

Course  
**CMP-5080-2**  
**Multimedia Production**

**Computer Science**





## INTRODUCTION

The goal of the *Multimedia Production* course is to provide adult learners with the means to express their creativity; to convert an idea into sound, images and video clips using audiovisual equipment; and to assemble these multimedia elements using nonlinear video editing software. It provides adult learners with a computer platform for the development of multimedia production skills.

In this course, adult learners deal with various learning situations that help them acquire theoretical and practical knowledge about video production. To interact in the situations presented, adults learn to identify and correctly use the main types of support for multimedia equipment. They employ a variety of tools and techniques to create material that can be used in a multimedia production. They process information, prepare complex scenes that they convert into digital files, and assemble these files using a nonlinear video editing program. They produce renders that they export in various formats for use on DVD or a Web page.

At the end of this course, adult learners will be able to plan and carry out a multimedia project. They will understand the standardization of multimedia content and manage projects while adopting ethical behaviour and respecting the intellectual property rights that apply to multimedia works. They will be able to use the basic functions of a nonlinear video editing program and develop an original production using images, sound and video clips created with the help of audiovisual equipment.

## SUBJECT-SPECIFIC COMPETENCIES

This course targets the following subject-specific competencies:

- *Interacts in a computer environment*
- *Produces computerized documents*
- *Adopts behaviours that reflect a concern for ethics, safety and critical thinking*

Thus, it is by activating and integrating all three subject-specific competencies and by using other resources that adults are able to effectively structure their learning.

During the learning situations, adult learners communicate using multimedia equipment and evaluate their efficiency in a computer environment. They carefully plan their work and adapt their plan as they work. As they carry out a project and upon its completion, they evaluate their efficiency and make any necessary adjustments while adopting ethical behaviour.

## PROCESSES AND STRATEGIES

As they learn about computers, adult learners are called upon to use various processes and strategies. These processes and strategies represent the way in which adults go about solving problems, meeting challenges and carrying out their learning activities in general.

For the *Multimedia Production* course, the suggested approach is the production process.

Production process	
<ul style="list-style-type: none"> <li>• This process consists of two steps: planning and production. Four values are associated with it: communicate clearly; validate the production on a regular basis; maintain ongoing feedback and collaboration; accept the change.</li> <li>• During the planning stage, adult learners must define the work to be done as precisely as possible. Planning must be flexible and allow adjustments throughout the project.</li> <li>• During the production stage, adult learners must complete the project according to the planning established; maintain ongoing feedback and collaboration; accept change, even at the end of the production stage, and respond to change rather than following the initial plan.</li> </ul>	
<b>Examples of strategies</b>	<ul style="list-style-type: none"> <li>- Comparing the current situation with the desired situation</li> <li>- Determining the steps involved in carrying out the work</li> <li>- Drawing up a work schedule</li> <li>- Choosing a work method</li> <li>- Making adjustments to the plan as they work</li> <li>- Analyzing their results</li> </ul>

To meet the requirements of the production process, the initial plan must be flexible enough to allow for adjustments throughout the project. Through discussions with the teacher or with their peers, adults learn to reflect on each step in their process and arrive at a result that will differ from their original plan. By applying the above process, they learn to cooperate with others and to accept changes during the course of a project.

## CROSS-CURRICULAR COMPETENCIES

The cross-curricular competencies are not developed in a vacuum; they are rooted in learning situations and contribute, to varying degrees, to the development of the subject-specific competencies, and vice versa.

Several cross-curricular competencies can be useful in dealing with the learning situations in the *Multimedia Production* course. Two are considered particularly relevant to this course: *Uses creativity* and *Cooperates with others*.

### ▪ Intellectual Competency

When adult learners work on a multimedia production, they *use creativity*. They do so as they choose a topic and the means they will use to develop it. From scriptwriting to filming, recording and postproduction, adult learners *use creativity* to come up with new approaches.

