

# Specific Guide

## The Computer Science Program, Programmer/Analyst and Micro-Computer Technology

Specific Guide  
to the Evaluation of  
Programs of Studies

*August 1994*

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*Commission d'évaluation de l'enseignement collégial*

Québec 

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## Introduction

In May 1994, the *Commission d'évaluation de l'enseignement collégial* published *General Guide to the Evaluation of Programs of Studies*<sup>1</sup>. That guide presented both the criteria and secondary criteria for evaluation and the type of questions which institutions would be expected to answer in their self-evaluation of programs.

The present document is an adaptation of that guide for the three programs in the Computer Science sector which the Commission has chosen to evaluate : the DEC program, Computer Science; the CEC program, Programmer/analyst; and the AEC program, Micro-computer Technology. This specific guide has been developed to give the institutions offering these programs the information necessary to plan and complete their self-evaluations. The guide has also been developed in order to make known the Commission's requirements for the evaluation of each of the various aspects of the implementation of these programs.

In order to insure that the self-evaluation by institutions touches upon the most important aspects of the implementation of the Computer Science programs, and to guarantee the feasibility and reality of this operation on the methodological level, the Commission has consulted an Expert Advisory Committee.<sup>2</sup> This consultation has led the Commission to undertake a widespread and general evaluation, rather than a process in which only certain aspects of program implementation are the objects of in-depth studies. The Commission believes that this type of evaluation will allow institutions to identify the strengths and weaknesses present in their implementation of the programs. Using the information available, institutions will be able to make any corrections necessary, while adjusting to the conditions imposed by the collegial Renewal.

This Guide contains inquiries, indicators and formats for the presentation of information which institutions ought to use as guidelines in their collection and analysis of data. It will allow institutions to target and to consider only the data most indicative of the value of their programs, thus ensuring that the self-evaluation can be accomplished within the time frame established by the Commission.

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1. COMMISSION D'ÉVALUATION DE L'ENSEIGNEMENT COLLÉGIAL. *Guide général pour les évaluations des programmes d'études réalisées par la Commission d'évaluation de l'enseignement collégial, Gouvernement du Québec, Québec, Mai 1994, 26 p.*

2. The list of the members of this Committee is presented in Appendix 1.

This guide consists of three sections. The first section presents a brief portrait of the three Computer Science programs and the conditions which affect their evaluation. There is a description of the programs and their recent development.

The second section of the guide presents the process of evaluation which the Commission proposes that institutions use for their self-evaluation. This process consists of four steps. Based on the secondary criteria proposed for self-evaluation, institutions are invited to describe their current situation, to present an assessment of this situation, and to indicate, where necessary, any correctives foreseen. The fourth step is to provide an overall evaluation of the program in terms of the five criteria selected by the Commission.

In the third section, institutions will find the indicators necessary for the completion of the self-evaluation. The criteria and the secondary criteria are defined, and the questions which institutions must answer are presented in tables or blocks which are the formats to be used for providing this information.

## **The College-level Computer Science programs**

At the college level, three Computer Science programs are presently offered : 420.01 the *Computer Science* program which leads to a diploma of collegial studies (DEC) and the programs 420.52 *Programmer/analyst* and 901.91 *Micro-computer Technology* which lead, respectively, to a certificate of collegial studies (CEC) and an attestation of collegial studies (AEC). The latter two programs are usually the responsibility of the Continuing Education divisions.

## **The overall state of the Computer Science programs<sup>3</sup>**

### **The *Computer Science Program* DEC (420.01)**

Created in 1967, the *Computer Science Program* DEC was revised in 1975, 1982 and 1990. On each of these occasions, the concentration courses in the program were affected. In September 1993, the majority of the CEGEPs (47) were authorized to offer the program, while a single private institution received such authorization. Involving various disciplines and providing training which is adapted to the needs of the industry, this program is focused on the development of generalists. Upon graduation, the students have access to a variety of jobs from developing computer information systems to consulting and training, including program writing, development of data bases and adaptation of software.

The concentration area of the program consists of 25 courses, six of which are chosen by the institution. The institutional courses allow the program to respond to regional needs and recent developments in the industry. Thus, colleges have the opportunity to orient their training to the market for mainframe systems, microcomputers or both. It is worth noting that the program does not contain a work placement component as such, but that the courses, *Development and Implementation I* and *II* and *End of Studies Projects I* and *II*, can be used for this purpose. Another form of work placement component is found in the five CEGEPs which offer the program in Co-operative Education format.<sup>4</sup>

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3. In Appendix 2 is the list of institutions authorized to offer the Computer Science programs.

4. These work placement components are much longer. They last, depending on the case, from ten to fifteen weeks, during which time the students are employed in industry. There are no credits given for this work period.

In September 1992, 4,524 students were enrolled in the DEC program in computer science. In comparison to 1988, this was an increase of 23.5 %. In September 1991, 1,059 students in the Continuing Education sector were enrolled in the DEC program.<sup>5</sup> The statistics provided by the *Système de sanction des études* indicate that the number of DEC's granted in computer science increased remarkably from 1970 to 1985 (from 61 to 1,345 graduates) followed by an almost constant decline to 1993 (605 graduates).<sup>6</sup>

The *Direction générale de l'enseignement collégial* (DGEC) study of graduates in 1991-1992 indicates that in March 1993, of the holders of a Computer Science DEC 58.7 % (168 respondents out of 286) had found employment, 26.6 % (76 out of 286) continued their education and 14 % (40 out of 286) were unemployed.<sup>7</sup>

### **The programs 420.52 *Programmer/analyst* (CEC) and 901.91 *Micro-computer Technology* (AEC)<sup>8</sup>**

In Autumn 1993, twenty-six institutions were authorized to give the 420.52 program *Programmer/analyst* : fifteen CEGEPs, one subsidized private college and ten non-subsidized private institutions. The latest revision of the program was intended to harmonize the new CEC with the DEC program, so that it is now composed exclusively of concentration courses from the DEC.

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5. *Direction des programmes, Service de la planification des programmes, Recueil de données concernant la clientèle à l'enseignement permanent dans les programmes du réseau collégial de 1987 à 1992. Document IP.2, Avril 1993.* The statistics refer to full time enrolment for regular teaching and to full time and part time enrolment for Continuing Education.

6. *Système de sanction des études, Liste 5100-02, issued April 6, 1994.*

7. Of the 393 Computer Science graduates contacted by DGEC, 286 have responded, a response rate of 72,8 %.

8. The Ministry does not have data on the number of graduates registered in the 901.91 program, nor on the employment rate for the graduates of the 420.52 and 901.91 programs.

In September 1991, 1,010 adults were enrolled in the CEC : 107 in the CEGEPs and 903 in the non-subsidized private institutions.<sup>9</sup> Across the college network, the enrolment has tended to increase; this increase has taken place in the non-subsidized private institutions whereas there has been a decrease in the CEGEPs.<sup>10</sup> The statistics from the *Système de sanction des études* indicate that the number of CECs granted greatly increased up to the mid 1980s and that afterward the decline in graduation rates is considerably less pronounced than that of the DEC program. In 1992, 230 CECs were granted.

