Communicates*.

| Contribution of the Operational Competency *Acts methodically* | |
|---|---|
| The operational competency *Acts methodically* helps adult learners to deal effectively with situations related to the class *Producing a computer document*. It helps them to master the task at hand and follow instructions carefully.<br><br>Adult learners identify the constraints associated with presenting a document, then select the appropriate application and choose options for a suitable page layout. They plan a series of steps including entering, correcting, formatting, saving and printing the document. When the task is completed, they examine both the results and the process. This allows them to judge their progress, decide what can be done to improve it, and identify other areas to which their new knowledge can be applied. | The operational competency *Acts methodically* therefore allows adult learners to gather the resources they need to deal with the situation, and helps them to adopt an effective working method to complete the task. |

| Contribution of the Operational Competency *Communicates* | |
|---|---|
| The operational competency *Communicates* helps adult learners to meet their communication and expression needs based on their own mastery of language. It enables them to send a message whose form and content convey the intended meaning. | Adult learners produce a clear message that is adapted to the recipient and complies with the rules of language. In the case of a text, Web page, multimedia presentation or computer graphic composition, they create an aesthetically pleasing layout that attracts the interest of the reader and allows the message to be communicated effectively. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Document layout**

- Entering text
- Correcting text
  - Spell check, thesaurus
- Editing text
  - Selecting and moving blocks of text
  - Replacing, adding and deleting words
  - Dividing and merging paragraphs
- Moving the cursor around a text: keys, menus
- Inserting images into a text
- Formatting a text or a selection
  - Character attributes (bold, italic, size, font, colour)
  - Paragraph formats (alignment, line spacing)
- Page setup options
  - Size, orientation
- Creating a simple multimedia presentation (presentation software)
- Creating a simple Web page (word processing special editor)

**Preparing a spreadsheet**

- Entering data and values
- Creating formulas
  - Addition, subtraction, multiplication and division
- Function applications
  - Total, average
- Adjusting column widths
- Selecting text in a spreadsheet
  - Copying and moving cells
  - Simple sorting
- Creating graphics
  - Selecting the cell range
  - Types of graphics, options
- Printing from a spreadsheet
  - Selection, orientation
  - Printing a table or graphic

**Creating a computer graphic composition**

- Drawing lines
  - Straight lines, curves (Bezier curves)
  - Colour, thickness, style
- Drawing shapes
  - Predetermined shapes (rectangles, ellipses, polygons)
  - Freeform shapes
  - Fill, contour
- Inserting objects
  - Images, text areas
- Manipulating selections (or overlay)
  - Copying, moving, rotating, resizing, deleting
  - Modifying (line, shape, text, contour)
  - Applying a filter

**Creating a computer graphic composition (cont.)**

- Image attributes
  - Vector, matrix
  - Resolution (72, 96, 160 ppi)
  - Modes (RGB, grey tone, 8, 16 bits)
  - Format (RAW, JPG, TIF)
  - Overlays

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Perseverance |
|---|---|
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features, and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Adult learners who work hard understand that every person develops at his or her own pace, and that mistakes are an integral part of progress. Adults who are able to develop perseverance have the psychological resources required to progress and succeed in life. |
| **Attention to Detail** | |
| Attention to detail is needed to produce good quality work. Adults learn to work accurately and to improve their standards when revising their documents and making any necessary corrections. Their goal is to hand in a finished product with which they are satisfied. Attention to detail is reflected in every area of the adult learner's activities. | |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resources | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Computer, printer<br>▪ Operating system<br>▪ Office automation software (word processor, spreadsheet)<br>▪ Desktop presentation software<br>▪ Graphics software<br>▪ Web browser, utilities<br>▪ Digital projector<br>▪ Reference books<br>▪ Web page editor |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages and Mathematics, Science and Technology, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

### Subject Area: Languages

**Program of Study: *English, Language of Instruction***

Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:

- Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)
- Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)
- Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software)

### Subject Area: Mathematics, Science and Technology

**Program of Study: *Mathematics***

Course: *Arithmetic and Personal Finances*

- Searching for and interpreting financial information
- Producing a message containing financial information
- Calculating a sum of money

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force and function in their social and cultural environment and in their training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

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Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the adult learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
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These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**A Dream Vacation**

One of the real-life situations chosen for the *Computer Document Production* course involves using a spreadsheet to plan a purchase. In the related learning situation, adult learners must plan the purchase of a trip to the destination of their choice.

When preparing the activity, the teacher asks the adult learners what they know about spreadsheets. Some will know how to use them, while others will not. The teacher also asks the adult learners to bring a selection of newspapers, travel agency brochures and travel agent Web site addresses to class.

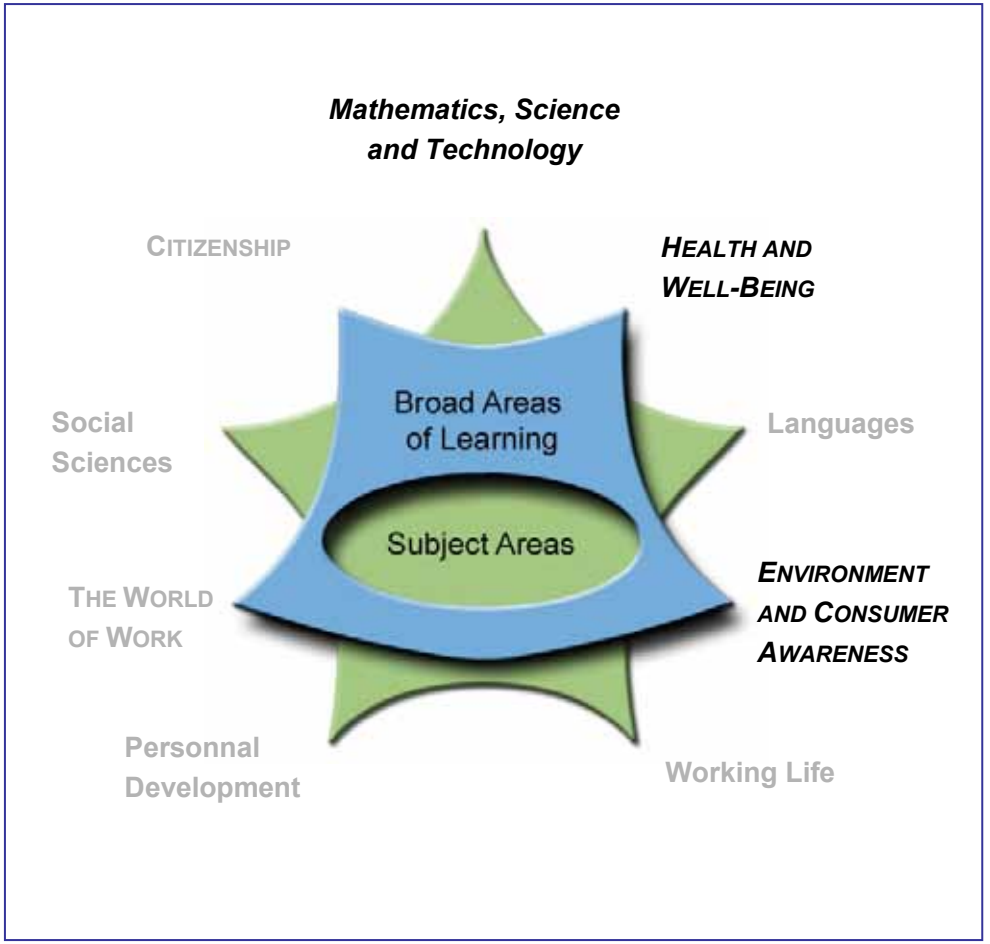
The learning situation begins with a group brainstorming session that reveals the group's vacation interests. The teacher asks them about past vacations and dream destinations. Each adult learner then selects a destination from a newspaper, brochure or Web site, noting down the cost and duration of the trip and whether or not the package includes meals. They then learn how to use the spreadsheet, entering real or fictional income and expenditures to determine whether or not they can afford the dream vacation.

