VIA COURIER

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Mr. Lorne Thompson
Executive Director
Program Services Division
Ministry of Post Secondary Education
Parliament Buildings
Victoria, B.C.
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Dear Lorne:

Please find enclosed two copies of a new program proposal, Computer Information Communication Program. This program was identified in our 1985 Five Year Educational Plan Update as Visual Computer Literacy (Objective 2.1.4), and, as outlined in that plan, its need is supported by the labour market changes inherent in a transition to an information society. The program proposed is a certificate program that would be used primarily for upgrading and enhancing the existing skills that students will have and is, therefore, specifically oriented towards the transformation in the workforce.

Please feel free to contact Dr. Greg Lee, Dean of Career/Vocational Programs, should you wish additional information.

Yours truly,

Douglas K. Jardine
President

DKJ/bb
Att: Computer Information Communication Program Proposal (2)

Pres10/thomson5

Capilano College

THE COMPUTER INFORMATION COMMUNICATION PROGRAM

A CERTIFICATE PROGRAM PROPOSAL AT CAPILANO COLLEGE

PURPOSE AND BENEFITS

"The information revolution, a combination of massive increases in the world's inventory of information and the technical development of the means to cope with it, will, one way or another, affect every segment of our lives."....Richard Brightman.

Over the past decade the society has rapidly been swinging towards becoming an information society and economy. Within business, industry, and between governments, the capabilities to deal with information and its processing has been considered a competitive edge.

Until the beginning of the 1980's, there was a confidence that the private and public sectors would rely on either information systems departments or access commercially available information. Now it becomes increasingly obvious that the original client is, or will be, using individually controlled resources. These resources will be the microcomputer used both alone and connected to other microcomputers and mainframe systems. The use of this information becomes the new competitive edge.

In recognition of this, most major corporations have created information centres and created senior executive positions to manage the information resource. Small and medium size businesses cannot afford this luxury and must rely on their regular personnel to remain competitive. This program would give these skills to these persons.

Further, this feature of the new Information Society dictates that jobs change and people need retraining in new skills. The post secondary education system has not historically responded well to this need. The exception has been programs such as the Accelerated Business Program (Dogwood) at Capilano College. This proposed program would also meet this growing need for changing and enhancing career possibilities.

The purpose of "The Computer Information Communication Program" is to teach the student about electronic information age communications. It will provide skills to allow them to take advantage of the opportunities that the emerging technology is creating. To achieve this the student must develop relevant problem solving skills, understand how to prepare or access information, how to evaluate that information, how to select the appropriate electronic method for information transmission, how to prepare the layout and design of that information for dissemination and how to ultimately direct its storage and transmission. Because the use of computer graphics to enhance the information presentations is inevitable, these skills must be visual as well as textual.

These skills are the benefits that the student should realize from the program; but the benefits of the program will extend beyond this. As these new skills permeate the work place, they help to establish a new level, a new standard, a new capability and a new competitive edge for our society in general.

CURRICULUM

The curriculum would be divided into three semesters of fifteen weeks each. It would entail a total of eighteen credits (approximately 6 courses) per semester.

The semesters will be divided in the following manner:-

a) First semester: introduction, theory, foundation, and academic support courses.

b) Second semester: building and expanding the knowledge and skills of the first semester.

c) Third semester: applied communication development.

It is proposed that parallel to "The Computer Information Communication Program" commencement as a day program, an evening program would begin. The evening program would offer the full certificate program over a suggested three year period, at the rate of two courses per semester.

PREREQUISITES:-

1) A grade 11 algebra level (or equivalent). This can be waived if the student can show probable success without it.

2) Familiarity with the typing keyboard.

3) Ability to demonstrate maturity, interest and aptitude.

All potential students to the program will be interviewed.

Many students will have some of the skills identified in the curriculum. These students would be given either advanced standing, course exemption or alternative choices from other college offerings.

FIRST SEMESTER

SOCIAL CHANGE AND MODERNIZATION (3)

This course looks at the mechanisms, modes and variability of socio-cultural change that has been brought on by the impact of new information systems. The student will look at the merging technology and the evolving responsibilities that it carries.

DRAWING AND DESIGN (3)

The course objectives are to develop the students ability to think in visual terms. The student will be exposed to drawing and design using a variety of different media.

LAYOUT AND DESIGN (3)

This practical course will focus on the appearance, implication, appropriateness and organization used in contemporary design. The course will deal with the intellectual and manual skills needed for graphic problem solving.