As is the case with all CEC programs, the CEC in computer science will be affected by the Renewal. In August 1994, it will be discontinued at least in name and in its status as a Ministerial program. The content of the present CEC program in computer science can continue to be offered but it will be approved as AECs given by the colleges. These will no longer be Ministerial programs.

Created in 1991, the 901.01 Micro-computer Technology program has been clearly defined in terms of the micro-computer area. It consists of seven obligatory courses : a work placement which gives 8 credits and six courses selected by the college. In Autumn 1993, this program was authorized for twenty-eight institutions : twenty-three CEGEPs and five non-subsidized private institutions.

In the present situation, the overlapping of courses allows adults who obtain an AEC to continue their studies for a CEC or a DEC while having their previous courses counted as part of the requirements for these programs. The programs have been thus developed from the perspective of continuous education.

### **The challenges of implementing the Computer Science programs**

It is possible to identify two types of challenges involved in implementing the Computer Science programs : some come from the study of the program which reveals a constant decrease in the number of graduates; others are related to the rapid and continuous development of computer science technology.

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9. *Direction des programmes, Service de la planification des programmes, Recueil de données concernant la clientèle à l'enseignement permanent dans les programmes du réseau collégial de 1987 à 1992. Document IP.2. Avril 1993, 179 p. The statistics refer to full-time and part-time registrations.*

10. In fact, like other programs leading to a CEC, the Computer Science CEC is now less frequently offered in this type of institution. This decline can be explained by the fact that the federal government has withdrawn its financial support for programs lasting more than 52 weeks.

In recent years, the appeal of computer science courses and programs to the student population has been due, in large part, to the increasingly important role played by computers in modern life and the publicity which has been given to them. However, the obverse side of the phenomenon is that some students have poorly understood the real requirements of this type of work and consequently of these programs. Also, students who lack the motivation and aptitude risk abandoning their studies and not receiving their diplomas. This challenge leads to the question of whether good candidates for the program are being recruited and selected and whether the organization of the program and pedagogical support offered to students is sufficient to encourage them to persevere in their studies and to attain the objectives of the program.

The rapid evolution to which computer science technology is subject requires that, in the evaluation of these programs, three issues be specifically taken into account.

The first issue concerns the relevance of the objectives and content of the programs. The development of computer science technology poses the problem of adapting programs to the unceasingly changing requirements of the industry. This realization leads to an examination of how institutions are determining and responding to this changing job situation and consequently modifying those aspects of the program which are outdated.

The second issue related to the rapid development of computer science technology concerns the evaluation of the type of teaching offered to students as well as the measures taken by institutions to ensure that teachers keep their knowledge up-to-date.

A third issue is posed by the quality and availability of the computer equipment used by institutions and the capacity to stay up-to-date with the needs of the industry.

## The process of self-evaluation

The process proposed by the Commission has two objectives. The first is to facilitate the accomplishment of the self-evaluation by identifying, for each of the aspects of program implementation, the information or data necessary in order to develop a judgment. The second is to permit the Commission, on the one hand, to have accurate information by which it is able to judge the implementation of the program in each institution, and, on the other hand, to obtain information which allows for comparisons of institutions such that it would be possible, where necessary, to make certain recommendations to the institutions or the Ministry.

After having consulted its Expert Advisory Committee on the evaluation of Computer Science programs, the Commission has selected five of the six criteria and nearly all of the relevant secondary criteria which were outlined in the General Guidelines.<sup>11</sup> Starting with those aspects of the programs implementation referred to by the secondary criteria, the institution gathers information to develop a judgment based on the comparison of the actual situation described and that expressed by the secondary criteria.

Unless it is otherwise indicated, only the concentration course component (25 courses comprising 63 1/3 credits) of the DEC program is the object of the self-evaluation required by the Commission. Nevertheless, nothing deters a college from including the general education component in the local evaluation -- just as any other aspect of the program, judged pertinent, can be included in the evaluation. In the cases of the CEC and AEC programs, all of the courses will be evaluated.

*The evaluation undertaken by the institution with the aid of the sixteen secondary criteria proposed by the Commission will serve to examine the implementation of the DEC program during the autumn 1993 semester and the winter 1994 semester. In general, the aspects of the program which ought to be evaluated are taken from the situation and results obtained during that academic year. If, for methodological or practical reasons, certain aspects of the program require a longer or shorter period of reference, this will be indicated in the presentation of the appropriate secondary criteria.*

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11. Because the secondary criteria of the General Guidelines were developed to be congruent with the collegial situation as intended in the Renewal, the wording of some of them has had to be modified to suit the situation of these three programs which will be evaluated according to the parameters of the former *régime pédagogique*.

*For the CEC and AEC programs, the same period of reference has been selected. However, if one or the other of these programs was not offered in 1993 - 1994, the institution should use the most recent previous two year period.*

The process of self-evaluation proposed in this Guide has four steps. First, the institution evaluates the program, secondary criterion by secondary criterion, by following on each occasion, three successive steps : description, assessment and identification of actions foreseen. Having completed this exercise for all the secondary criteria related to a particular criterion, the institution will then evaluate the actual situation relevant to this criterion.

By way of synthesizing this evaluation, the institution will determine the strengths and weaknesses which best seem to characterize the implementation of the program.

### **The first step : the description**

To describe the situation and the means used for implementing aspects of the program, the institution should gather, organize and present information referred to by the secondary criteria.

The description of the means generally concerns two aspects of the responsibility of each institution : the first is related to the process employed to arrive at the situation described; the second bears on the manner used to assure that the aspects of the program referred to are adequately implemented.

### **The second step : the assessment**

In the second step of the evaluation, the institution assesses the success of the program's implementation from the perspective of those aspects of the program referred to by the secondary criteria. By using the secondary criteria, the institution develops a judgment of the situation described in the first step.

### **The third step : the actions foreseen**

In the third step, the institution describes the actions which it intends to take to improve the implementation of the program or to correct the gaps revealed by the previous step. This is an optional step; it allows the institution to inform the Commission of the measures it intends to take. On other occasions, in the course of the process of the program evaluation initiated by the Commission, the institution will have the opportunity to make known its views on areas for action, notably during the visit from the Expert Advisory Committee.

### **The fourth step : the overall judgment**

The final step of the self-evaluation consists of presenting an overall judgment of the institutional performance according to each of the criteria. The institution is requested to identify in a brief manner the strengths and weaknesses of the program in terms of each of the criteria and to make any comments which it deems appropriate and which it has not been able to develop elsewhere.