The learning activity is divided into four stages. Each stage begins with a digital projector demonstration, and the adult learners are then asked to apply what they have just learned. The teacher walks around the classroom and provides guidance to individuals or small groups in their construction of knowledge. The first stage involves preparing the spreadsheet structure by entering headings showing their monthly income and expenses, and all trip-related costs (e.g. transportation, accommodation, meals, etc.). The second stage involves entering the values for the income, expenditures and costs identified in the headings. They apply the monetary format to the appropriate cells. The third stage involves calculating total annual income and expenses. The feasibility of the trip depends on the difference between the adult's income and expenses. In the fourth and final stage, the adult learners reconsider their expenses and, if necessary, select a more realistic destination for their vacation. By altering the amounts allocated to expenses, they are able to simulate different budgets and discover the best way of turning their dream into reality.

The teacher ends the learning situation with a group feedback session. Together, the teacher and adult learners review the procedure and summarize the notions addressed in the activity. This particular learning situation acts as a catalyst by raising the adult learners' awareness of the importance of making informed choices, since every decision will have impacts in the longer term.

# Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Producing a computer document | |
| **Learning Situation** | |
| A Dream Vacation | |
| **Categories of Actions** | |
| ▪ Identifying a communication need<br>▪ Applying the steps in the document production process | |
| **Operational Competency** | **Essential Knowledge** |
| ▪ Acts methodically | ▪ Preparing a spreadsheet |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Spreadsheet, user guides | ▪ Internet browser<br>▪ Newspapers, magazines or specialized Web sites, travel agency advertisements |



Course

# Computer Integration

# CMP-1101-2

## Secondary Cycle One

**“I hold the river’s flow like a violin.”**

**Paul Éluard**

# Presentation of the Course *Computer Integration*

The course *Computer Integration* is designed to help adult learners deal competently with real-life situations in which they must assemble a document for distribution.

It teaches them how to create documents using a combination of different applications.

By the end of the course, adult learners will be able to create a model of the product required, assemble or produce the documents to be used as a base, and then extract the portions they need to insert into the final document. As a result, they will have developed the skills required to assemble portions of separate documents into a single document.

## Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Assembling a document for distribution*.

Most real-life documents are produced by combining documents or portions of documents from different applications, rather than simply by using a single application. Newspapers and magazines are produced by assembling documents created using word processing, spreadsheet, computer graphics and database applications. All these various packages are integrated into a desktop publishing application. Not all documents are as complex as this, but the method used to create simpler documents such as reports, Web pages, digital portfolios, greeting cards and even letters is similar.

To deal effectively with the real-life situations in this course, adult learners must produce and distribute user-friendly documents intended for groups or individuals that meet their communication needs. They may, for example, create a Web page for a career plan, produce an advertising document for a social or community group, or compose personal messages when corresponding with friends and family.

| Class of Situations | Examples of Real-Life Situations |
|---|---|
| Assembling a document for distribution | ▪ Corresponding with friends and family<br>▪ Communicating for personal and official purposes<br>▪ Doing coursework<br>▪ Managing one's money<br>▪ Exercising one's rights and responsibilities<br>▪ Developing a career plan<br>▪ Taking part in social and cultural activities<br>▪ Interpreting current events |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Preparing the task | ▪ Prepares a model of the proposed product<br>▪ Writes texts<br>▪ Creates illustrations<br>▪ Retouches images<br>▪ Carries out documentary research on the Internet<br>▪ Assembles documents (e.g. text and images)<br>▪ Applies the spell check function to the texts |
| ▪ Assembling portions of selected sources to form a single document | ▪ Creates greeting cards or invitation cards<br>▪ Inserts a table into a text to present different kinds of data<br>▪ Attaches a map to a letter, showing a specific itinerary<br>▪ Creates a presentation or Web site to provide information on a specific subject<br>▪ Formats an advertising brochure<br>▪ Formats a document (menu, instructions, report)<br>▪ Prepares a mass mailing or a form letter |
| ▪ Distributing the finished product | ▪ Uploads the Web page<br>▪ Prints and distributes a paper document<br>▪ Presents a slide show to an audience |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

**Class of Situations**

Assembling a document for distribution

**Categories of Actions**

- Preparing the task
- Assembling portions of selected sources to form a single document
- Distributing the finished product

**Operational Competencies**

Thinks logically

- Analyzes the source documents in order to clarify needs
- Selects an appropriate software application to integrate the source documents
- Uses the necessary functions and commands
- Applies a coherent production and revision procedure

Uses creativity

- Uses similar documents as inspiration
- Designs an original product
- Identifies solutions to problems
- Creates an aesthetically pleasing layout
- Processes information in a personal way

**Essential Knowledge**

- Preproduction
- Production
- Postproduction

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

| End-of-Course Outcomes |
| --- |
| In order to deal with the situations in the class *Assembling a document for distribution*, adult learners analyze the task to be performed, prepare a page layout for their design and group together their source documents. They then assemble the source documents to form a single document, which they distribute using output peripherals such as a digital projector or a television screen.<br><br>To prepare the task, adult learners examine the source documents to clarify the assembly needs, and draw inspiration from similar documents in order to design an original product. This involves producing a model, sketch or storyboard. Basing their decision on the suitability of the available software applications for the type of document, they select an appropriate application, gather or produce the necessary source documents, check their spelling and grammar, and file the documents in a folder created for that purpose.<br><br>When combining the source documents to form a single document, adult learners follow a coherent production and revision process. They organize their work and follow a timetable. They use their prior learning to apply the commands and functions required for the task. Where necessary, they refer to the application's help files, Internet information sources or reference guides to find solutions to the problems they encounter. They limit themselves to no more than three source documents, which they bring together to form an effective, aesthetically pleasing and coherent product with a page layout that highlights the most important elements. In doing this, they process the information in a personal way.<br><br>When distributing the final product, adult learners must ensure that it is suited to the method they have selected. They make any corrections that may be required and then print, present or post their document on-line. |

## Evaluation Criteria

- Rigorously prepares for the task
- Assembles several source documents in a coherent way to form a single document
- Distributes the final product in a coherent and effective way

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in the course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Thinks logically* and *Uses creativity*.

| Contribution of the Operational Competency *Thinks logically* | |
|---|---|
| The operational competency *Thinks logically* helps adult learners to deal effectively with situations related to the class *Assembling a document for distribution*. It helps adult learners to carry out the task as effectively as possible. | Adult learners begin by examining the source documents and their relevance to the communication goal, in order to identify the assembly requirements. They then visualize a finished product that satisfies those requirements and select the most appropriate software application for the task, based on the type of document required and the sources from which it will be assembled. They apply their prior learning, using the correct functions and commands to efficiently assemble the final document. They do this as part of a coherent production and revision process. |

| Contribution of the Operational Competency *Uses creativity* | |
|---|---|
| The operational competency *Uses creativity* allows adult learners to deal effectively with situations related to the class *Assembling a document for distribution*. It encourages them to approach a task from a new angle and give their own personal touch to a document produced from a combination of sources. To design an original product, they use existing documents as their inspiration and build a model. They solve any technical, conceptual and organizational problems that may arise during the process. They process the information in a personal way, creating an aesthetically pleasing layout that is suitable for the chosen method of distribution. | This competency encourages adult learners to take the initiative by processing information in a new and different way as they complete the task at hand. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Preproduction**

- Formatting the concept (sketch, model, storyboard)
  - Planning the distribution method (print, presentation, on-line)
  - Selecting the integration software
  - Preparing a timetable
- Grouping available documents
- Producing documents
- Classifying documents

**Production**

- Learning the functions and techniques of the integration software
- Inserting objects (files, images, bookmarks, hyperlinks, audio or video clips)
  - Cut/Copy/Paste
  - Import, export (linked object, embedded object)
- Page layout
  - Adjusting the margins and line spacing
  - Setting out the header and footer
  - Inserting page breaks
  - Numbering the pages
- Creating a table of contents

**Postproduction**

- Printing
  - Recto verso, scope, print quality
  - Grey levels, colours
- Presenting a slide show
  - Timing, transitional effects
  - Type of projector, screen resolution
- On-line presentation
  - File naming conventions
  - Downloading, uploading

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Perseverance |
| --- | --- |
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features, and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Adult learners who work hard understand that every person develops at his or her own pace, and that mistakes are an integral part of progress. Adults who are able to develop perseverance have the psychological resources required to progress and succeed in life. |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resource | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Computer, printer<br>▪ Operating system<br>▪ Internet browser<br>▪ Audio, video or audio-video peripherals<br>▪ Digital projector<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| Subject Area: Languages |
| --- |
| **Program of Study: *English, Language of Instruction*** |
| Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:<br>▪ Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)<br>▪ Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)<br>▪ Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software) |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force, function in their social and cultural environment and in their education and training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the adult learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**A Centre in Action**

One of the real-life situations selected for the course *Computer Integration* involves taking part in social life. Adult learners are asked to create an advertising campaign, the purpose of which is to inform students about the extracurricular activities available to them at their centre, and encourage them to participate. The advertisements may take different forms, including multimedia presentations displayed continuously in the training centre's entrance hall, a leaflet distributed in classrooms, or a Web page. Depending on its quality, the finished product could also be distributed to other centres and perhaps even used as an advertising capsule on the community television channel or in the local newspaper.