WRITTEN COMMUNICATION (3)

The course is divided into two parts. The first deals with the basic command of standard written English. The second deals with strategies in finding information, focusing on a topic, organizing information, developing an idea, evaluating and revising, and summarizing written information. Attention will be given to writing for electronic communication.

INTRODUCTION TO COMPUTER PROGRAMMING (3)

This is a lab based course developing familiarity with micro-computers and the skills needed to do basic programming, program flowcharting and planning. The course has an emphasis towards interactive programming and additionally includes an introduction to computer graphics and graphic routines.

WORD PROCESSING AND DATA MANAGEMENT (1.5)

The basic logic and theory of word processing and data management. The students will receive hands on training. The training will include software handling and related equipment using non-dedicated systems.

INTRODUCTION TO COMPUTER SYSTEMS (1.5)

This is a lab based course that will use a variety of packages to introduce the student to computer operating systems, data files and process handling. The emphasis will be on attaining working familiarity with the operating systems and capabilities of microcomputers.

SECOND SEMESTER

COMPUTER GRAPHICS AND DESIGN (3)

This course builds on the courses "Layout and Design" and "Drawing and Design". The focus is on understanding and dealing with the opportunities and limitations of these principles as they relate to computer technology and information dessemination. The course will also deal with design software and input hardware.

PERCEPTION (3)

A look at human perception and perceptual behaviour; specific phenomena such as perceptual constancies, perceptual stimuli, creativity and levels of awareness. The course will ultimately examine the human response to and perception of computer information processing.

SOFTWARE EVALUATION AND COMPARISON (1.5)

The course will look at the evaluation of software; systems compatibility, implementation, sophistication levels, design and clarity, efficiency, documentation, support and value are some of the topics to be covered.

INFORMATION AND INSTRUCTIONAL DESIGN (3)

This course deals with the structure of information for effective dissemination and with the theory, logic and design of instructional systems.

SMALL SYSTEMS DOCUMENTATION AND PUBLISHING (1.5)

A hands on practical course in which the student will cover the hardware and software that is used in in-house publishing. The course will cover electronic layout and design, text file transfer, graphic insertions and laser printing.

COMPUTER PROGRAMMING II (3)

This course builds on the first computer programming course. Included in this course is more advanced programming, more advanced graphics and their integration into the communications process. Special emphasis will be placed on program planning, storeyboarding and flowcharting. Additionally, the course will cover synthetic voice and the integration of a variety of visual support materials (such as slides, graphic material, etc.) into program use.

RESEARCH TECHNIQUES (3)

This course provides training in the major aspects of the research process; including research design, data collection, data processing, data analysis, presentation of findings.

THIRD SEMESTER

COMPUTER ASSISTED INSTRUCTION (C.A.I.) (3)

The course will look at the rudiments of C.A.I. programming. Special emphasis will be placed on the creation and testing of instructionally sound programs, and the editing and adaptation of prepared materials.

NETWORK COMMUNICATIONS AND TELEMATICS (4.5)

This course offers a practical approach to data communications. The topics covered are transmission, network architectures. Particular attention is given to microcomputers and their role. The courses focus is on the transmission of voice, data and images on local and wide area systems.

COMPUTERS IN RESEARCH (3)

This course is an extension of "Research Techniques" and deals with the use and application of computers and data banks in research.

VIDEOTEX (4.5)

This course deals with the use and application of videotex systems; it is a hands on course in which the student will be producing concepts and generating pages for transmission using existing standards.

ENTERING THE WORK PLACE (1.5)

This course will deal with the student finding work in the work place. Some of the topics covered will be a look at the market, marketing ones talents, preparation of a portfolio, the job interview, organizational behavior, a look at the future and its new technologies.

THE PROGRAM LENGTH

The length of the program will be three semesters. The reasons for the time lines are as follows:-

It was the appropriate length of time in which to direct the studies previously described.

Additionally:

Should newly graduated students wish to acquire the additional skills that the program offers, one additional year should provide the skills to complement existing training.

The segment of the population returning to college for purposes of retraining (either on leave or unemployed) have indicated a preference for shorter more intense instruction periods. This is because: (1) economically it is advantageous, (2) government assistance seems to be slanted towards this time period and (3) the minimum time away from one's career the better. This time period has proven successful in other similar programs.