For each of the preceding four steps, the information which should be collated and analyzed is already available to the institution. Thus, the institution can describe its present situation and the means of implementation of the program by basing itself upon the course outlines, the workload of teachers by semester, the enrolment in courses, and various administrative documents. Moreover, the overall information required ought to be sufficient for the institution to be able to assess easily the strengths and weaknesses of each aspect of the implementation of the program. For the present self-evaluation, the Commission does not expect that institutions will undertake a collection of data from external sources, such as employers or graduates.

## **The completion of a self-evaluation**

This section of the Guide provides institutions with the information necessary for the completion of their self-evaluation. The criteria and the secondary criteria which are associated with them are described and clarified in terms of the scope accorded to them.

Whenever necessary, instructions are provided to the institution about the information which it will have to gather and about the analysis required in order to develop its assessment.

For each of the secondary criteria which will be used for the evaluation of one or several aspects of the implementation of the program, the Commission is offering the institution a format for presentation of information, for assessment, and for describing, when necessary, the actions foreseen. These formats for the presentation of the information have been developed so that the institution is able to describe each aspect of the implementation of the program and to offer its judgment about which facts appear to be significant. In order not to prolong this Guide unnecessarily, each of the tables and blocks comprising the formats has been reduced to its simplest form. For this reason, the Commission is offering institutions a diskette containing the presentation formats and providing all the space necessary for the completion of the self-evaluation. This diskette is attached to the copy of the Specific Guide which has been forwarded to each institution's academic administration.

In order to facilitate the drafting of the self-evaluation reports and the analysis which the Commission will later make, it is expected that institutions will respect the model which follows.

The self-evaluation report required by the Commission consists of three sections.

In the first section, the institution briefly describes the program. Here the principal characteristics of the program should be brought forth while emphasizing the data and variables which will not be dealt with elsewhere in the self-evaluation report. These data and variables could constitute : the date of implementation of the program; previous and present student enrolment full-time and part-time and its characteristics (age, gender, academic background, etc.); the place of the program in the mission and the priorities of the institution; perspectives on short and medium term development.

In the second section, the institution will briefly present the process followed to complete the self-evaluation. Here would be found the description of the principal responsibilities assumed by those preparing the self-evaluation, an outline of the consultations undertaken as well as a description of the methodology used.

The third section of the report contains the results of the self-evaluation, and fundamentally it consists of the formats for presentation of information which have been completed by the institution.

The institution will append to the end of its report all the documents required by the Commission.

Even if, for certain aspects of their implementation, the DEC, CEC and AEC programs appear similar, the Commission requires separate reports for each of them. In addition, the self-evaluation reports submitted to the Commission should have been previously officially accepted by the institution.

## **Criterion 1**

### **The Relevance of the Program**

The criterion of relevance seeks to establish the relation between the objectives of the Computer Science programs and the educational and socio-economic needs to be satisfied. At the same time, it seeks to make known the manner in which the program, through its objectives and content, promotes the integration of graduates into the work force.

In the case of the DEC program, the Commission is not evaluating the relevance of the objectives set by the Ministry, but it is gathering comments from the colleges. On the other hand, when, in the implementation of the program, the objectives have been adapted and enriched to respond to local institutional conditions, the Commission will evaluate the relevance of these objectives as the institution has adapted them. This procedure also applies to the CEC and AEC programs.

The secondary criterion taken from the General Guidelines :

**- The objectives and content of the specific program component (concentration courses) satisfactorily respond to the expectations and needs of the labour market (secondary criterion 1.1).**

**The objectives and content of the specific program component (concentration courses) satisfactorily respond to the expectations and needs of the labour market (secondary criterion 1.1)**

This secondary criterion seeks to determine the institution's point of view regarding the appropriateness of the programs' objectives, as determined by the Ministry, to the expectations, and the present and anticipated needs of the labour market. Similarly, it seeks to examine the appropriateness of the objectives of the concentration course component of the program, as they are adapted and implemented by the institution, and to determine the way in which graduates have succeeded in entering the work force. The qualifier "satisfactorily" should be understood in a relative sense which takes into account economic circumstances, the average situation of computer science graduates across the college network and, if appropriate, the rate of graduate placement that the institution deems acceptable.

To support its assessment, the institution should pay particular attention to : a) the objectives of the specific program component (concentration courses) as they have been adapted in local implementation of the program; b) the expectations and needs of the industry as the institution perceives them or, when possible, as expressed by employers; c) the situation and, when possible the points of view of graduates in the work force.

## **Description**

### **A. The Situation**

1. Present a numbered list of the general program objectives as pursued at your institution. If appropriate, indicate and justify the modifications that your institution has brought to the objectives fixed by the Ministry.
2. Present, if already known, the expectations and needs of the labour market to which the program seeks to respond.
3. Present, if already known, the situation of program graduates in the work force during the previous three years, noting the rate of placement, the type of jobs taken and their relation to the education received.

## **B. The Means**

4. Present, if appropriate, how the expectations and needs of the labour market are determined.
5. Present, if appropriate, how the point of view of program graduates is known.

## **Assessment**

6. What are your comments on the relevance of the objectives and content of the program which have been determined by the Ministry?
7. What assessment do you make of the congruence between the objectives of the program as implemented and the needs and expectations of the labour market? On what is your assessment based?

## **Actions Foreseen**

- 8.

## **Documents to append**

If appropriate, the results of needs-assessments and employer satisfaction studies relative to the program.

Information about the integration of program graduates into the work force during the past three years.

**Overall assessment of the relevance of the program**

Assess the relevance of the program by presenting a brief list of strengths and weaknesses.

**Strengths**

**Weaknesses**

**Other Comments**

## Criterion 2

### **The coherence of the program**

A program consists of a plan for training, and it is essential that considerable coherence is present among the various elements of that plan. In order to have a program of quality, the objectives and content of learning activities which comprise the program must directly arise from the general objectives; the learning activities must be developed in logical sequences and the requirements appropriate to each of the learning activities must be established in a clear and realistic manner, taking into account the time foreseen for their achievement.

The expression "learning activities" is used here to denote courses offered in a variety of formats (lectures, laboratories, workshops, seminars, work placement, etc.).

Secondary criteria taken from the General Guidelines :

- **The program consists of a group of learning activities, the objectives and content of which are developed as an extension of the general program objectives, and in a manner which permits the attainment of those objectives (secondary criterion 2.2)**
- **The learning activities are ordered in a logical manner and the sequences of learning activities facilitate the in-depth development and synthesis of the program's content (secondary criterion 2.3)**
- **The student work requirements arising from each learning activity are established in a clear and realistic manner; these work requirements are accurately reflected in the course outlines and in the course weighting (time allotted) (secondary criterion 2.4)**

**The program consists of a group of learning activities, the objectives and content of which are developed as an extension of the general program objectives and in a manner which permits the attainment of those objectives** (secondary criterion 2.2)

This secondary criterion seeks to determine to what extent the objectives and content of the courses, which comprise the specific program component (concentration courses), derive from the general objectives.