## ▪ **Personal and Social Competency**

The *Multimedia Production* course is the perfect opportunity to make adult learners aware of the need to *cooperate with others*. Although multimedia projects can be carried out alone, they are complex and generally require the help of several people, as they involve many tasks that must be completed in a short period of time. The work must therefore be carefully planned, and tasks must be identified and assigned to team members. Each member must contribute to the team's efforts and cooperate in creating the final product. Cooperation is therefore essential in completing such projects.

## SUBJECT-SPECIFIC CONTENT

The subject-specific content consists of knowledge and cultural references. The prescribed content for this course is outlined below. However, depending on the context (e.g. if certain tools or functions are not available in a given software program), other equivalent content may be substituted for that outlined below.

## KNOWLEDGE

### ▪ ***Characteristics of the main types of support for multimedia equipment***

- Bitmap images (BMP, GIF, PNG, JPEG)
- Audio files
  - Standard formats (WAV, AIFF, MP3)
  - Protected files (WMA)
- Music files (MIDI)
- Video files
  - Standard formats (AVI)
  - Compressed formats (MPEG, WMV, MOV, FLV, MPEG-4, 3GP)

### ▪ ***Standardization of multimedia content***

- Encoding (codecs)
- International standards (PAL, NTSC, HD)

### ▪ ***Ethics and intellectual property associated with multimedia works***

- International conventions
- Copyright (Society of Composers, Authors and Music Publishers of Canada [SOCAN]), mechanical reproduction rights (Society for Reproduction Rights of Authors, Composers and Publishers in Canada [SODRAC])
- Collecting rights and royalties
- Alternative licences (Copyleft, GNU, Creative Commons)

- **Storyboard**
- **Role of members of a production team**
- **Standard terminology associated with multimedia**
- **Film terminology**
- **Using audiovisual equipment**
  - Video and digital cameras
    - Controls and basic principles
    - Camera shot
    - Available storage space
    - Transferring information to a computer (USB cable, FireWire, adapted software)
  - Webcam
  - Headset and microphone
  - Audio ripping
- **Using audio processing software**
  - Importing sound tracks
  - Processing sound tracks
  - Storing and exporting sound tracks in different formats
- **Using nonlinear video editing software**
  - Importing images, sound and video clips
  - Processing images, sound and video clips
  - Controlling the convergence of multimedia elements in real time
  - Creating transitions and special effects
  - Incorporating text and digital images
  - Storing and exporting in different video file formats
- **Issuing an intellectual property licence for a work and distributing it**

## CULTURAL REFERENCES

The following cultural references will help adults understand some of the factors that influenced the development of computer science. These references give a cultural dimension to instruction, expand the adult learners' knowledge and make their learning meaningful. The teacher, with input from adult learners, may choose other references that are more appropriate to the task at hand.

- **Events and chronology**
  - History of multimedia accessories and peripherals
  - Evolution of film and television techniques
  - Influence of the development of multimedia on the economic market
  - Worldwide dissemination of digital information
- **Heritage objects**
  - Old video games
  - Darkroom accessories
  - Film reels, VHS and Beta cassettes
  - Cassette tape recorder, vinyl records, slide projectors
- **Regional or national references**
  - Film production, advertising and marketing firms, National Film Board (NFB), CBC, regional or national television station
  - Anecdotes
  - School-related elements

## FAMILIES OF LEARNING SITUATIONS

The goal of the *Multimedia Production* course is to provide adult learners with the means to express their creativity, to convert an idea into sound, images and video clips using audiovisual equipment, and to assemble these multimedia elements using nonlinear video editing software. This course gives adult learners the opportunity to perform actions that will enable them to interact in a computer environment, produce quality computerized documents and adopt ethical behaviours.

The shaded cells in the table below provide specifics about the contexts in which the prescribed families of learning situations are applied in this course.

