

DEFINITION OF THE EVALUATION DOMAIN

Adult General Education

Diversified Basic Education Program

Computer Science

INTRODUCTION TO 3D MODELING

CMP-5076-2

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Introduction

The Definition of the Evaluation Domain (DED) ensures consistency between a course and the related evaluation instruments. The DED is used to select, organize and describe the essential and representative elements of the course. The DED is based on the program of study and the course, but should by no means replace them in the planning of instructional activities.

All the DEDs produced after June 30, 2014, by the Ministère de l'Éducation et de l'Enseignement supérieur (MEES) are prescriptive. Consequently, they are the reference documents to be used in the development of all examinations, be they ministerial examinations or those developed by adult education centres or by Société GRICS (BIM). The DEDs thus serve as a model for preparing multiple equivalent versions of examinations that are valid across the province.¹

In addition, as set out in the *Policy on the Evaluation of Learning*, adult learners must know what they will be evaluated on and what is expected of them.² The DEDs and the criterion-referenced rubrics are recommended for this purpose.

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1. Québec, Ministère de l'Éducation du Québec, *Policy on the Evaluation of Learning* (Québec: Gouvernement du Québec, 2003), 47.
 2. Ibid., 9.

Evaluation Content

General Information	
Broad Areas of Learning³ • Health and Well-Being • Career Planning and Entrepreneurship Subject Area • Mathematics, Science and Technology Families of Situations • Information - Communicates respectfully, using the conventions of a given medium • Creation - Discovers what computers can do by consulting documentation and by experimenting - Creates by correctly using the appropriate functions • Critical thinking - Evaluates his/her work by setting quality standards	Program of Study • Computer Science Course • Introduction to 3D Modeling
Essential Elements Targeted by the Evaluation	
Subject-Specific Competencies 1. Interacts in a computer environment 2. Produces computerized documents 3. Adopts behaviours that reflect a concern for ethics, safety and critical thinking	Categories of Knowledge • 3D environment • Object components • Modeling techniques • Rules of scene composition • Standard terminology associated with 3D modeling • Modeling 3D objects • Creating and applying textures or materials to objects • Adding and modifying lights • Adding and modifying cameras • Importing objects • Producing renders of varying qualities
Evaluation Criteria	
Evaluation Criterion for Competency 1 1.1 Use of appropriate strategies to interact and to troubleshoot Evaluation Criteria for Competency 2 2.1 Thorough planning of the work 2.2 Appropriate formatting based on document type 2.3 Application of appropriate tools and functions 2.4 Rigorous compliance with the constraints identified Evaluation Criterion for Competency 3 3.1 Adequate communication using the conventions of a given medium	Proficiency in Subject-Specific Knowledge Proficiency in subject-specific knowledge presupposes its acquisition, understanding, application and mobilization, and is therefore linked with the evaluation criteria for the competencies.

3. The broad areas of learning are stated exactly as in the course. However, the person who designs the evaluation instrument may choose other broad areas of learning.

Explanation of the Evaluation Content

Evaluation Criteria

The evaluation criteria are stated exactly as in the course.

The examination focuses little, if at all, on criterion 1.1 and the first aspect of criterion 3.1 (respecting copyright). To make a judgment related to criterion 1.1 and the first aspect of criterion 3.1, the teacher should observe the adult learner in the classroom. Of course, any observations made during the examination should also be taken into account.⁴

Information Clarifying the Evaluation Criteria

1.1 Use of appropriate strategies to interact and to troubleshoot

This criterion evaluates the adult learner's ability to use sources of computer help (e.g. application help function, tutorials, the Internet).

2.1 Thorough planning of the work

This criterion evaluates the adult learner's ability to determine the elements needed to produce the document.

2.2 Appropriate formatting based on document type

This criterion evaluates the adult learner's ability to apply a variety of formatting elements to scenes and 3D objects and to apply an appropriate format for his/her project.

2.3 Application of appropriate tools and functions

This criterion evaluates the adult learner's ability to use the commands and tools needed to create 3D objects and scenes.

2.4 Rigorous compliance with the constraints identified

This criterion evaluates the adult learner's ability to present a document compliant with the requirements of the task and the related quality standards.

3.1 Adequate communication using the conventions of a given medium

This criterion evaluates the adult learner's ability to respect copyright and present an ethical message.

Proficiency in Subject-Specific Knowledge

Proficiency in subject-specific knowledge is assessed through the evaluation of competencies, using tasks related to the evaluation criteria.

4. Since these criteria are evaluated for the purpose of certification, the teacher should make a judgment concerning the adult learner's ability **at the end of the course**. The mark given should not be based on several evaluations done at different times during the course.