First, the institution is requested to complete a table which allows one to visualize how this principle is realized in its particular program. The institution is then asked to consider how the part of the program left to the choice of the institutions has succeeded in providing the program with the desired orientation, and if the courses chosen by the institution and those imposed by the Ministry constitute a coherent grouping and are clearly related to the general program objectives.

## **Description**

### **A. The Situation**

9. The following table is intended to determine, for the program as it has been implemented by your institution during the academic year 1993 - 1994, the general objectives aimed at by the different courses. In the case of the DEC, only the specific program component (concentration courses) is dealt with.

To complete this table :

- in the left column identify the courses by their number and title;
- for each course, in the right hand column, check the general program objective(s) which are met by this course; these general objectives are represented by numbers which should correspond to those you have already attributed to them in secondary criterion 1.1.

N.B. In the case of the DEC, it is possible that certain general objectives would be met by the general education component of the program and consequently would only be partially attained here.

**Table of relationships between the specific program component  
(concentration courses)  
and the general objectives of the program  
as it has been implemented at your institution  
in the academic year 1993 - 1994**

Courses (No. & Title)	General Program Objectives aimed at by the course														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Courses imposed by the MEQ															
2. Courses chosen by the establishment															

**B. The Means**

10. Explain the criteria used to select the courses which are chosen by the institution. In the case of the DEC and the CEC, this group consists of 12 credits out of the 63 1/3 credits of specific program component (concentration courses) and in the case of the AEC, there are six courses chosen by the institution.

**Assessment**

11. Is the particular orientation developed by your college consistent with the general objectives? Do the courses imposed by the Ministry and those you have chosen form a coherent whole? Are their objectives and content related to the general program objectives?

**Actions foreseen**

- 12.

**The learning activities are ordered in a logical manner and the sequences of learning activities facilitate the in-depth development and synthesis of the program's content** (secondary criterion 2.3)

A supplement to the *Cahiers de l'enseignement collégial* suggests a "grid of courses by semester" for the different programs which lead to a DEC. Institutions are entirely free to accept this proposal, made with the intention of facilitating local administration of the programs, just as they are also free to adopt whatever sequence they wish in the programs leading to a CEC or an AEC. In order to be in a position to evaluate a program as it is offered, a certain amount of information about the sequence in which learning activities are offered is required. More particularly, the institution must present the sequence chosen, indicate the means used to establish it, and present its own evaluation of the sequence selected. This information will allow for verification of how the ordering of learning activities provides for an integrated and progressive character to the program, and to what degree the in-depth development and synthesis of the material in the courses is made possible.

## **Description**

### **A. The Situation**

13. Briefly explain the course sequence adopted for the academic year 1993 - 1994 (the sequence of courses for each semester, pre-requisites, etc.). If possible, present the changes which have been made to the course sequence in the past three years.

### **B. The Means**

14. Describe the means employed to adopt the sequence of learning activities and, when applicable, its modification (e.g. consultation with faculty, study of student workload, consultation with industry, creation of a special committee).

## **Assessment**

15. Are the learning activities well sequenced and harmonized from the beginning to the end of the program?

## **Actions foreseen**

16.

## **Document to append**

The course sequence for the academic year 1993-1994 and, if available, the one used in the previous two years.

*The student work requirements arising from each learning activity are established in a clear and realistic manner; these work requirements are accurately reflected in the course outlines and in the course weighting (time allotted) (secondary criterion 2.4)*

The coherence of a program should also appear in the workload required of students; this is the intention of this secondary criterion. This criterion should permit identification of the work required for each learning activity related to the program and should establish the means used by the institution to determine and assure that these work requirements are present in the course outlines and, thus, in fact. Finally, the assessment of the institution should allow it to determine the realism and explicitness of the work required.

## **Description**

### **A. The Situation**

17. Using the following grid, specify for the year 1993 - 1994, the amount of work required of students in each of the courses in the specific program component (concentration courses) (DEC) and in all of the courses (CEC and AEC). In the case of the DEC, prepare a table for each of the six semesters of the program and, in the case of the CEC and AEC, for each of the semesters of the program.

Session No :				AMOUNT OF STUDENT WORK REQUIRED		
Course (No & Title)	Weekly time allotted by the course (in hours)			Nature of personal work required as per the detailed course outlines		
	As per the Cahiers de l'enseignement collégial	As per detailed course outlines				
Total (in number of hours)						

### **B. The means**

18. Present the procedure followed in your institution in order to 1) determine the work requirements of the learning activities and their weighting (time allotted) and 2) ensure that these work requirements are translated into the course outlines and correspond in fact to time allotted.

19. Indicate the mechanisms envisaged to assure a balancing of all the requirements of various teachers in the area of personal work.

### **Assessment**

20. What assessment do you make of the work requirements which must be met by the students, notably from the perspective of their clarity and of their realism as well as the workload balance from one semester to the next? Does this assessment take into account the opinion of the students?

### **Actions foreseen**

- 21.

**Overall assessment of the coherence of the program**

Assess the program by presenting a brief list of its strengths and weaknesses.

**Strengths**

**Weaknesses**

**Other comments**

### Criterion 3

#### **The value of pedagogical methods and support of students**

The phrase "pedagogical methods" refers to the variety of teaching methods employed to achieve the objectives of the program. Two types of decisions concerning the choice of pedagogical methods and student support can be distinguished. Certain decisions touch upon the totality of the program; they underline the importance accorded to various aspects of the program such as the work placement or laboratories or the overall strategies such as Co-op training. Other decisions are more related to particular learning activities. The former require the cooperation of all individuals locally responsible for the program, whereas the latter fall within the control of the faculty.

This criterion seeks to assess pedagogical methods and the support offered to students. It concerns 1) their characteristics and the justification on which they are based and 2) the measures which led to their establishment and which assure their appropriateness to the program, the courses and the characteristics of the student population.

Secondary criteria taken from the General Guidelines :

- **The pedagogical methods are adapted to the objectives of the program and of each course, and take into account the characteristics of the students in a way which allows them to achieve these objectives (secondary criterion 3.1)**
  
- **Counseling, support and follow-up services as well as measures to detect learning difficulties allow students to succeed in their studies (secondary criterion 3.2)**
  
- **The availability of faculty allows them to respond to the students' needs for support (secondary criterion 3.3)**

*The pedagogical methods are adapted to the objectives of the program and of each course, and take into account the characteristics of the students in a way which allows them to achieve these objectives* (secondary criterion 3.1)

More than one pedagogical method can be chosen for teaching a course : algorithmic, audio-visual or participatory methods, individualized teaching, lecture courses, use of other new strategies for teaching, etc. The methods of teaching are chosen and structured in function of their congruence with the program and course objectives, as well as the characteristics of the student population. It is also important to evaluate the pedagogical support offered to students, to understand the methods used -- why and how they were chosen and what assessment the institution makes of them.