Before beginning the learning situation, the teacher collects information from other teachers on the centre's extracurricular activities (e.g. advertising texts, activity timetables, results of sporting events, photographs of events, videos, etc.). He or she also collects examples of advertisements from newspapers, magazines, television and the Internet. If audio-visual material is available, the teacher may reserve a digital projector or large-screen television and DVD player.

To begin the learning situation, the teacher proposes a brainstorming session on the centre's extracurricular activities, completing the list drawn up by the adult learners if necessary. Together, they discuss participation rates and general interest in the activities. The teacher then suggests that the adult learners could inform and attract the interest of the centre's students by distributing an advertisement of their choice. Each adult learner is asked to work on the activity of most interest to him or her.

The adult learners divide into groups, based on the software application selected for the task, and then watch a short demonstration of the procedure required to assemble several source documents into a single final product. Using this information, each adult learner designs an original product, producing a sketch, model or storyboard. Where necessary, adult learners may consult or view existing advertisements as a source of inspiration. They file the documents collected or created for the activity.

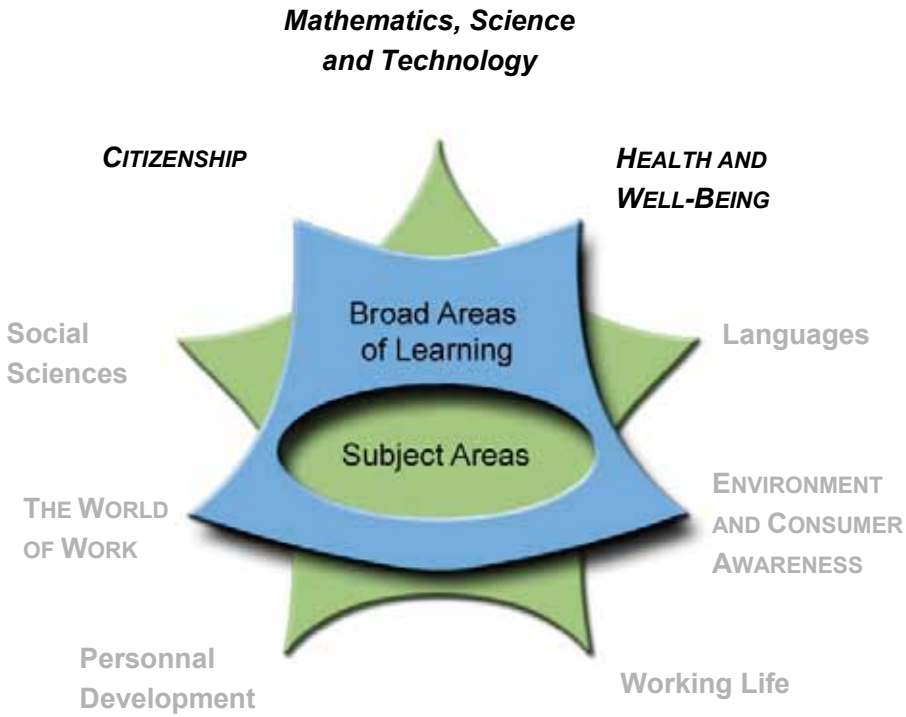
Adult learners then produce an advertisement, incorporating portions of the source elements at their disposal. Where necessary, they learn the commands and techniques required to insert objects and format their documents, along with any other functions they need for the task. They create an aesthetically pleasing layout, and combine and alter both the texts and the image so as to arrange the information in a personal way. In doing this, they apply their prior knowledge of computers and make the necessary connections between the potential offered by the software application and the type of document they wish to produce. They solve problems by consulting the software help files or reference books or resources on the Internet. They may also ask their classmates for additional information. The teacher provides help as required, and depending on the questions raised, may give feedback on specific subjects to the entire group.

The advertisements produced by the adult learners are grouped together for the next step in the process. The presentations are saved successively on the same digital support, to form a continuous display. Paper advertisements are printed and stapled together, and Web pages are uploaded onto a Web site. The advertising campaign is started by launching all the advertisements at the same time.

Several days later, to complete the learning situation, the adult learners evaluate the activity and assess their level of satisfaction with the results. As a group, they assess the campaign and the relevance of the tools used, and discuss avenues for improvement with the teacher.

## Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Assembling a document for distribution | |
| **Learning Situation** | |
| A Centre in Action | |
| **Categories of Actions** | |
| ▪ Preparing the task<br>▪ Assembling portions of selected sources to form a single document<br>▪ Distributing the finished product | |
| **Operational Competencies** | **Essential Knowledge** |
| ▪ Thinks logically<br>▪ Uses creativity | ▪ Preproduction<br>▪ Production<br>▪ Postproduction |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Word processing, graphics and spreadsheet applications<br>▪ Desktop presentation software<br>▪ Desktop publication software | ▪ Web editor<br>▪ Internet browser<br>▪ Digital projector, screen or television(s) and DVD or VHS players<br>▪ Reference books |



Course

# Computer Search

# CMP-1102-1

## Secondary Cycle One

**"If you wish to advance into the infinite, explore the finite in all directions."**

**Goethe**

# Presentation of the Course *Computer Search*

The course *Computer Search* is designed to help adult learners deal competently with real-life situations that require them to search for and process information.

The course prepares adult learners to consult various sources of information using a computer.

By the end of the course, adult learners will be able to use search engines, Internet portals, databases and electronic dictionaries or encyclopedias to find specific information that is relevant to their particular needs. They will also be able to perform queries, sort the information obtained, and print or save the search result that is relevant to the solutions sought to various situations of everyday life.

## Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Conducting computer searches*.

Free access to digitized information and knowledge sources comes with its own particular challenge, that of being able to search for, identify and select the right information from among a multitude of available sources.

The real-life situations addressed in this course require adult learners to master the basic computer search techniques, so that they are able to benefit from the advantages of a constantly changing knowledge-based society. As they learn to become autonomous, they will be better placed to understand current events, to become familiar with the resources available in a new environment to which they must move as a result of changes in their personal lives, or simply to satisfy their everyday information needs.

| Class of Situations | Examples of Actions |
|---|---|
| Conducting computer searches | ▪ Dealing with changes in personal or working life<br>▪ Integrating into a new living environment<br>▪ Understanding current social issues<br>▪ Understanding a specific type of technology<br>▪ Exploring a country and its culture, its history or its geography<br>▪ Upgrading knowledge<br>▪ Interpreting current events<br>▪ Helping children with homework |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Establishing a search strategy | ▪ Defines a search topic<br>▪ Selects keywords (criteria)<br>▪ Selects a search tool<br>▪ Asks questions about a search topic |
| ▪ Applying appropriate search techniques | ▪ Searches for events or people who have left their mark on history<br>▪ Searches for information on products or services<br>▪ Searches for an address or directions in order to map out a route for a trip<br>▪ Consults an electronic encyclopedia<br>▪ Consults thesauruses and directories of definitions<br>▪ Finds the correct spelling or translation of a given word<br>▪ Clarifies the search strategy by performing a query |
| ▪ Processing the search results | ▪ Classifies the search results according to their relevance<br>▪ Compares the results of different searches<br>▪ Explores the information obtained<br>▪ Collects the information in a folder<br>▪ Saves and prints the search results<br>▪ Adds information sources to the list of bookmarks (Internet) |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

**Class of Situations**

Conducting computer searches

**Categories of Actions**

- Establishing a search strategy
- Applying appropriate search techniques
- Processing the search results obtained

**Operational Competencies**

Thinks logically

- Accurately defines the topic
- Compares different search tools
- Establishes search hypotheses
- Rigorously analyzes the results

Exercises critical and ethical judgment

- Examines the credibility of the information and the validity of its source
- Considers the relevance of the results objectively
- Questions the values conveyed
- Makes a judgment based on own values and the values of society