Weighting

The weighting for the evaluation of the competencies is determined in accordance with the relative importance of each competency in the course. The competencies are weighted as follows:

Competency 1, *Interacts in a computer environment*: 10%

Competency 2, *Produces computerized documents*: 80%

Competency 3, *Adopts behaviours that reflect a concern for ethics, safety and critical thinking*: 10%

The weighting of the evaluation criteria appears in the assessment tools provided in the *Correction and Evaluation Guide*. Adult learners must be made aware of the evaluation criteria used to evaluate them and the corresponding weighting of each criterion.

Knowledge

The following table presents the prescribed knowledge selected for the examination. However, in special cases, particularly when an application does not have the tools and commands needed to acquire all of the prescribed knowledge, the missing items can be replaced with equivalent knowledge.

The examination must require adult learners to apply a representative sample of the knowledge indicated in the table.

Subject-Specific Content

Categories of Knowledge	Prescribed Knowledge
3D environment	• Spatial representation on a coordinate system with three axes • Display modes (wireframe, solid, texture) and work modes (orthographic and perspective projections) • Texture mapping • Lights • Cameras • Renders
Object components (vertex, edge, polygon, texture)	
Modeling techniques	
Rules of scene composition	
Modeling 3D objects	• Using the polygonal modeling technique • Using the Bézier curve modeling technique • Using modeling tools • Editing text
Creating and applying textures or materials to objects	• Creating basic materials • Modifying the properties of materials and textures • Combining materials
Adding and modifying lights	
Adding and modifying cameras	
Importing objects	
Producing renders of varying qualities	• Image • Video • Printing

Specifications for the Evaluation Instruments

Examination: Number of Parts, Sections, Procedure and Duration

The examination is administered in one evaluation session. Adult learners are responsible for managing the time available to them.

Duration: 180 minutes

Examination Content

The task consists in creating a scene containing textured 3D objects, cameras and lights using a 3D modeling application.⁵

Information-Gathering Tools

- Adult's Booklet
- The adult learner's production (computerized document(s))
- The printed sheets, if applicable

Authorized Materials

- 3D modeling application installed on a computer or other device*
- Internet access
- Printer connected to the device
- Removable medium (or storage space) containing the files needed for the production, if applicable
- Personal course notes
- Reference documents (paper or electronic format)

* Necessary materials

5. The goal of this course is to teach adult learners how to use a 3D modeling application. It is up to the educational institution to choose the application that enables learners to explore most of the prescribed knowledge for the course.

Assessment Tools

For the evaluation of Competency 1, *Interacts in a computer environment*, Competency 2, *Produces computerized documents*, and Competency 3, *Adopts behaviours that reflect a concern for ethics, safety and critical thinking*, the criterion-referenced rubric (one for each competency) is the assessment tool used by the teacher. Criterion-referenced interpretation involves comparing the information gathered with the expected outcomes.⁶ These rubrics are prescriptive and include the following rating scale:

Competency development:

- Advanced
- Thorough
- Acceptable
- Partial
- Minimal

A checklist is provided in the *Correction and Evaluation Guide* to help markers use the criterion-referenced rubrics.

Pass Mark

The pass mark is 60%.

Retakes

The adult learner must retake the entire examination.

6. Québec, Ministère de l'Éducation, *Policy on the Evaluation of Learning* (Québec: Gouvernement du Québec, 2003), 28-29.

APPENDIX – CRITERION-REFERENCED RUBRICS

Adult General Education

EVALUATION

Criterion-Referenced Rubrics

Adult learner's name

Teacher's name

Date

Diversified Basic Education Program
Computer Science

Course
Introduction to 3D Modeling
CMP-5076-2

Competency 1: Interacts in a Computer Environment (10%)**Instructions:**

- For each criterion, circle the statement(s) that correspond(s) to the adult learner's performance level.
- In the last column, enter the mark that corresponds to the assigned rating(s). The only mark that can be allotted for a given level is that indicated in the rubric.

Rating scale Evaluation criteria	Advanced competency development	Thorough competency development	Acceptable competency development	Partial competency development	Minimal competency development	Mark
1.1 Use of appropriate strategies to interact and to troubleshoot	Always uses appropriate help sources to troubleshoot. 5	Almost always uses appropriate help sources to troubleshoot. 4	Often uses appropriate help sources to troubleshoot. 3	Sometimes uses appropriate help sources to troubleshoot. 2	Rarely uses appropriate help sources to troubleshoot. 1	____/10
	Interaction with the operating system demonstrates a high level of familiarity. 5	Interaction with the operating system demonstrates a good level of familiarity. 4	Interaction with the operating system demonstrates a developing familiarity. 3	Interaction with the operating system demonstrates little familiarity. 2	Interaction with the operating system demonstrates very little familiarity. 1	
Mark for competency 1:						____/10

Assign a mark of 0 when the adult learner's performance does not correspond to any of the statements in the rubric.