One of the more important groups of people that the course is directed to are those who will wish to maintain their employment status while studying to accommodate the transition to the evolving information society. It was felt that access to the complete program over a period of three years was an attainable goal. (Spreading the full curriculum over three years of three semesters each year allows evening student carrying two courses per semester to complete the program in three years>)

TYPES OF STUDENTS

Unlike traditional career programs which appeal to and train students for a specific trade or career, "The Computer Information Communication Program" is designed to appeal to a broad base of students already possessing career skills. These students can be categorized generally as follows:-

1. Presently employed people wishing to expand their employable worth and/or simply wishing to participate in the high-tech revolution.

2. Presently unemployed persons wishing to add to existing skills and experience, or apply new direction to old skills, thus providing them with greater employment potential.

3. Students just graduated from other career programs but wishing to expand their career potential.

The skills, professional training and background that the student might bring to this program is potentially quite varied and the intent is to build upon these skills to increase their career potential.

BUDGET

NON RECURRING COSTS (START UP COSTS):-

CAPITAL

Work Stations	20 @	$3000	$60,000.00
Graphic Tablets	10 @	$ 500	5,000.00
Laser printer			5,000.00
Network system			6,500.00
Image digitalizer			4,000.00
Image recorder			4,000.00
Plotter			5,000.00
Modems	4 @	$ 200	800.00
Software			8,100.00
Harddisc			1,000.00
Mice	10 @	$ 150	1,500.00
Furniture			4,000.00
Electrical/Installation			4,000.00
			108,100.00
DEVELOPMENT			15,000.00
		TOTAL STARTUP	$123,100.00

ANNUAL OPERATING COSTS

Comparison with other related programs (Media Resources [3313], Journalism [3311], Applied Communication [3310], Commercial Art [5117], Computer Systems [3510]) would indicate that a program weight of 1.6 is appropriate. The class size would be 20.

The program duration is not yet detailed and without development cannot be finalized. Based however on 18 college credits per semester and on the expectation that about half of the courses will require labortory work, the program hours would be 1215 over three semesters. The program duration therefore would be 2.0 and the Support Duration would be 1.5 (45 weeks).

In order to offer the program part time over a four year period, an additional five seats (FTE) are requested.

This would result in, for 1987/88, the following allocation:-

FTE	25	
Instructional units	25 x 1.6 x 2.0	= 80
Support units	25 x 1.5 x 1.31	= 49.1

ENROLLMENT

It is felt that the enrollment impact of the program will be to attract new students, most of whom have had some specific training or experience and wish to develop these skills in the context of the information society.

ENROLLMENT ESTIMATES

While it is difficult to guarantee enrollment estimates, related programs, media programs and communications programs throughout the country are over subscribed. The extrapolation that is therefore made is that the program with its expanded retraining concept should realize ongoing healthy registration.

PROGRAM COMMENCEMENT

The first semester would begin post Labor Day 1987.

IN RELATION TO OTHER PROGRAMS

In relation to other programs in the province, the Computer Information Communication Program is designed to provide laddering, career mobility and professional development. The program is complementary to other skills.

RESEARCH

The consultation process had several aspects to it.

- internal (Capilano College - faculty, staff and students)
- other colleges, universities and private teaching institutions
- government agencies
- business and industries
- "Think tank" and social planners
- relevant associations
- major manufacturers of micro-computers

In addition to the above, a computer data bank research project was initiated with the assistance of the National Research Council. The information that was generated is included with the proposal. Extensive reading confirmed the advice of the other specialists whose input is reviewed.

The following are the findings of that process:-

CAPILANO COLLEGE

To draw ideas from as many sources at Capilano College as possible, the following process was implemented.

- A letter was sent to every department head inviting input and conversation with all members of that department.

- A letter was sent to what was felt to be the relevant departments requesting that a representative of that department be appointed to a committee that would meet on a regular basis to discuss the development of "The Computer Information Communication Program". The criteria for department selection was that, it presently taught a course that might be similar to a course offered in the new program, there was a special interest in the program (eg. the Studio Art and the Commercial Art programs), a technical expertise existed, or the graduates of their program would become potential students in the Computer Information Communication program.

The committee consisted of representatives from the

- Deans office
- Media Resource program
- Business Management program
- Office Administration program
- Computing Science program
- Commercial Art program
- Studio Art program
- Communications program

- Students were contacted on a more informal basis, on an individual basis and in small groups, and the developing concepts were discussed. While students from the above programs were concentrated on, the spectrum of students were from all the divisions at Capilano College.