**Essential Knowledge**

- Basic notions
- Simple search
- Advanced search
- Viewing information and results

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

| End-of-Course Outcomes |
| --- |
| In order to deal with situations in the class *Conducting computer searches*, adult learners must take a structured approach that involves establishing a relevant search strategy, applying appropriate techniques and processing the results according to their needs.<br><br>When establishing a search strategy, adult learners accurately define their topic and select certain keywords that can be used to develop one or more hypotheses for their search. They identify relevant search criteria and compare various search tools (e.g. Internet, electronic encyclopedia or dictionary, database, etc.).<br><br>By applying appropriate search techniques, they are able to perform simple searches using logical operators, or advanced searches using logical and relational operators.<br><br>When processing the results, they view the information obtained and consider its relevance objectively. They sort it, keeping only the results that are of interest. They then examine the results carefully, ensuring that the information is credible and its sources are valid. They make sure the values conveyed are consistent with their own values and those of society in general.<br><br>Throughout the search process, adult learners observe rules of ethics and ensure that their sources are credible. To do this, they develop a rigorous approach, using information gathering techniques and strategies pertaining to the organization and interpretation of the information they find. |

## Evaluation Criteria

- Establishes a relevant search strategy
- Applies appropriate search techniques
- Processes the results rigorously

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Thinks logically* and *Exercises critical and ethical judgment.*

| Contribution of the Operational Competency *Thinks logically* | |
|---|---|
| The operational competency *Thinks logically* helps adult learners to deal effectively with situations related to the class *Conducting computer searches*. It allows them to analyze a situation, and establish and test hypotheses in order to complete their search successfully. | Adult learners accurately define their search topic and identify the main points, then propose keywords to launch the query. They compare different search tools (e.g. Internet, database, etc.) and select the one that seems to be the most appropriate. Depending on the tool selected, they establish their hypotheses and test them by performing the search. They analyze their findings, keeping only the most relevant results. In doing so, they adopt a structured method of reasoning that will be useful in future situations that involve searching for information. |

| Contribution of the Operational Competency *Exercises critical and ethical judgment* | |
|---|---|
| The operational competency *Exercises critical and ethical judgment* helps adult learners to deal effectively with situations related to the class *Conducting computer searches*. It allows them to judge the credibility of the information they find, as well as the validity of its source, and to examine the values it conveys. | Given the high number and wide range of information sources consulted, adult learners must step back in order to exercise their critical judgment, making sure their information is credible and its source reliable, thereby objectively judging the relevance of their results. They exercise ethical judgment by questioning the values conveyed, making sure they are consistent with their own values and those of society, while being tolerant of different opinions.<br><br>The operational competency *Exercises critical and ethical judgment* therefore enables adult learners to examine different viewpoints rigorously and objectively, in light of accepted values. This allows them to make informed choices when selecting the data that best suits their needs. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Basic notions**

- Vocabulary
  - Queries
  - Search criteria (keywords)
  - Logical operators, relational operators
- Search strategies
  - Structuring a question for a computer search
  - Selecting appropriate keywords
  - Preparing a search hypothesis
- Search tools
  - Databases
  - On-line or digitized data banks (e.g. encyclopedias, dictionaries, thesauruses, etc.)
  - Portals and search engines (Internet only)
- Verifying the information obtained (Internet only)
  - Credibility of the source
  - Ethical value of the source
  - Reliability of the information obtained

**Simple searches**

- Single criterion searches: using logical operators (< = >)
- Searches using portals (Internet only)
  - Theme-based portals, categories, classification methods

**Advanced searches**

- Multi-criteria searches: using relational operators (AND, OR)
- Using search engines (Internet only)
  - Advanced searches using several different criteria or search options

**Viewing data and results**

- Moving between fields and saved files
- Sorting a table or query result
- Printing
  - An entire table, a single record, a query result
- Managing bookmarks (Internet only)
  - Creating and deleting folders, adding and deleting bookmarks

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Rigour |
|---|---|
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Rigour is an intellectual requirement that demands precision and logic when performing a task. Adult learners apply the rules of learning, consider the potential influence of the moral and ethical aspects, question their approach and make changes where necessary. A rigorous approach leads to greater accuracy in the performance of the task and the results obtained. |
| **Objectivity** | |
| Adult learners who are objective are able to set aside their partiality and prejudices. They base their judgment on reality or, where necessary, on neutral, credible information that can be verified. To be objective, adult learners must ensure that their judgment is not affected by personal considerations or outside factors. | |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social resources | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Operating system<br>▪ Office automation software (database)<br>▪ Internet browser<br>▪ Electronic encyclopedias or dictionaries<br>▪ Digital projector<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| Subject Area: Languages |
| --- |
| **Program of Study: *English, Language of Instruction*** |
| Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:<br>▪ Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)<br>▪ Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)<br>▪ Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software) |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force, function in their social and cultural environment and in their education and training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**History and Me**

One of the real-life situations selected for the course *Computer Search* involves searching for historical events. In the related learning situation, adult learners are asked to review a historical event of their choice that they believe had an impact on the socioeconomic activities of their region or a direct influence on the development of their technological, natural or work environment.

To prepare the learning situation, the teacher draws up a list of historical events. Using the Internet, he or she identifies certain sources of information about a handful of events that have marked local history, some unreliable sources providing inaccurate information, as well as several search engines. The teacher must ensure that the activity is appropriate for the adult learners' level.

To begin the learning situation, the teacher presents some of the events and discusses their impacts on the local socioeconomic context. This is followed by a group brainstorming session, during which the adult learners identify other related events in the region or further afield, along with their potential impacts. The adult learners are then asked to select one event that has had a direct or indirect impact on their region or their current personal situation. They may choose one event for the entire group, select an event individually from the teacher's list, or choose something on their own. The teacher then talks to the group about the appropriate search tools to use, suggesting that they all use an Internet search engine for this introductory activity.

The search itself then begins. The teacher starts by presenting a case study that introduces the adult learners to computer search techniques. Using the digital projector, the teacher explains the basic notions, beginning with keyword searches. Working individually, the adult learners then draw up a list of keywords for their own searches. The teacher continues with a demonstration of how the chosen search engine works. Step by step, the adults then conduct a simple query, with everyone querying the same topic, and using the same search engine. An analysis of the search results will reveal a wide assortment of information, and the teacher initiates a discussion on the disadvantages of obtaining such varied results. The teacher then introduces the notion of an advanced search and, using the digital projector, addresses the whole class and demonstrates how to refine their search using relational operators.

Working individually, the adults then perform their own searches using the criteria (keywords) identified earlier in the activity. The teacher walks around the classroom, providing guidance where necessary, and reminding the group of the different steps in the process.

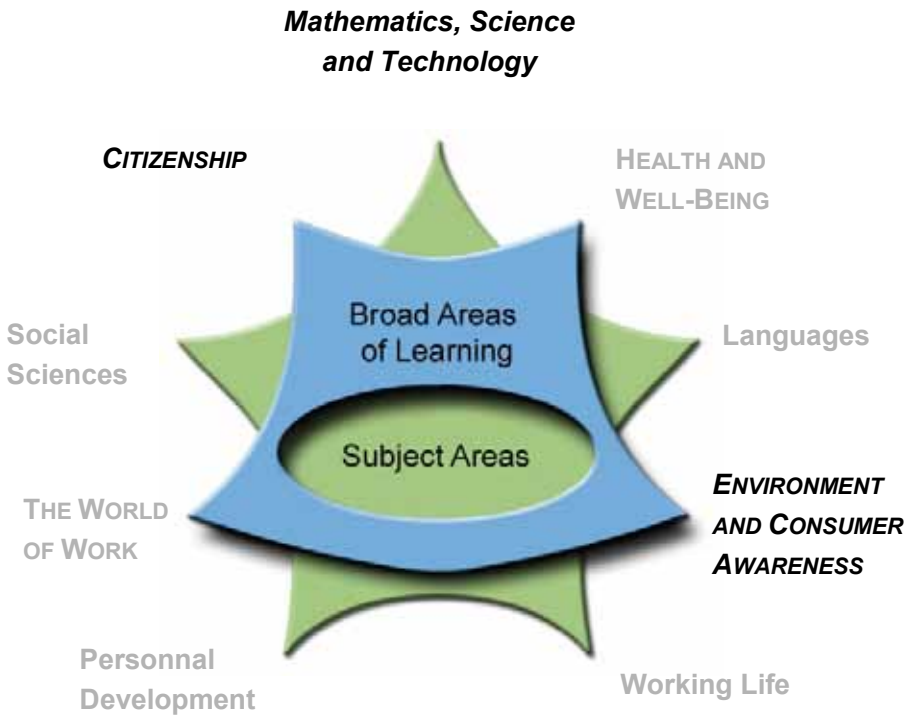
The teacher explains how to view the results, sorting them in order of priority. He or she then questions the credibility of the sources and the values conveyed, using Internet hoaxes and posted inaccuracies as examples. He or she then shows the adult learners how to verify their sources, reminding them that it is always wise to be critical of the data obtained and to be sure to always validate the source of information.