Subject-specific competencies	Families of learning situations related to . . .		
	Information	Creation	Critical thinking
<b>Interacts in a computer environment</b>	Interacts by interpreting signals he/she receives and using input and output peripherals	Discovers what computers can do by consulting documentation and by experimenting	Critically examines computerized communication tools by applying evaluation criteria
<b>Produces computerized documents</b>	Communicates by using computerized services	Creates by correctly using the appropriate functions	Evaluates his/her work by setting quality standards
<b>Adopts behaviours that reflect a concern for ethics, safety and critical thinking</b>	Communicates respectfully, using the conventions of a given medium	Acts prudently by adopting safe behaviours	Validates information by using validation criteria

First, adult learners discover what computers can do by consulting documentation and by experimenting. For example, they may determine what is feasible or choose the right tool to carry out a project.

Then, adult learners create documents by correctly using the appropriate functions and thus work more efficiently. They evaluate their work regularly by setting quality standards or by taking into account standards that have been set for them. They communicate respectfully, using the conventions of a given medium.

## BROAD AREAS OF LEARNING

The broad areas of learning deal with major contemporary issues. Ideally, the situations to be studied should be selected in keeping with the educational aims of the broad areas of learning since these areas of learning provide a broader context for the learning situations and thus serve to make learning more meaningful. Two broad areas of learning are considered particularly relevant to this course: Health and Well-Being, and Environmental Awareness and Consumer Rights and Responsibilities.

- **Health and Well-Being**

Helping adult learners understand the importance of healthy living habits is an essential aspect of the Computer Science program. Thus, a learning situation that helps make adult learners aware of the effects of multimedia consumption on health and well-being meets the educational aim of the BAL Health and Well-Being.



- **Environmental Awareness and Consumer Rights and Responsibilities**

Learning to develop an active relationship with his or her surroundings while maintaining a critical attitude toward consumption and the exploitation of the environment is an essential part of an adult's education. A learning activity that requires that adult learners make an informational video about an environmental problem of particular concern to them meets the educational aim of the BAL Environmental Awareness and Consumer Rights and Responsibilities.

#### **EXAMPLE OF A LEARNING SITUATION**

All learning situations, no matter what broad area of learning is targeted, place adult learners at the heart of the action. Learning situations promote the development of subject-specific and cross-curricular competencies, the acquisition of computer knowledge and skills and the mobilization of various resources that are useful in carrying out the tasks at hand.

The table below shows the elements that need to be considered when developing a learning situation and highlights those selected for the learning activity described on the following page.

ELEMENTS REQUIRED IN LEARNING SITUATIONS	
<b>Broad area of learning</b> (targeted) - Contextualizes learning to make learning more meaningful	<ul style="list-style-type: none"> <li>• Environmental Awareness and Consumer Rights and Responsibilities</li> </ul>
<b>Subject-specific competencies</b> (prescribed) - Are developed in action and require the active participation of adult learners	<ul style="list-style-type: none"> <li>• Interacts in a computer environment</li> <li>• Produces computerized documents</li> <li>• Adopts behaviours that reflect a concern for ethics, safety and critical thinking</li> </ul>
<b>Families of learning situations</b> (prescribed) - Group together situations appropriate to the course, based on issues drawn from reality - Promote the acquisition of computer knowledge and skills	<ul style="list-style-type: none"> <li>• <b>Information</b> <ul style="list-style-type: none"> <li>○ Communicates respectfully, using the conventions of a given medium</li> </ul> </li> <li>• <b>Creation</b> <ul style="list-style-type: none"> <li>○ Discovers what computers can do by consulting documentation and by experimenting</li> <li>○ Creates by correctly using the appropriate functions</li> </ul> </li> <li>• <b>Critical thinking</b> <ul style="list-style-type: none"> <li>○ Evaluates his/her work by setting quality standards</li> </ul> </li> </ul>
<b>Cross-curricular competencies</b> (targeted) - Are developed in context together with the subject-specific competencies	<ul style="list-style-type: none"> <li>• Uses creativity</li> <li>• Cooperates with others</li> </ul>
<b>Knowledge</b> (prescribed) - Includes computer knowledge and skills that adult learners must acquire in the course	<ul style="list-style-type: none"> <li>• Creating a storyboard</li> <li>• Concepts associated with multimedia production</li> <li>• Types of data (textual, visual, audio)</li> <li>• Encoding standards</li> <li>• Rendering formats</li> <li>• Using audiovisual equipment</li> <li>• Ethics and intellectual property associated with multimedia works</li> </ul>