- Consultation with the college staff took place in a similar manner to that of the students.

The input from the various groups helped to define the overall philosophy of the program, profile of the proposed students, assistance about the equipment that is needed, the grade eleven algebra levels and other prerequisites, the advisory committee, curriculum, scheduling and attitude of the courses were all discussed both formally and informally. This input was considered and runs throughout the proposal.

EDUCATIONAL INSTITUTIONS

Several colleges and universities were consulted in both the public and private sectors, among these were

- Vancouver College - Langara
- Sheridan College (Toronto)
- Control Data (Private) (Vancouver)
- Acadia University (Nova Scotia)
- Concordia University (Montreal)
- C.J.E.P. De Vieux Montreal (Montreal)
- Purdue University (Los Angeles)
- Rochester Institute of Technology (Rochester)
- Community College of Denver (Denver)
- University of Western Washington (Bellingham)
- New York School of Computer Technology (Private) (New York)

Generally, the response to the ideas was favourable. One of the obvious patterns that emerged was that the approach that is being discussed here is not a program which was being given at these institutions, only certain aspects of the programs could be found at any one of the schools. Upon further questioning the main difference was found to be that these institutions were primarily trying to offer initial education to those in their post high-school training, while "The Computer Information Communication Program" goes beyond this concept to include as a large part of its potential students those wishing retraining and professional development studies.

The overall feeling that prevailed was that a program of this sort was needed and that the retraining, and complementary skills to traditional programs, would provide students with a competitive edge in the job market. The concensus was that the educational institutions were not adequately involved in the retraining of the public vis-a-vis the merging technologies. In many instances this was attributed to lack of funding. This was felt to be short sighted.

Three of the schools asked for copies of the proposal with a view towards adapting it to their local markets.

BUSINESS AND INDUSTRY

A variety of various size businesses and industries was contacted. They include:-

- Bedford Software
- B.C. Tel
- B.C. Hydro
- Canadian Forest Products
- Gray Beverage Ltd.
- Ingerberg Corp.

- Sommerville-Belkin Corp.
- Storewall Manufacturing
- The Sanderson Partnership
- Tribal Sportswear Company

Generally among the smaller corporations the need for the communications in electronic format was not yet a reality - the exception being Telex. While the computer in the office was always in use for stock control or bookkeeping, further application was not yet incorporated. After discussion and a look at such things as electronic marketing potential, interest was heightened.

Once a company reached the status of multi-branch, or when technical or interactive communication became a reality, they could see the need and applications of having these skills in the work place. The persons handling the electronic communications functions would be at various levels of staff and management. The application of the skills provided by "The Computer Information Communication Program" find application in secretarial work, research marketing, etc.....The problem exists that employees are not properly trained in an integrated manner. That is to say that an individual may possess one or two of the skills but the dovetailing of that person with others who have mostly different, yet in some ways similar, skills still remains a problem.

In those companies where trained personnel exists, they are treated as an asset and their skills are treated as a competitive edge.

GOVERNMENT AGENCIES

The following government agencies were contacted:-

- Unemployment Insurance Commission (National and Regional offices)
- National Department of Communication
- Ministry of Industry and Small Business (Provincial and Federal)
- National Research Council

Four very relevant new points were brought forward:-

1. The Computer Information Communication Program would provide instruction which is in keeping with evolving national economic strategies.

2. Persons in a variety of employed positions will require training/retraining.

3. A person presently unemployed or entering the job market for the first time would be considered much more attractive to a potential employer if they had this trainig.

4. It was felt that the prolification and implementation of new wave electronic communication would evolve as a competitive edge being created for those companies involved. Similar skills would then be desired by companies or institutions who don't have them, and this greater demand will require increased training.

The economists with U.I.C. felt that presently employed persons would generally not be made redundant by those having additional skills but that expansion employment would look for and prefer these. Additionally as the new technologies were employed the non-skilled personnel would require retraining.

SOCIAL PLANNERS, FUTURISTS, AND 'THINK TANKS'

During the development of this proposal, there were several opportunities for discussion with two research associates of the "Gamma Group". Gamma is a sociological think-tank which presently directs most of its energies towards the impact of new information systems on society. Contacted were W.L. Gardiner, Ph.D., Vice-President of Gamma and George Marshall, Ph.D., Research Associate. Their response to the value of the proposed program is three fold:

1. If our society is to take advantage of the emerging information society, then education which demistifies the technologies, explains advantages and application, and encourages use of these technologies, must be made available.