When the adult learners are satisfied with their results, they create a list of bookmarks in which they save the Web pages they consulted and print out the most relevant information.

To end the learning situation, the adult learners present the search results, making connections with the original question. They describe their vision of the impact the chosen event had on their lives or on their environment, basing their conclusions on the information they obtained. The teacher then reviews the search process, so that the adult learners are aware of the logic applied.

## Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Conducting computer searches | |
| **Learning Situation** | |
| History and Me | |
| **Categories of Actions** | |
| ▪ Establishing a search strategy<br>▪ Applying appropriate search techniques<br>▪ Processing the search results | |
| **Operational Competencies** | **Essential Knowledge** |
| ▪ Thinks logically<br>▪ Exercises critical and ethical judgment | ▪ Basic notions<br>▪ Simple search<br>▪ Advanced search<br>▪ Viewing data and results |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Internet access | ▪ Electronic encyclopedias<br>▪ Reference books |



Course

# Computer Network Communications

# CMP-2101-1

Secondary Cycle One

**"The nicest thoughts are the ones we share."**

**Proverb**

# Presentation of the Course Computer Network Communications

The course *Computer Network Communications* is designed to help adult learners deal competently with communication situations requiring the use of computers.

The course introduces adult learners to different types of computer-based communication methods.

By the end of the course, adult learners will be able to communicate through a computer network, selecting and using appropriate tools with care for the situations they encounter. They will also be able to subscribe for services, send documents by e-mail, read and answer messages, manage their mail and list of contacts, and moderate a discussion forum or blog.

## Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Communicating by means of a computer*.

The Internet now plays a dominant role in everyday communications. Computer network communication skills are required constantly, for example to communicate with friends and acquaintances, debate subjects in the news and share information on specific subjects. If adult learners are to deal with real-life situations such as exercising their rights and responsibilities or taking part in social or cultural activities, they need practical knowledge of computer communication methods, tools and conventions.

| Class of Situations | Examples of Real-Life Situations |
|---|---|
| Communicating by means of a computer | ▪ Maintaining relationships with friends and acquaintances<br>▪ Communicating for work or official purposes<br>▪ Exercising rights and responsibilities<br>▪ Taking part in cultural and social life<br>▪ Obtaining assistance and support |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Exchanging written or oral messages using a computer | ▪ Uses e-mail to communicate with family or friends<br>▪ Creates a blog to share opinions or musical preferences<br>▪ Sends and receives e-mail to share an experience, exchange information, state an opinion, create a support network, etc.<br>▪ Takes part in discussion forums or on-line conferences on subjects of interest<br>▪ Posts a message or a comment to a forum or a blog<br>▪ Telecommutes by using an on-line conference or screen-sharing service<br>▪ Chats and collaborates with a coworker or a cultural community representative, etc. |
| ▪ Managing written or oral messages on a computer | ▪ Deletes e-mails<br>▪ Adds a sender to a list of contacts<br>▪ Blocks an undesirable sender or participant<br>▪ Joins a mailing list or virtual community<br>▪ Moderates a discussion group or blog<br>▪ Places documents or a résumé in a digital portfolio |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when developing learning situations.

**Class of Situations**

Communicating by means of a computer

**Categories of Actions**

- Exchanging written or oral messages
- Managing written or oral messages

**Operational Competencies**

Communicates

- Identifies explicit information and understands the meaning of the message
- Recognizes the codes intrinsic to the medium used by the sender
- Uses the communication codes intrinsic to the computer medium used
- Applies the rules of language
- Produces a clear and coherent message

Exercises critical and ethical judgment

- Considers the values conveyed in a message, based on the sociocultural context in which it was produced
- Separates fact from opinion
- Examines the credibility, relevance and source of the message
- Considers the relevance of starting or continuing an exchange
- Manages discussions and messages objectively
- Respects netiquette

**Essential Knowledge**

- Communication methods
- Communication conventions

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

| End-of-Course Outcomes |
| --- |
| In order to deal with situations in the class *Communicating by means of a computer*, adult learners exchange written or oral messages on a computer, using the communication method that best suits their specific communication need. They manage the messages produced and received and, where necessary, they subscribe to services or use specific peripherals such as headsets, microphones and Web cameras.<br><br>When sending messages using a synchronous or asynchronous method, they make proper use of the functions required to send e-mails, articles or oral messages. They respect netiquette and apply the normal communication conventions of the support medium used. They apply rules of language in order to produce a clear and coherent message that is respectful of codes and values. When responding to a message they have received, they consider the relevance of beginning or continuing a discussion.<br><br>When receiving an oral or written message using a synchronous or asynchronous method, adult learners recognize the codes intrinsic to the medium used by the sender, and identify explicit information as well as the meaning of the message. They separate fact from opinion and examine the values conveyed by the message, based on the sociocultural context in which it was produced. When considering the values conveyed by the message, they examine the credibility, relevance and source of its content.<br><br>Adult learners who manage written or oral messages on a computer use objectivity, apply specific criteria when saving or deleting messages, and when maintaining a forum or blog. When interacting with others, they respect netiquette. As forum or blog administrators, they play the role of moderator, approving the topic and content of articles submitted for publication. As moderators and posters, they ensure that messages are relevant to the theme of the discussion and the conditions for use and values that are tolerated by participants. |

## Evaluation Criteria

- Engages in appropriate exchanges of relevant messages using a computer
- Manages written and oral messages on a computer in a responsible way

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Communicates* and *Exercises critical and ethical judgment.*

| Contribution of the Operational Competency *Communicates* | |
|---|---|
| The operational competency *Communicates* helps adult learners to deal effectively with situations related to the class *Communicating by means of a computer*. It enables them to interpret and produce messages in different contexts, adjusting their methods depending on whether they are sending or receiving the message. | Adult learners who receive a message through a computer network are able to recognize the codes intrinsic to the medium used by the sender, which helps to understand the meaning of the message. They identify explicit information and meaning. When sending a message, they use the communication conventions intrinsic to the specific computer medium used and apply the rules of language to produce a clear message suitable for the recipient. |

| Contribution of the Operational Competency *Exercises critical and ethical judgment* | |
|---|---|
| The operational competency *Exercises critical and ethical judgment* helps adult learners to step back in order to assess the content of a message when *Communicating by means of a computer*. | Adult learners consider the values conveyed in a message, based on the sociocultural context in which it was produced. When sending and receiving messages, they separate fact from opinion, in order to make an informed judgment of the content of the message. They examine the credibility, relevance and source of the message. Adult learners who are responsible for managing discussions or messages are respectful of the right of others to express themselves, and are objective when deciding whether to save or delete messages. When responding to a message, they respect netiquette and others' right to speak and express their opinions, and consider the relevance of starting or continuing a discussion. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Communication methods**

- Synchronous exchanges
  - On-line conferences, chatting, shared applications
    - Chat room, whiteboard
- Use of audio and video peripherals
- Asynchronous exchanges
  - E-mail
    - Inbox, outbox, deleted messages
    - Recipient, subject, message, carbon copy (cc)
    - Contact management
    - Sending and receiving attachments
  - Discussion forums, electronic message boards, blogs, wikis
    - Subscribing to services
    - Sending, reading and responding to messages

**Communication conventions**

- Sender, receiver, message
- Writing standards
  - Compliance with rules of language
  - Conventions specific to the computer medium (chatting, forum)
- Respect for interlocutors
  - Nethics
  - Netiquette
- Administering a forum or blog
  - Moderator's role (approving, posting)

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults to become more competent in dealing with the real-life situations in this course.