In addition, agreement within an institution may have led to an overall strategy for teaching a program or an agreement on the relative importance of certain aspects of the program, for example work placement or laboratories. If such is the case, it will be possible to emphasize these facts here.

## **Description**

### **A. The Situation**

22. Present the principal pedagogical methods and strategies employed in the program, emphasizing practices which are original or unique.

### **B. The Means**

23. Present the procedure for choosing pedagogical methods, for evaluating their effectiveness, and for undertaking correctives, where necessary.

## **Assessment**

24. Do the pedagogical methods used seem adequate, effective, and sufficiently diversified, taking account of the course and program objectives and the characteristics of the student population?

## **Actions foreseen**

25.

*Counseling, support and follow-up services as well as measures to detect learning difficulties allow students to succeed in their studies* (secondary criterion 3.2)

Support services for students can improve the success rate in courses. These services seek to facilitate students' integration into the college milieu and to reduce the number of failures and withdrawals.

## **Description**

### **A. The Situation**

26. Present the diagnostic, support and follow-up services offered to students in difficulty in order to help them succeed in their studies. Also, present the services which are available to the general student population to encourage their perseverance and success in their studies.

### **B. The Means**

27. Describe the methods used to determine the needs of students for learning support services and to encourage them to use the services offered.

## **Assessment**

28. What assessment would you make of the impact that learning support services have had on student perseverance and success?

## **Actions foreseen**

29.

## **Documents to append**

If applicable, the policies and documentation outlining the diagnostic and support measures adopted by the institution.

*The availability of faculty allows them to respond to the students' needs for support*  
(secondary criterion 3.3)

This secondary criterion seeks to establish the availability of faculty, the means put in place to promote support for students and the institution's judgment of this situation.

## **Description**

### **A. The Situation**

30. Indicate the number of hours per week, on average, which each faculty member gives to working with students outside of class time.

### **B. The Means**

31. Present the methods used to promote and assure the availability of faculty and to make this availability known to students.

## **Assessment**

32. Does the availability of faculty seem sufficient and adequate in order to meet the students' need for support?

## **Actions foreseen**

33.

## **Documents to append**

If applicable, the institutional policy, rules or directives which regulate the availability of computer science faculty outside of class time.

## **Overall assessment of the value of pedagogical strategies and support for students**

Assess the pedagogical strategies and support offered in the program by preparing a brief list of strengths and weaknesses.

**Strengths**

**Weaknesses**

**Other comments**

## **Criterion 4**

### **The adequacy of human, material and financial resources**

The quality of a program is directly dependent upon the human, material and financial resources allocated to it. Without motivated and competent teachers, without efficient support staff, without adequate and good quality material resources, it is not possible to offer quality teaching.

The evaluation of the adequacy of human resources considered here involves faculty and support staff dealing with the specific program component (concentration courses) in the computer science program 420.01 or the group of courses in the Programmer/analyst certificate 420.52 and the Micro-computer Technology attestation 901.91. The evaluation of the adequacy of material resources deals with the space, computer science equipment and financing available for these programs.

Secondary criteria taken from the General Guidelines :

- **The number and quality of teachers are satisfactory and their areas of competency are sufficiently diverse to ensure attainment of program and course objectives (secondary criterion 4.1)**
- **The number of support staff is sufficient and they possess the qualifications necessary to respond to the needs of the program (secondary criterion 4.2)**
- **The motivation and competence of faculty are maintained and developed by employing, among other means, well-defined procedures of evaluation and professional development (secondary criterion 4.3)**
- **The space and equipment are appropriate in quantity, quality and accessibility and the financial resources are sufficient to assure the good functioning of the program (secondary criterion 4.4)**

**The number and quality of teachers are satisfactory and their areas of competency are sufficiently diverse to ensure attainment of program and course objectives** (secondary criterion 4.1)

This secondary criterion requires the institution to provide information about the number and qualifications of faculty assigned to teach the specific program component (concentration courses) in the DEC program and the courses in the shorter programs (CEC and AEC). Also, the institution is expected to demonstrate that the competency of the faculty, as well as the assignment of their workload, serve to ensure that the course and program requirements are met.

**Description**

**A. The Situation**

34. Present how faculty, according to their employment status in 1993-1994, were assigned to teach the concentration courses in the Computer Science program or the courses in the Programmer/analyst certificate or the Micro-computer Technology attestation.

<b>Status</b>	<b>Number of persons</b>	<b>Full-time Equivalent</b>
Full-time		
Part-time		
Hourly		
<b>Total</b>		

35. In an appendix, present data on the education, experience and workload of the faculty assigned to teach the specific program component (concentration courses) in the Computer Science program or the courses in the Programmer/analyst certificate or the Micro-computer Technology attestation in 1993-1994.

Use one page per person and provide for each person the following information :

- the degree(s) held and the year they were awarded
- any degree program being taken and the probable date when the degree will be granted
- the number of years of work experience other than in teaching
- the number of years of teaching experience
- work placement and professional development activities undertaken in the previous three years
- research activities undertaken in the previous three years
- workload in the program (course taught or other tasks -- be specific) in the year 1993-1994
- the number of students encountered weekly (on average) in satisfying the workload previously described
- any other relevant information

Present this data in the table which follows (use one line per person)

Classification		Number of teaching hours per week, in each semester (average)	Number of courses taught in each semester (average)	Number of students encountered weekly (average)	Research activities in computer science during the last three years		Education/ Training activities in computer science during the last three years	
Education	Experience				yes	no	yes	no

**B. The Means**

36. For each semester, present the criteria used and indicate how the course allocation among faculty in the program is carried out.

### **Assessment**

37. To what extent do the number and quality of faculty and the diversity of their areas of competency allow the program and course objectives to be obtained? If appropriate, present any problems encountered.

### **Actions foreseen**

- 38.

### **Documents to append**

Data on the education, experience and workload of faculty who are teaching the specific program component (concentration courses) in the Computer Science program and the courses in the Programmer/analyst certificate and the Micro-computer Technology attestation in 1993-1994.

**The number of support staff is sufficient and they possess the qualifications necessary to respond to the needs of the program** (secondary criterion 4.2)

Using this secondary criterion, the institution should indicate the number and qualifications of support staff (technicians for practical work, technicians assigned to laboratory support, laboratory attendants) assigned to the program. The institution is called upon to assess the contribution of this personnel category.

### **Description of the situation**

39. Indicate the number of full-time and part-time support staff assigned to the program, and indicate in full-time equivalence the workload of these individuals in the program.

Number of people \_\_\_\_\_

Full-time equivalence \_\_\_\_\_

40. Present the workload of the technical support staff assigned to the program according to the type of activities they undertook in 1993-1994.

<b>Type of activities</b>	<b>Amount of time, per week, dedicated to an activity by all support staff assigned to the program</b>
Direct support of teaching	
Support to faculty or others for research,	
Operating and maintenance of equipment	
Other activities, specify :	

### **Assessment**

41. Considering the needs of the program, are the number and qualifications of support staff adequate?

### **Actions foreseen**

42.