This section provides an example of a learning activity. It includes a context that serves as a common thread throughout the activity; however, it is not formally spelled out. Although they may not be explicit, the learning situation includes the elements identified in the table above: the broad area of learning, the subject-specific competencies, the families of learning situations, the cross-curricular competencies and the prescribed knowledge. To promote learning, these elements must be structured in a coherent and meaningful way.

Teachers can target any element as a focus of learning, be it actions related to the subject-specific or the cross-curricular competencies or the prescribed knowledge that adults must acquire.

### EXAMPLE OF A LEARNING SITUATION

#### Environmental cause

**Task:** Create a multimedia production that highlights an environmental problem in your area.

To start off the activity, the teacher asks adult learners whether they are concerned by an environmental problem in their area—a polluting factory, toxic waste, an open garbage dump, agricultural waste.

The teacher then suggests that a group of adults get together and make an informational video on a regional, municipal or local environmental issue of particular concern to them. To prepare for the activity, the team is asked to create a storyboard, determine the materials and equipment it will need to shoot the video, divide up the tasks among the team members and define the steps involved in the project.

In this activity, the team members are not expected to master all of the course content; rather, each member should specialize in a certain task and carry out it out according to his or her abilities and goals. For example, one person could handle the camera, another could take care of sound (musical score, sound effects) and narration, another could create the scene using the software program available at the adult education centre. Although each member would play a specific role, everyone would contribute to the end result by suggesting improvements or possible changes. Throughout the project, all members of the team use the means at their disposal to construct their knowledge: the documentation provided, planning, communication with peers, and reflection and review.

#### END-OF-COURSE OUTCOMES

Creating a multimedia production involves using several types of data at the same time: textual, visual and audio.

When adult learners *discover what multimedia can do*, they familiarize themselves with the main concepts associated with multimedia production. They find out about the types of data they will use in their production and the encoding standards, rendering formats and intellectual property rights associated with multimedia works. They consult the documentation for audiovisual equipment and understand how these devices work. They also consult the documentation and tutorials for the programs they want to use and experiment with them.

When adult learners *create* a video, they plan their work; design a storyboard; draw a model or a sketch; write the script; create or import images; and determine the audio and video equipment they will need. They break the work down into steps, draw up a work schedule and choose an appropriate work method for the project. They use a resource bank to store and retrieve the digital data they use, record the audio and video clips, and place them in the appropriate folders. Using a video editing program of their choice, they arrange the data on a timeline and use separate tracks to divide up the titles, images, audio, narration and video sequences. They add transitions and visual effects. They export their project in an appropriate format and issue an intellectual property licence to their work.

When adult learners *evaluate their work*, they analyze their results, check whether they have attained the standards that have been set and, if applicable, determine the improvements to be made and the means of doing so. They take stock of their ability to produce computerized documents by recording their observations, which they will be able to apply in future projects.

When adult learners *communicate*, they act ethically and responsibly, taking into account agreements for using digital materials, copyright and the conventions of the medium used.

Throughout the learning process, adult learners develop competence in the following computer knowledge and skills: they use audiovisual equipment to produce sound, images and video clips and assemble these elements using a nonlinear video editing program. They store and export their project in a format appropriate to the medium. In addition, they do not hesitate to consult various resources to obtain help when difficulties arise.

## EVALUATION CRITERIA

### ***Interacts in a computer environment***

- Use of appropriate strategies to interact and to troubleshoot

### ***Produces computerized documents***

- Thorough planning of the work
- Appropriate formatting based on document type
- Application of appropriate tools and functions
- Rigorous compliance with the constraints identified

### ***Adopts behaviours that reflect a concern for ethics, safety and critical thinking***

- Adequate communication using the conventions of a given medium