| Curiosity | Ability to Listen |
|---|---|
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features, and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Listening means hearing what is not put into words. Adult learners who have the ability to listen absorb both what they hear and what they see. They ask well-thought-out questions and challenge their own ideas by connecting them to their prior experience and learning. They also give feedback, earning the trust and interest of their interlocutors. The ability to listen is demonstrated by an attitude of empathy rather than authority, and by a willingness to accept difference. |
| **Objectivity** | |
| Adult learners who are objective are able to set aside their partiality and prejudices. They base their judgment on reality or, where necessary, on neutral, credible information that can be verified. To be objective, adult learners must ensure that their judgment is not affected by personal considerations or outside factors. | |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resources | Material Resources |
|---|---|
| ▪ Guest speaker who is an expert in a related field | ▪ Computer, printer<br>▪ Operating system<br>▪ Internet browser<br>▪ Audio, video or audio-video peripherals<br>▪ Digital projector<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas, in particular knowledge related to Languages, is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| Subject Area: Languages |
| --- |
| **Program of Study: *English, Language of Instruction*** |
| Knowledge of the language of instruction contributes significantly to learners' capacity to use a computer to search for information, communicate with others, produce documents and collaborate on group projects. The content of the written messages that adult learners receive and produce depends on the language resources they have constructed, particularly their reading and writing skills with respect to the type of discourse concerned, and this is true whether the message is conveyed in print, handwriting or electronically. These skills are developed throughout all the courses in the English, Language of Instruction program. In addition to the language resources that are specific to the situation and the messages being conveyed, the capacity to use a computer for these purposes depends in particular upon:<br>▪ Oral interaction to obtain and give information and instructions (e.g. regarding steps and procedures to follow when using a computer)<br>▪ Decoding strategies (e.g. to interpret computer-specific terminology, symbols, icons, abbreviations)<br>▪ Reading to obtain information and instructions (e.g. help menus, pop-up messages, instruction manuals for computer software) |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

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Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the adult learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**Let's Talk About It!**

One of the real-life situations selected for the course *Computer Network Communications* involves the exercise of rights and responsibilities. In the related learning situation, adult learners create and moderate a blog on a specific problem encountered by the students at the training centre. The other adult learners at the centre are told about the blogs and are invited to share their ideas and views and make comments on the blog.

When preparing the learning situation, the teacher draws up a list of problems likely to interest the adult learners at the centre. Examples include student induction services, student life, the sense of belonging to the centre, cleanliness of premises, the cafeteria menu, the student coffee bar, extracurricular activities and so on. The teacher also identifies one or more free Web hosting services and creates his or her own blog for demonstration purposes.

To begin the learning situation, the teacher and group discuss life at the centre and any changes or improvements that could be made. The teacher then suggests extending the discussion to include all adult learners at the centre, by creating blogs for this purpose. Using the digital projector, the teacher presents his or her own blog and invites some of the adult learners to post messages in real time. While this is being done, the teacher explains how a blog is structured and how it works. Working individually, the adult learners then select their own blog topics, either from the teacher's list or based on their own personal interests.

Each adult learner subscribes to the on-line hosting service and defines the appearance of his or her blog site. Those whose learning is more advanced will be able to insert their own links, images and polls. The teacher is therefore able to institute a peer learning process by grouping the adult learners together in pairs or triads to learn from one another. While they are doing this, the teacher provides guidance to individual learners or small groups. Where necessary, the teacher can review the process for inserting links, images and polls, and provides feedback on the configuration of each individual blog page.

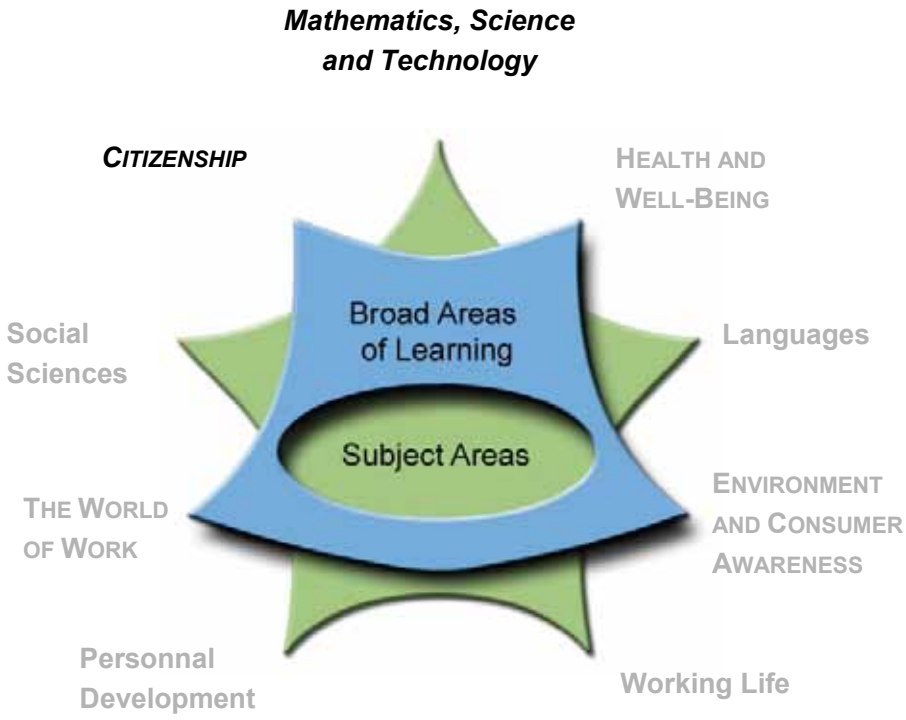
Once this task is completed, the adult learners write a text introducing the discussion, applying the rules of language to produce a clear, coherent message. Before the blogs are launched, all the texts are finalized: they are read and commented upon by the group as a whole, using the digital projector, or by smaller groups. The official notice announcing that the blogs are on-line can be e-mailed to teachers, displayed on posters in the training centre, or advertised in the student newspaper.

In subsequent periods, the adult learners moderate their blogs, directing the discussion and examining the values conveyed. When answering questions and posting their own comments, they use the communication conventions intrinsic to the computer medium, follow netiquette and respect the opinions of others. Where necessary, they delete inappropriate messages and may, if they wish, block the author from using the site. In some cases they may wish to invite a resource person to contribute to the blog (centre director, adviser, teacher, outside resource, etc.).

At the end of the learning situation, the adult learners write a conclusion and close down the blog. Reunited as a group, they summarize the highlights, present user statistics for each blog, discuss the interest generated by the blog and examine the quality of the contributions. Together, they review the process to identify potential improvements, and examine the importance of critical judgment and language quality to fully understand others and to be understood in a computer network or elsewhere.

## Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Communicating by means of a computer | |
| **Learning Situation** | |
| Let's Talk About It! | |
| **Categories of Actions** | |
| ▪ Exchanging written messages using a computer<br>▪ Managing written messages on a computer | |
| **Operational Competencies** | **Essential Knowledge** |
| ▪ Communicates<br>▪ Exercises critical and ethical judgment | ▪ Communication method (asynchronous)<br>▪ Communication conventions (moderating a blog) |
| **Complementary Resources** | |
| ▪ Computer, printer<br>▪ Internet access | ▪ Reference books |



Course

# Creative Computer Use

# CMP-2102-1

Secondary Cycle One

**"I love those who yearn for the impossible."**

**Gœthe**

# Presentation of the Course *Creative Computer Use*

The course *Creative Computer Use* course is designed to help adult learners deal competently with real-life situations in which they must prepare and carry out an individual or group project using a computer.

The course prepares adult learners to plan and complete a creative project using a computer.

Depending on the aim of the project, the course allows adult learners to improve their mastery of an application with which they are already familiar, explore a new application or design a computer program or Web page.

## Dealing With the Real-Life Situations

Dealing effectively with real-life situations is based on actions. These actions are grouped into categories and make use of a set of resources that include operational competencies and essential knowledge. During the learning process, adults are expected to construct knowledge related to these resources in order to be able to deal appropriately with their real-life situations.

The class of situations, categories of actions, operational competencies and essential knowledge constitute the compulsory elements of the course. These elements are explained in detail under their respective headings.

## Class of Situations Addressed by the Course

This course addresses a single class of situations: *Completing an individual or group project by means of a computer*.