**The motivation and competence of faculty are maintained and developed by employing, among other means, well-defined procedures of evaluation and professional development** (secondary criterion 4.3)

This secondary criterion treats the procedures of evaluation and professional development as important means of recognizing, maintaining, and developing the motivation and competence of faculty. This secondary criterion intends that the institution will describe its evaluation and professional development procedures as well as other methods of recognition which affect the program's faculty. After this description, the institution will assess the value of its procedures and their implementation.

### **Description**

#### **A. The Situation**

43. Describe the measures, rules or procedures which regulate the evaluation of faculty teaching in the program.
44. Describe the measures, rules or procedures which regulate the professional development of faculty teaching in the program.
45. If applicable, describe the measures for recognition which may benefit faculty teaching in the program. These could consist of any form of recognition of excellence, encouragement to participate in academic management, the maintenance of relations with other institutions or with the industry, etc. Indicate in what ways the institution encourages and supports such measures and activities.
46. Identify the professional development activities undertaken by the program's faculty in the previous three years (1991-1992, 1992-1993, 1993-1994).

<b>Title of the activity</b>	<b>Length of the activity in hours</b>	<b>Number of participants</b>

**Assessment**

47. What is your assessment of the value of present procedures for evaluation and professional development, as well as any other measures for recognition of faculty teaching in the program? What are the most significant results from these procedures?

**Actions foreseen**

- 48.

**Documents to append**

If appropriate, the policies and documents concerning the evaluation and professional development of faculty.

**The space and equipment are appropriate in quantity, quality and accessibility, and the financial resources are sufficient to assure the good functioning of the program** (secondary criterion 4.4<sup>12</sup>)

This secondary criterion is intended to present the computer science equipment - hardware and software - and the financing available to the institution for the offering of the program. The institution will also assess the space and equipment and the adequacy of the financing, in terms of the requirements of the program and the number of students enrolled.

### **Description**

#### **A. The Situation**

49. Develop and inventory of the principal hardware and software used in the program (if applicable, note unique aspects of program implementation such as local networks, access to external services, etc.) which were at the disposal of the institution in the academic year 1993-1994.

<b>Equipment</b>	<b>Description</b>	<b>Quantity</b>	<b>Other characteristics</b>

#### **B. The Means**

50. Describe how your institution guarantees that computer science equipment is available to the program's students (hours that the laboratory is open, monitoring, technical and pedagogical help).

### **Assessment**

51. Does the space, equipment and financing available seem sufficient to meet the requirements of the program?

---

12. The secondary criteria 4.4 and 4.5 of the General Guidelines have been redeveloped as a single secondary criterion.

## **Actions foreseen**

52.

## **Documents to append**

If available :

- a five year investment plan
- a program of equipment maintenance
- agreements with business or other organizations for equipment gifts, loans, or sharing, or for the financing of training activities or research.

## **Overall assessment of the adequacy of human, material and financial resources**

Assess the human, material and financial resources used in the program by preparing a brief list of strengths and weaknesses.

**Strengths**

**Weaknesses**

**Other comments**

## **Criterion 5**

### **The Effectiveness of the program**

The criterion of effectiveness assumes major importance in an evaluation inasmuch as it reflects the degree to which the program's objectives are achieved. It serves to establish if, in the short term, the program is producing the desired results, i.e. if, at the end of students' collegial studies, they are attaining the desired mastery of the knowledge and skills sought by the program.

This criterion invites the college to consider the students at the moment of their enrolment in the program, to examine the methods used for the evaluation of their learning and to reflect upon their success rate. The evaluation of the effectiveness of the program deals not only with the quality of the education given to graduates, but also with the institution's capacity to support the success of those students who are admitted to the program.

Secondary criteria from the General Guidelines :

- **The measures for recruitment, selection and integration ensure the development of a group of students capable of succeeding in the program (secondary criterion 5.1)**
- **The methods and instruments used for the evaluation of student learning in the program provide adequate evaluation of the achievement of course and program objectives (secondary criterion 5.2)**
- **The success rate in courses is satisfactory (secondary criterion 5.3)**
- **Taking account of the students' organization of their program of studies and their characteristics, an acceptable percentage of them are completing the program in a reasonable amount of time (secondary criterion 5.4)**
- **The graduates satisfy the agreed upon requirements for achievement of the various objectives of the program (secondary criterion 5.5)**

**The measures for recruitment, selection and integration ensure the development of a group of students capable of succeeding in the program** (secondary criterion 5.1)

This secondary criterion seeks to evaluate how institutional practices in the areas of recruitment, selection and integration of students affect success rates in the program. More precisely, it seeks to understand the procedure used by the institution to determine the student clientele for the program, the manner in which the institution responds to the characteristics of this clientele in order to promote its integration and success from the point of entry into the program, and finally the institution's assessment of the impact of these procedures which it has implemented.

**Description**

**A. The Situation**

- 53. Describe the procedure or measures used to determine the student clientele, i.e. the measures for recruitment and selection (e.g. admissions requirements, quotas, etc.).
- 54. If applicable, describe the measures used for orientation and integration of students into the program. Specify for whom these measures are designed and what their impact is on that clientele.
- 55. For the DEC program, describe the characteristics of the applicants and the clientele enrolled for the first time in autumn 1991.

<b>Background of the students</b>	<b>Number of applications</b>	<b>Number of registrations</b>	<b>Percentage of registrations</b>
Directly from Secondary School			
- having a DES			
- lacking a DES			
- lacking prerequisites			
Directly from other college programs			
Returning to studies			
Other			
Total			

56. For the registrants on the preceding table who come from secondary school and who have used a regional admission service provide the following percentages :

	<b>Percentage of registrants</b>	
Admitted in the first round		
Admitted in the second round		
Admitted in the third round		
Final average in secondary school (average and % having more than 60 %) as has been calculated by the regional admissions service		

**B. The Means**

57. Describe the means used by your institution to develop measures for the integration of students; how were students identified and supported and what follow-up was done to ensure the application of these measures?

**Assessment**

58. How do the institution's recruitment, selection practices and rules promote the success of students in the program?

59. How effective are the orientation and integration measures in promoting the students' success in the program?

**Actions foreseen**

60.

**The methods and instruments used for the evaluation of student learning in the program provide adequate evaluation of the achievement of course and program objectives** (secondary criterion 5.2)

The use of this secondary criterion allows the institution to assure itself that the grades received by the students appropriately reflect the degree to which the objectives pursued in the course have been attained. The methods and instruments used in each course should provide adequate and equitable measurement of the attainment of the course's intended objectives.

The practices of evaluation in each course should be consistent with the institutional Policy on the Evaluation of Student Achievement. In examining these practices, the institution is thus evaluating the application of its Policy on the Evaluation of Student Achievement.