2. The public must be encouraged to take advantage of these educational opportunities.

3. Adaptive training and re-training must become one of the major thrusts of our educational facilities.

It was felt therefore that "The Computer Information Communication Program" would be appropriate and timely.

MAJOR MICRO-COMPUTER MANUFACTURERS

Conversation took place with representatives of I.B.M., Apple Computer, Tandy Computers, Atari Computer, in an attempt to understand the upcoming trends in manufacturing. Several relevant factors were established.

- The initial surge of computers in the home had stabilized. The reason brought forward was that the software was not made as simple as originally promised.

- Cost and the recession have taken an effect.

- Most growth in the market place comes from established users realizing the potential of computer technology and upgrading to machines with greater capacity.

- Most of the new applications for established users was in the area of information processing.

- Most new enterants into the computer world have information processing in mind.

RELEVANT ASSOCIATIONS

Two professional associations were contacted, The Software Industry Development Association and The International Association of Business Communicators.

The S.I.D.A. was of little help. The members of the I.A.B.C. on the other hand had very helpful input.

It was felt that it was important for students attending "The Computer Information Communication Program" bring with them their own intent. That is to say that it was important that students of the program have skills that they would like to complement with the new program skills. The concern that the I.A.B.C. voiced was that persons with the mechanics alone are not necessarily anything other than technicians; and that the "what" in communications took precedent over the "how"... The separation of tools from goals. The feeling for The Computer Information Communication Program was very positive because it dealt with this separation.

STUDENT SUITABILITY

In the section of this proposal dealing with the background of the students entering this program, it was indicated that the backgrounds would be wide and varied; and that many of our students will be attending with the idea of developing themselves professionally. Continuing along these lines it is probable that the students will be returning to these same lines of work and professions to apply these new skills to improve and expand their work place. The newly graduated student will probably gravitate to their area of specialized training.

THE DISTINCTIVENESS OF THE PROGRAM

In hopes of finding some models which would help in the design of the program, the calendars of all British Columbia's colleges and universities, and what was felt to be relevant educational institutions across Canada and the U.S.A. (both public and private) were examined. It would appear that the ideas for this program are original, the closest offering as a program would be those in educational/instructional computing, computer publishing, computer graphics, computer science; and while The Computer Information Communication Program looks at some aspects in all these fields, the program initiates a new perspective.

Additionally, at no institution was there any variety in courses which would allow a student to "put together" their own professional development program; nor could a student find any program that would approximate "The Computer Information Communication Program".

EVALUATION PROCEDURE

The suggested procedure for the evaluation of the program is the standard process which follows the Council of Principals recommended procedure.

CONCLUSION

Firstly, there exists at Capilano College at this time much of the talent needed to develop this program.

Secondly, meetings with our outside advisory committee (Appendix I) indicated that the program suggested would help provide the community with a work force having special and useful skills, third wave skills, skills that will help British Columbia respond to the challenge of the information society.

APPENDIX I

ADVISORY COMMITTEE

The Advisory Committee consists of the following persons:-

Adrian Harper
Past President and Present Vice President of the local branch of the International Association of Business Communicators, Freelance Corporate Communicator.

Doug Tate
Graphic artist, small systems publisher, Director of Advertising for Bedord Software.

Susan Matasi
Member of the Federal Department of Communication in the area of small business and industry.

Bob Yoneda
Management Information Services Training, B.C. Telephone Company.

Ruth Emery
Economist at the Economic Services branch of the Federal Department of Employment and Immigration, Vancouver.

Michael Frost
Past student at Capilano College, software text writer for Pathfinders Software.

Once the curriculum and background were developed, the concepts were discussed with the above advisors. For the most part there was a concensus in the direction and approach that the program took. There were concerns in several areas that were translated into the following suggestions.

- Provisions should be made to give credit to students entering the program that have skills that the program offers.
- The program should be open ended; in that, as technology infiltrates society and becomes more applied, some of the courses offered will become simplistic while other relevant concepts will become important.
- Provisions should be made for upgrading the program's graduates.
- Group assignments should be implemented when possible to improve inter-personal skills.
- That students be encouraged to apply their primary skills to the skills the program offers.