The *Creative Computer Use* course is ideal for adult learners who wish to discover the possibilities offered by computers. A basic knowledge of computer applications is usually enough for occasional users, but for those who wish to go further by creating their own, less basic documents or conveying information in an attractive and effective way, a more in-depth knowledge and exploration of new tools is required. For example, adult learners may wish to add an animated sequence to a Web site or create a computer game to keep their children amused, or they may be asked to share their knowledge and provide information on a subject by preparing an interactive multimedia presentation or creating and distributing a leaflet.

| Class of Situations | Examples of Real-Life Situations |
|---|---|
| Completing an individual or group project by means of a computer | ▪ Training peers<br>▪ Preparing an advertising campaign for a cultural event<br>▪ Providing information on local issues<br>▪ Expressing creativity<br>▪ Preparing a community or group project |

## Categories of Actions

The *categories of actions* are groups of actions that are appropriate for dealing with the real-life situations addressed in the course. *Examples of actions* are provided to illustrate the scope of the category in a variety of contexts.

| Categories of Actions | Examples of Actions |
|---|---|
| ▪ Planning a project | ▪ Identifies the requirements of the project<br>▪ Prepares a model of the final product<br>▪ Compares the possibilities offered by different applications<br>▪ Selects the most appropriate application<br>▪ Searches for documents on the Internet<br>▪ Creates or gathers the necessary documentation |
| ▪ Carrying out the project | ▪ Writes a computer program<br>▪ Creates an advertising poster<br>▪ Prepares a multimedia presentation<br>▪ Creates an animated sequence<br>▪ Designs a computer game<br>▪ Produces a 3-D image<br>▪ Programs an application<br>▪ Designs a dynamic Web site<br>▪ Creates an education application or a drill-and-practice application<br>▪ Designs promotional tools (e.g. leaflet, brochure, calendar, interactive terminal, etc.)<br>▪ Prepares and distributes a student or community newspaper<br>▪ Creates a database for the training centre library<br>▪ Designs a personal digital portfolio<br>▪ Revises the document or program<br>▪ Prints, projects, uploads or burns the end product to CD |

## Compulsory Elements and End-of-Course Outcomes

The compulsory elements are those that the teacher must absolutely take into account when designing learning situations.

**Class of Situations**

Completing a personal or group project by means of a computer

**Categories of Actions**

- Planning a project
- Carrying out the project

**Operational Competencies**

Cooperates
- Helps clarify the tasks
- Contributes to the achievement of shared goals
- Listens to the views of fellow team members

Uses creativity
- Uses existing creations as a source of inspiration
- Finds creative solutions
- Perfects the aesthetic aspect of the project
- Takes the initiative

**Essential Knowledge**

- Identifying the computer requirements related to the project
- Learning the necessary commands and techniques
- Applying the selected commands and techniques
- Using computer language

The end-of-course outcomes describe how adults make use of the compulsory elements to deal with the real-life situations addressed in the course.

**End-of-Course Outcomes**

In order to deal competently with the class of situations *Completing a personal or group project by means of a computer*, adult learners must first select the personal or group project they wish to carry out, plan the various tasks and take the steps required to complete the project successfully.

When planning their project, they use existing creations as their inspiration and identify the computer requirements related to the project. They then select the most appropriate application and use its various functions to prepare a model that gives an accurate idea of what the final product will be. They learn the necessary commands and techniques, and if necessary write a program algorithm. If working as part of a team, they help to clarify and divide up the tasks.

When carrying out the project, adult learners select the appropriate commands and apply the techniques specific to the application. If the task involves programming, they use correct programming language. They find creative solutions that will help improve the final product and perfect its aesthetic appearance. They use their initiative to deal with unexpected situations or solve technical problems, listen to their fellow team members at all times, and contribute to the achievement of the group's goals.

## Evaluation Criteria

- Plans the project effectively
- Carries out the project in a coherent way

## Operational Competencies

The contribution of each operational competency is described in terms of the actions that are appropriate for dealing with the real-life situations in this course. These operational competencies are addressed in other courses and therefore all of the courses taken together contribute to their development.

In this course, only the following operational competencies are addressed: *Cooperates* and *Uses creativity*.

| Contribution of the Operational Competency *Cooperates* | |
|---|---|
| The operational competency *Cooperates* helps adult learners to deal effectively with situations related to the class *Completing a personal or group project by means of a computer*. It makes them aware of their relationship with the other people involved in a team project.<br><br>Adult learners work as part of a group, with due respect for their colleagues. They work together with their team to clarify each member's individual tasks and contribute to the achievement of shared goals. They listen to their fellow team members and strive to create a climate in which discussion and mutual support are encouraged. | The operational competency *Cooperates* enables adult learners to work effectively as part of a team by developing and maintaining a healthy, productive climate. |

| Contribution of the Operational Competency *Uses creativity* | |
|---|---|
| The operational competency *Uses creativity* helps adult learners to deal effectively with situations related to the class *Completing a personal or group project by means of a computer*. It allows them to imagine new possibilities and develop ideas that are applicable within the limits of the chosen software application.<br><br>Based on the expectations that have been set, adult learners perform a search for existing documents that will serve as inspiration. They then build a model using what they have discovered. They identify creative solutions and perfect the aesthetic aspect of the finished product. When faced with unexpected situations or technical problems, they use their initiative to identify appropriate solutions, ensuring that their creations have their own distinct identity. | The operational competency *Uses creativity* allows adult learners to expand their horizons and imagine new ways of doing things, ultimately going beyond their own limits. |

## Essential Knowledge

The elements of essential knowledge shown in parentheses are provided as suggestions only.

**Identifying the computer requirements related to the project**

- Designing the project (building the model, identifying the output medium)
- Listing the actions required and potential computer-related problems
- Identifying types of applications and their fields of use
  - Selecting an appropriate software application (desktop presentation, desktop publishing, computer graphics, animation, Web editing, programming, etc.)
- Digital portfolio
  - Using a portfolio
  - Creating a digital portfolio
  - Storing and updating documents

**Learning the necessary commands and techniques**

- Identifying the application's possibilities
  - Selecting the commands required for the project
- Exploring and learning more about the selected commands
  - Identifying the characteristics of the commands
  - Learning the commands
  - Learning implementation techniques

**Applying the chosen commands and techniques**

- Creating and keyboarding the project
- Reviewing the project
- Distributing the final product

*If the project involves programming:*

**Using a computer language**

- Programming algorithm
- Language structure (e.g. event programming, Internet programming, etc.)
- Elements of computer language
  - Data type, operators, keywords, markups
  - Predefined controls (e.g. check boxes, scroll-down list, form field, button, etc.)
  - Instructions (e.g. loops, function calls)
  - Entering code

## Attitudes

The following attitudes are provided as suggestions only. The development of these attitudes can help adults become more competent in dealing with the real-life situations in this course.

| Curiosity | Ability to Listen |
|---|---|
| Curiosity encourages adults to try new experiences and review those that do not work, in order to progress on their own. The field of computer technology is in constant evolution, and adults who develop curiosity are more likely to update their skills, seek out new products and features, and explore specific aspects of the field. Often, curiosity drives adults to excel at what they do. | Listening means hearing what is not put into words. Adult learners who have the ability to listen absorb both what they hear and what they see. They ask well-thought-out questions and challenge their own ideas by connecting them to their prior experience and learning. They also give feedback, earning the trust and interest of their interlocutors. The ability to listen is demonstrated by an attitude of empathy rather than authority, and by a willingness to accept difference. |
| **Creativity** | |
| Creative adult learners are willing to experiment and aware of the aesthetic aspect of what they do. They play with ideas, concepts and perceptions of existing documents, feeding their imagination, summarizing what they learn and making unusual connections. Creativity generates originality and intellectual autonomy, allowing adult learners to make decisions based on their own judgment and improve their own work in ways they themselves consider important. Being creative means learning to do things differently, in a personal way. | |

## Complementary Resources

The following resources are provided as suggestions only and consist of references that may be consulted in learning situations.

| Social Resources | Material Resources |
|---|---|
| ▪ Guest who is an expert in a related field | ▪ Computer, printer, digital projector<br>▪ Operating system and basic office applications (e.g. word processing, spreadsheet, database)<br>▪ Desktop presentation and desktop publishing applications<br>▪ Programming and Web editing software<br>▪ Computer graphics application<br>▪ Internet access<br>▪ Audio, video and audio-video peripherals<br>▪ Reference books |

## Contribution of the Subject Areas

The contribution of other subject areas is also useful for dealing with the real-life situations in this course. The elements identified for each subject area are not compulsory and do not constitute prerequisites.

| All Subject Areas |
| --- |
| ▪ Depending on the nature of the project, essential knowledge from all the subject areas may be useful. |

## Andragogical Context

Computers are now present in every sector of human activity, and it is essential for today's adult population to understand how they work and how they should be used. The courses in the *Computer Science* program develop the ability of adult learners to understand the computer environment, produce documents and search for, process and manipulate information. More specifically, the courses enable adult learners to identify similarities between different software applications and use this basic information to transfer their learning from one application to another.