In order to make this evaluation less onerous, it is proposed the institution apply secondary criterion 5.2 to only certain courses. For the Computer Science and the Programmer/analyst programs, the courses used will be 420-101-90 *Programming I*, 420-201-90 *Programming II* and 420-331-90 *Operating Systems*. For the Micro-computer Technology program the evaluation will use the courses 420-101-90 *Programming I* and 420-531-90 *Telecommunication and Computer Networks*.

## **Description**

### **A. The Situation**

61. Describe the methods and instruments used for the evaluation of learning :

- A- For the program Computer Science 420.01 and Programmer/analyst 420.52 :  
For each of the following courses : 420-101-90 *Programming I*, 420-201-90 *Programming II* and 420-331-90 *Operating Systems*, describe the learning which is the object of evaluation and the methods and instruments used.
  
- B- For the program Micro-computer Technology 901.91  
For each of the following courses : 420-101-90 *Programming I*, 420-531-90 *Telecommunication and Computer Networks*, describe the learning which is the object of evaluation and the methods and instruments used.

## **B. The Means**

62. Describe how the institution assures that the methods and instruments used for evaluation of learning in these courses adequately evaluate the attainment of the objectives and are equivalent if the course is taught by several teachers in the same semester.

### **Assessment**

63. What is your assessment of the methods and instruments used for the evaluation of learning in these courses? Has the intended learning been evaluated? Are the methods and instruments of evaluation consistent with what is intended in the institutional Policy on the Evaluation of Student Learning?

### **Actions foreseen**

- 64.

### **Documents to append**

The detailed course outlines for the year 1993-1994, as well as a copy of the instruments of evaluation and their correction for the courses 420-101-90 *Programming I*, 420-201-90 *Programming II* and 420-331-90 *Operating Systems* or 420-531-90 *Telecommunication and Computer Networks*.

**The success rate in courses is satisfactory** (secondary criterion 5.3)

This secondary criterion seeks to evaluate the success rate of students in the specific program component (concentration courses). The "success rate" is understood as the relation between all the students who pass a course and the total number of registrants in the course. To assess the "satisfactory" nature of the "success rate" the institution is asked to consider certain points of comparison, such as, a fixed objective for success, the results in other programs offered by the college etc.

**Description**

**A. The Situation**

65. For the Computer Science program 420.01 and Programmer/analyst program 420.52 present the success rate (in %) of students enrolled in the following courses since 1990.

<b>Courses</b>	<b>1990-1991</b>	<b>1991-1992</b>	<b>1992-1993</b>	<b>1993-1994</b>
201-122-90				
201-257-90				
350-905-90				
401-103-90				
420-101-90				
420-131-90				
420-201-90				
420-231-90				
420-301-90				
420-331-90				
420-401-90				
420-402-90				
420-411-90				
420-501-90				
420-531-90				
420-591-90				
420-601-90				
420-691-90				
602-910-90 or 604-317-90				

66. For the Micro-computer Technology program 901.91 present the success rate (in %) of students enrolled in the following courses since 1991.

<b>Courses</b>	<b>1991-1992</b>	<b>1992-1993</b>	<b>1993-1994</b>
420-101-90			
420-131-90			
420-201-90			
420-231-90			
420-331-90			
420-531-90			
420-742-91			

**B. The Means**

67. If applicable, describe the measures taken by the institution in the past three years to improve the success rate of students enrolled in the program.

**Assessment**

68. Taking into account the intended objectives, or the results observed in other programs or in other institutions, what is your assessment of the success rate of the students? Which courses present the greatest difficulty and why?

**Actions foreseen**

69.

**Taking account of the students' organization of their program of studies and their characteristics, an acceptable percentage of them are completing the program in a reasonable amount of time** (secondary criterion 5.4)

For reasons of convenience and methodology, it is proposed to limit the study to specific cohorts of students who have been enrolled in the program. A cohort is defined as a group of students enrolled in the program for the first time at the same given period. For the Computer Science program 420.01, the cohorts newly enrolled in September 1990 and September 1991 will be used. This will allow most institutions to study two cohorts. For the Programmer/analyst program 420.52 and Micro-computer Technology program 901.91, the institution, when it is possible, will analyze three cohorts. For the CEC program, cohorts of students enrolled full-time in the program since the academic year 1990-1991 should be used, while for the AEC, the cohorts of students enrolled full-time since September 1991 will be used.

## Description

### A. The Situation

70. Present data for the cohorts in Computer Science program 420.01.

<b>A - Progress of students during the number of semesters foreseen for the program (normally six semesters)</b>											
	Number of full-time registrants in the program : first session	Number of full-time registrants in the program : second session		Number of full-time registrants in the program : third session		Number of full-time registrants in the program : fourth session		Students having completed all the specific program component (concentration courses) in the program after six semesters		Students eligible for a DEC after six semesters of studies	
		Number	%*	Number	%*	Number	%*	Number	%*	Number	%*
<b>1990 Cohort</b>											
<b>1991 Cohort</b>											

<b>B - DEC awarded after more than six semesters</b>					
	Total number of students who have obtained, or are eligible to obtain, a DEC after seven semesters			Total number of students who have obtained, or are eligible to obtain, a DEC after eight semesters	
	Number	%*	Number	Number	%*
<b>1990 Cohort</b>					

\*The percentage is calculated in function of the number of registrants in the first semester.

71. Present data for the cohorts in the Programmer/analyst program 420.52 and Micro-computer Technology program 901.91.

	Number of full-time registrants in the program	Eligible for a CEC or AEC after the number of semesters foreseen by the program		Those students who lack two courses or less for the obtention of a CEC or AEC, after the number of semesters foreseen		Those students who lack three to five courses for the obtention of a CEC or AEC, after the number of semesters foreseen	
		Number	%	Number	%	Number	%
<b>Cohort A</b> School year 199_ - 199_							
<b>Cohort B</b> School year 199_ - 199_							
<b>Cohort C</b> School year 199_ - 199_							

**B. The Means**

72. Present the means used to encourage students to continue and to complete their studies in the program according to the program plans and within time frame anticipated.

**Assessment**

73. Is the percentage of students who complete the program in the anticipated time frame satisfactory? What are the reasons for the rate of withdrawal and how do you assess this situation, taking account of the characteristics of the students who are enrolled in the program? For the Computer Science program 420.01 and the Programmer/analyst program 420.52, in what way do the results shown here differ from those observed earlier (the program before 1990)?

**Actions foreseen**

74.

**The graduates satisfy the agreed upon requirements for achievement of the various objectives of the program** (secondary criterion 5.5)

According to the Cahiers de l'enseignement collégial, the programs *Computer Science* 420.01, *Programmer/analyst* 420.52 and *Micro-computer Technology* 901.91 contain courses which have as an objective the placement of students in actual work situations. These courses allow for integration and application of the knowledge acquired and of the professional skills developed.