Competency 2: Produces Computerized Documents (80%)**Instructions:**

- For each criterion, circle the statement(s) that correspond(s) to the adult learner's performance level.
- In the last column, enter the mark that corresponds to the assigned rating(s). The only mark that can be allotted for a given level is that indicated in the rubric.

Rating scale Evaluation criteria	Advanced competency development	Thorough competency development	Acceptable competency development	Partial competency development	Minimal competency development	Mark
2.1 Thorough planning of the work	Planning, whether in the form of a text, list, sketch or other, is very detailed, and all the required elements are taken into account. 10	Planning, whether in the form of a text, list, sketch or other, is sufficiently detailed, and almost all the required elements are taken into account. 8	Planning, whether in the form of a text, list, sketch or other, is partially complete, but most of the required elements are taken into account. 6	Planning, whether in the form of a text, list, sketch or other, is limited, and most of the required elements are missing. 4	Planning, whether in the form of a text, list, sketch or other, is very limited. 2	___/10
2.2 Appropriate formatting based on document type	Formatting elements (colours, format, placement of elements etc.) are varied and fully appropriate. 10	Formatting elements (colours, format, placement of elements etc.) are varied and very appropriate. 8	Formatting elements (colours, format, placement of elements etc.) are appropriate. 6	Formatting elements (colours, format, placement of elements etc.) are seldom appropriate. 4	Formatting elements (colours, format, placement of elements etc.) are rarely appropriate. 2	___/30
	Technical conventions associated with 3D modeling (spatial representation, lighting, perspective, etc.) are always respected. 20	Technical conventions associated with 3D modeling (spatial representation, lighting, perspective, etc.) are almost always respected. 16	Technical conventions associated with 3D modeling (spatial representation, lighting, perspective, etc.) are often respected. 12	Technical conventions associated with 3D modeling (spatial representation, lighting, perspective, etc.) are sometimes respected. 8	Technical conventions associated with 3D modeling (spatial representation, lighting, perspective, etc.) are rarely respected. 4	

Assign a mark of 0 when the adult learner's performance does not correspond to any of the statements in the rubric.

Competency 2: Produces Computerized Documents (80%) (cont.)**Instructions:**

- For each criterion, circle the statement(s) that correspond(s) to the adult learner's performance level.
- In the last column, enter the mark that corresponds to the assigned rating(s). The only mark that can be allotted for a given level is that indicated in the rubric.

Rating scale Evaluation criteria	Advanced competency development	Thorough competency development	Acceptable competency development	Partial competency development	Minimal competency development	Mark
2.3 Application of appropriate tools and functions	The final product demonstrates a very high level of proficiency in the use of commands and functions, especially those relating 3D modeling. 30	The final product demonstrates a high level of proficiency in the use of commands and functions, especially those relating 3D modeling. 24	The final product demonstrates proficiency in the use of commands and functions, especially those relating 3D modeling. 18	The final product demonstrates a low level of proficiency in the use of commands and functions. 12	The final product demonstrates a very low level of proficiency in the use of commands and functions. 6	___/30
2.4 Rigorous compliance with the constraints identified	The final product takes into account all of the task requirements and quality standards. 10	The final product takes into account almost all of the task requirements and quality standards. 8	The final product takes into account most of the task requirements and quality standards. 6	The final product takes into account few of the task requirements and quality standards. 4	The final product takes into account very few of the task requirements and quality standards. 2	___/10
Mark for competency 2:						___/80

Assign a mark of 0 when the adult learner's performance does not correspond to any of the statements in the rubric.

Competency 3: Adopts behaviours that reflect a concern for ethics, safety and critical thinking (10%)**Instructions:**

- For each criterion, circle the statement(s) that correspond(s) to the adult learner's performance level.
- In the last column, enter the mark that corresponds to the assigned rating(s). The only mark that can be allotted for a given level is that indicated in the rubric.

Rating scale Evaluation criteria	Advanced competency development	Thorough competency development	Acceptable competency development	Partial competency development	Minimal competency development	Mark
3.1 Adequate communication using the conventions of a given medium	Always respects copyright. 5	Almost always respects copyright. 4	Often respects copyright. 3	Sometimes respects copyright. 2	Rarely respects copyright. 1	___/10
	The message of the final product is fully suited to the context and free of stereotypes and prejudice. 5	The message of the final product is very well suited to the context and free of stereotypes and prejudice. 4	The message of the final product is well suited to the context and free of stereotypes and prejudice. 3	The message of the final product is poorly suited to the context. 2	The message of the final product is very poorly suited to the context. 1	
Mark for competency 3:						___/10

Assign a mark of 0 when the adult learner's performance does not correspond to any of the statements in the rubric.