The learning derived from the program is essential for helping adults integrate into the work force, function in their social and cultural environment and in their education and training activities, regardless of their level of schooling. The ability to use a computer is an advantage in their everyday lives and especially in their learning. Adult learners who own or have access to a computer will benefit from it on a daily basis.

Adult learners build on their prior knowledge through learning acquired by thinking, acting and interacting with the people around them, every time the learning context allows them to do so. Discovery and individual exercises are always available, but are used with the goal of building new knowledge or applying prior knowledge. Feedback allows adult learners to assess their own progress, take corrective action where necessary, and realize how their knowledge of computers can be applied in their everyday lives.

Learning is acquired gradually in this course. Adult learners begin by addressing general notions, which they enrich and apply in the classroom or laboratory through situational reconstructions and other appropriate activities. They may then be asked to apply their newly constructed knowledge to real-life situations.

If their learning is to be effective, it must be structured by means of an appropriate pedagogical method. Although pedagogical methods and techniques are specific to each training centre and adapted to the teacher's own abilities, they should nevertheless be alternated in order to diversify the learning conditions and provide adult learners with different ways of building their knowledge. This approach will also increase the adult learners' motivation and encourage them to work harder. It is therefore important to allow time for sharing knowledge, experiences and ideas. A broad range of learning activities will provide plausible topics through which adult learners are able to apply the concepts addressed in the course.

## Learning Situation

The learning situation that follows is provided as an example to show teachers how the principles of the education reform can be applied in the classroom.

It is authentic in the sense that it addresses a real-life situation (taken from the class of situations in the course) that adults may find themselves in. It is sufficiently open and comprehensive to allow adult learners to explore several important aspects related to dealing with this real-life situation.

The examples of actions presented in the course help the teacher to identify those actions that an adult would take to deal with the real-life situation. The teacher can then refer to these examples in order to develop pertinent learning activities.

The learning situation is organized in terms of the three steps of the teaching-learning process, which are as follows:

- planning learning
- actual learning
- integrating and reinvesting learning

These steps highlight the principles of the education reform insofar as they encourage adults to be active, to reflect on their learning and to interact with their peers when the learning context is suitable. They include learning activities and may also include evaluation activities intended to support adults in the learning process.

These activities help learners to construct knowledge related to the compulsory elements of the course that are targeted by the learning situation concerned: one or more categories of actions, essential knowledge and the actions of the operational competencies associated with the categories of actions.

The example provided also refers to certain teaching strategies—pedagogical methods and techniques—that can be selected according to the learners, the context and the learning environment. Certain learning strategies may also be suggested, as well as a variety of material and social resources.

## Example of a Learning Situation

**A Class Newspaper**

One of the real-life situations selected for the course *Creative Computer Use* involves informing the community or class about local issues. In the related learning situation, adult learners are invited to take part in a group creative process to produce a student newspaper. Every member of the class is able to contribute, and some will do so for two consecutive months. The learning situation therefore involves the operational competencies *Cooperates* and *Uses creativity*.

When preparing the learning situation, the teacher regularly publishes a recruitment notice, inviting adult learners to join the student newspaper team. The teacher sets up a workshop whose participants meet for two hours every week, with some team members being replaced each month. The teacher obtains the authorizations required to print or photocopy several hundred copies of the newspaper each month, and obtains assistance from language teachers.

Every month, the teacher chairs a group introductory meeting, at which new recruits are able to introduce themselves and talk about their skills and interests. The teacher presents the organizational structure of the newspaper, and the adult learners select a role that reflects their interests and skills. They may, for example, choose to recruit contributors and journalists, select written texts, take care of computer graphics or page layout, produce and upload the Web version of the newspaper or design and update the database that will be used to distribute the newspaper by e-mail.

Adult learners identify the expectations of their selected roles and the project as a whole. They use existing documentation (e.g. magazines, newspapers, advertisements, Web pages, graphic arts, model databases, etc.) as inspiration and imagine the finished product. They then learn how to use the appropriate computer application, through individualized learning and learning from peers. If the group is composed solely of new recruits or adult learners with little knowledge of computers, the teacher demonstrates the various applications to subgroups.

At the newspaper planning stage, the adult learners attend production meetings at which the teacher directs the discussion and the members contribute ideas relating to their particular role, presenting examples or models of what they intend to create, where applicable.

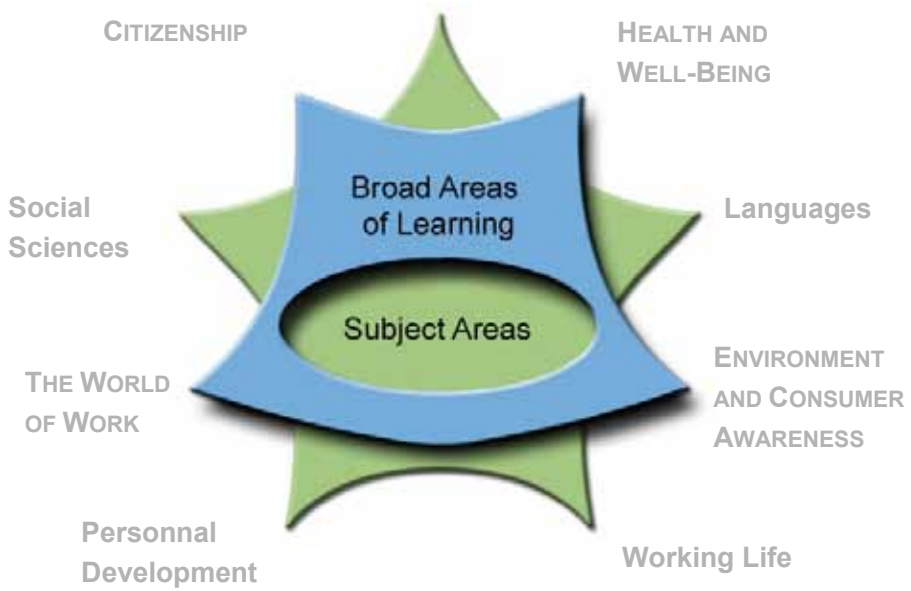
At the production stage, adult learners apply the commands and techniques required to perform their particular roles. They improve their knowledge of the software application, discover previously unexplored possibilities, think up creative solutions and pay attention to the aesthetic appearance of their product. They contribute to the achievement of shared goals, listen to their fellow team members and act as resource people, answering questions on their particular application. The teacher provides individual assistance, oversees progress and, where necessary, facilitates contacts between teams.

Once the newspaper has been distributed, the team members are called to a final meeting at which they read and discuss the comments made. They take a critical and constructive look at the end product and the process, and identify potential improvements. They also do a self-evaluation of their own work, of the results they have achieved and of their commitment to the group project. Lastly, they are invited to play a role in producing the next edition of the newspaper, or a later edition where applicable.

# Elements of the Course Addressed by the Learning Situation

| Class of Situations | |
|---|---|
| Completing a personal or group project by means of a computer | |
| **Learning Situation** | |
| A Class Newspaper | |
| **Categories of Actions** | |
| ▪ Planning a project<br>▪ Carrying out the project | |
| **Operational Competencies** | **Essential Knowledge** |
| ▪ Cooperates<br>▪ Uses creativity | ▪ Identifying the computer requirements related to the project<br>▪ Learning the necessary commands and techniques<br>▪ Applying the selected commands and techniques<br>▪ Using a computer language |
| **Complementary Resources** | |
| ▪ Computer, printer, scanner<br>▪ Photocopier<br>▪ Word processing, spreadsheet and database applications | ▪ Desktop publishing software<br>▪ Computer graphics software<br>▪ Web editing software<br>▪ Internet browser<br>▪ Reference books |

Because a newspaper can contain different types of information, several different broad areas of learning may be addressed by each issue of the newspaper.



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