For the programs, *Computer Science* 420.01 and *Programmer/analyst* 420.52, these courses have the numbers 420-591-90 and 420-691-90 *End of Studies Projects I* and *II*; for the same purpose, the program, *Micro-computer Technology* 901.01 uses the course 420-742-91 *Work Placement*. These courses, which in the programs' present forms serve as integrative activities, allow the institution to measure the students' achievement of the programs' objectives.

Institutions may have modified these courses. However, the general and specific objectives of these courses should not now be completely absent from the programs. This secondary criterion also intends that the institution evaluate the methods and instruments used to ensure the students' achievement of the educational objectives foreseen by the program. As in the application of the secondary criterion 5.2, secondary criterion 5.5 allows an institution to evaluate its implementation of the Policy on the Evaluation of Student Achievement.

## **Description**

### **A. The Situation**

75. For the courses : 420-591-90, *End of Studies Project I*, 420-691-90, *End of Studies Project II* and 420-742-91, *Work Placement*, describe and explain the methods and instruments of evaluation the institution uses to measure if students are achieving the program's objectives.

## **Assessment**

76. Do the practices used in the evaluation of student learning adequately serve to confirm that the students have achieved the objectives of the program? What difficulties are encountered?

## **Actions foreseen**

77.

## **Documents to append**

The detailed course outlines for 199-1994 as well as a copy of the evaluation instruments and their correction for the courses 420-591-90 *End of Studies Project I* 420-691-90 *End of Studies Project II* or 420-742-91 *Work Placement*.

## **Overall assessment of the effectiveness of the program**

Assess the effectiveness of the implementation of the program by preparing a brief list of strengths and weaknesses.

**Strengths**

**Weaknesses**

**Other comments**

## **Overall assessment of the program**

In terms of the program evaluation, assess the strengths and weaknesses of the program and its implementation at your institution. Identify three elements considered to be strengths and three weaknesses.

## APPENDIX 1

### Members of the Expert Advisory Committee

<b>Name</b>	<b>Function</b>	<b>Organism</b>
Louis Roy	Commissaire	Commission d'évaluation de l'enseignement collégial
Bernard Beauchemin	Directeur général des télécommunications	Gouvernement du Québec Conseil du Trésor
Robert Benoît	Directeur - Intégration de l'environnement informatique	Hydro-Québec
Bernard Boucher	Responsable de la coordination en informatique	Cégep de Jonquière
Gilbert F. Dupuis	Professeur au département d'informatique	Cégep de Maisonneuve
Romney Grenon	Professeur au département d'informatique	Cégep de Sainte-Foy
Jacques Larivée	Conseiller pédagogique	Cégep de Rimouski
Pierre Lemonde	Premier vice-président systèmes et technologie	Le Groupe Commerce Compagnie d'assurance
Jean-Yves Papillon	Professeur au département d'informatique	Cégep François-Xavier-Garneau
Alain Michaud	Directeur du Service de l'informatique	Ville de Rimouski
Maurice Morin	Président	Groupe informatique NIROM
Nicole Tremblay	Adjointe à la Direction des études par intérim	Cégep de Limoilou
Luc Vilandré	Directeur principal	Groupe I.S.T.
Claude Moisan	Coordonnateur de projet	Commission d'évaluation de l'enseignement collégial

#### **Research and Editing**

Francesco Arena  
 Claudine Audet  
 Pierre Côté  
 Raymond Labrecque  
 Claude Moisan  
 Yves Prayal

## APPENDIX 2

### List of establishments authorized to offer the Computer Science Programs in 1993-1994

List of establishments	The programs		
	DEC 420.01	CEC 420.52	AEC 901.91
<b>Public Sector</b>			
Cégep de l'Abitibi-Témiscamingue	X		X
Cégep Ahuntsic	X		X
Cégep d'Alma	X		
Cégep André-Laurendeau	X	X	X
Cégep Beauce-Appalaches	X	X	X
Cégep de Bois-de-Boulogne	X		X
Champlain Regional College - St. Lambert-Longueuil Campus - Lennoxville Campus	X X	X	
Cégep de Chicoutimi	X		
Dawson College	X	X	X
Cégep de Drummondville	X		
Cégep Édouard-Montpetit	X		
Cégep François-Xavier-Garneau	X	X	X
Cégep de la Gaspésie et des Îles	X		
Cégep de Granby Haute-Yamaska	X		
Heritage College	X		
John Abbott College	X		X
Cégep Joliette-De Lanaudière	X	X	X
Cégep de Jonquière	X	X	X
Cégep de La Pocatière	X		X
Cégep de Lévis-Lauzon	X	X	
Cégep de Limoilou	X		

- \* The gray areas identify the establishments and programs subject to the evaluation. According to the Ministry's statistics, these establishments have registered students :
- in the DEC in 1993-1994.

- in the CEC and AEC in 1993-1994 or during the two preceding years.

List of establishments	The programs		
	DEC 420.01	CEC 420.52	AEC 901.91

**Public Sector**

Cégep Lionel-Groulx	X		X
Cégep de Maisonneuve	X	X	X
Cégep Marie-Victorin			X <sup>1</sup>
Cégep de Matane	X		
Cégep Montmorency	X		X
Cégep de l'Outaouais	X	X	X
Cégep de la région de l'Amiante	X	X	X
Cégep de Rimouski	X		X
Cégep de Rivière-du-Loup	X		
Cégep de Rosemont	X	X	X
Cégep de Saint-Félicien	X		
Cégep de Sainte-Foy	X		
Cégep de Saint-Hyacinthe	X		X
Cégep Saint-Jean-sur-Richelieu	X		
Cégep de Saint-Jérôme	X		
Cégep de Saint-Laurent	X	X	X
Cégep de Sept-Îles	X		
Cégep de Shawinigan	X		
Cégep de Sherbrooke	X		
Cégep de Sorel-Tracy	X		
Cégep de Trois-Rivières	X	X	X
Cégep de Valleyfield	X		X
Vanier College	X	X	
Cégep de Victoriaville	X		X
Cégep du Vieux Montréal	X		X
<b>Private Sector Funded</b>			
Collège O'Sullivan de Montréal Inc.	X	X	

1. Cégep Marie-Victorin is authorized to offer programme 901.91 only in penitentiaries.

List of establishments	The programs		
	DEC 420.01	CEC 420.52	AEC 901.91

**Private Sector Not Funded**

Collège d'Informatique Marsan		X	X
Collège Delta		X	
ICD-Institut Carrière et Développement (Montréal)		X	X
ICD-Institut Carrière et Développement (Québec)		X	X
ICD-Institut Carrière et Développement (Laval)		X	
ICD-Institut Carrière et Développement (Longueuil)		X	
Informatique Multihexa Inc.		X	
Institut d'informatique de Québec		X	
Institut Demers Inc.		X	
Institut Herzing de Montréal Inc.		X	
<b>Total Authorizations</b>	<b>47</b>	<b>26</b>	<b>32</b>