S.99-33

SIMON FRASER UNIVERSITY

OFFICE OF THE VICE-PRESIDENT, ACADEMIC

MEMORANDUM

To: Senate

From: D. Gagan, Chair *Edward Mayer*
Senate Committee on Academic Planning

Subject: Proposed Non-Credit Certificate in Object Technology Programming
(SCAP Reference: SCAP 99 - 12)

Date: March 12, 1999

Action undertaken by the Senate Committee on Continuing Studies and the Senate Committee on Academic Planning gives rise to the following motion:

Motion:

"that Senate approve and recommend approval to the Board of Governors, as set forth in S. 99-33, the Non-Credit Certificate ~~in Object Technology Programming~~" for the Object Technology Program, and a report on the academic and financial aspects of the program ~~will~~ be provided to Senate in three years "

3/22/99

To: Members of Senate

From: Ron Marteniuk

Re: OTP Proposal at Senate meeting of April 12, 1999

On Wednesday, March 2, SCAP considered the OTP Proposal presented by the Continuing Education Centre within the Faculty of Applied Sciences. SCAP recommended that the proposal be sent forward to Senate for its approval.

During the discussion of the proposal, a member of SCAP suggested that I present in written form to Senate my comments that I gave in introducing the OTP Proposal. My comments were intended to set a context within which the OTP program was developed and thus perhaps aid in appreciating the program's role in the Faculty of Applied Sciences and SFU in general.

I think the suggestion to put my comments in writing was a good one so this is what I am attempting to do with the following document. Please take it as a point form outline of my preliminary comments that I will orally present to Senate as part of the OTP Proposal. It is my hope, as well as those at SCAP who encouraged me to do this, that the comments will help focus the discussion on this important program.

OTP PROPOSAL BACKGROUND INFORMATION

1. Context

a. Continuing Education in the Faculty of Applied Sciences (FAS)
- Continuing Education in FAS is a Centre that reports directly to the Dean of FAS. It has worked for years in offering non-credit programs and courses to our alumni and to industries in the information technology, communication, health and environmental areas. It has done this by working closely with the Schools within FAS.
- Continuing Education in FAS is entirely self-supporting.

b. Three reasons for the importance of Continuing Education to FAS
- Important to our alumni and other people in the community - changing demographics of education as well as influence of the Knowledge Society
- Makes for good relationships with the private and public sectors which in turn leads to other activities like grant and contract research
- An important source of revenue - full cost recovery(plus) courses and programs helps us bring resources into the Faculty that current government funding levels prevent us from funding

c. Past Experience of FAS Continuing Education

- BC Tel Continuing Education Program
- MSAT (Management Skills for Advanced Technology) program
- Many single courses have been offered in numerous subjects

Note: Fees have covered all costs and contracted programs have paid overhead

2. The OTP Program

a. Pilot Program

- A pilot program started in September 1998 and will end in April 1999.
- The pilot program took place in rented space in the Multi-Tenant Facility in Discovery Park because there was no space at Harbour Centre.
- The pilot was necessary because the OTP is relatively unique, being full cost recovery, and requiring the full cooperation of industry to offer an internship to all students
- The pilot provided feedback from the students, and provided guidance on the role of industry and the viability of the internship

b. Quality Control issues

- Curriculum advisory committee- the School of Computing Science and the School of Engineering Science
  - Assist in curriculum development, teacher evaluation, and student assessment
- Industrial advisory committee

c. Instructors

- ◆ Qualifications - have Bachelors and Master's degrees and have years of experience teaching information technology courses
- ◆ Evaluated after every course taught by them
- ◆ Feedback about teaching is given to them on a one on one basis

d. The fee of $17,500

- ◆ How set? The requirement was to recover all costs, including staffing, instructors, lab/classroom rent, furniture and equipment, computers, server, "everything associated with running the program"
- ◆ Fees comparable with programs being offered by other public and private providers
- ◆ Hongkong Bank of Canada – student loans

e. Pilot project student profiles

- ◆ Number of students expressing an interest and number actually applying (700 received information handouts, 400 attended two information sessions in August 1998, 114 applied, 72 were selected for interview (with industry sponsors), 28 accepted into the program)
- ◆ Profiles of students
  - ◆ Gender (9 females, 19 males) (average age 30)
  - ◆ Degrees (26 of 28) (class breakdown by education - engineering 9, science 7, business 3, arts 2, kinesiology 2, computing 5)
  - ◆ Work experience (everyone)

3. The TIME Centre

- ◆ The OTP Program was initially envisioned to be part of Harbour Centre but, as mentioned above, space was not available for it.
- ◆ The TIME Centre at Harbour Centre is a timely development that will allow the OTP Program to relocate to Harbour Centre. Through the revenue it produces it will pay the full cost of rent, renovations and maintenance. Initially it will pay the FAS's one-third portion of the total cost of occupying the seventh floor of HC.
- ◆ The high quality OTP program will help SFU highlight its connection and contributions to the information technology sector of BC.

4. Internship employers

- ◆ A list of companies and the number of internships they are taking for the pilot project is attached

Simon Fraser University

Object Technology Program

Sponsor Companies

Companies confirmed	Students Committed	(Updated 1/3/99)
MDSI	4	
IBM Pacific Development Centre	2	
ICBC	1	
Sierra Systems Consultants Inc.	1	
GTE Enterprise Solutions	2	
ISMBC	5	
Hongkong Bank Of Canada	2	
Paradigm Development Corporation	1	
Honeywell Measurex Devron	1	
Totally Hip Software Inc.	1	
Cymbolic Sciences International Ltd.		(Nov 99 - 2)
Nortel	2	
CREO		(Nov 99 - 1)
Glenayre	1	
Blue World Information Technology	1	
Phillips Hager & North Investment Management Ltd.	1	
Seagate	2	
MacDonald Dettwiler and Associates		(Nov 99 - 1)
Prologic Corporation	1	(Nov 99 - 1)

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SIMON FRASER UNIVERSITY

Memorandum

To: Alison Watt, Secretary
Senate Committee on Academic
Planning

From: Lynn Burton, Chair
Senate Committee on
Continuing Studies

Re: Proposal for Consideration
by SCAP

Date: February 3, 1999

Enclosed is a proposal for a Non-Credit Certificate in Object Technology Programming. The Senate Committee on Continuing Studies has recommended that this proposal go forward to SCAP for consideration, approval and forwarding to Senate. Please place this proposal on the agenda for the next Senate Committee on Academic Planning.

Lynn Burton

/encl

Proposal to:

    1. Senate Committee on Continuing Studies

    2. Senate Committee on Academic Planning

    3. Senate

SIMON FRASER UNIVERSITY

Proposal for

A Non-Credit Certificate in Object Technology Programming

Prepared by

Faculty of Applied Sciences

January 1999

CONTENTS

Purpose

The Object Technology Program (OTP) focuses on developing the knowledge and skills that will enable participants to compete successfully in the rapidly expanding field of software development. A curriculum of eleven courses in software design and development delivered full time for six months (700 hours of instruction) followed by a six month paid internship with a British Columbia high technology company, will allow university or diploma graduates currently outside the information technology field, to help fill the critical shortage of software development professionals needed within the Province.

Background

A. Continuing Education, Faculty of Applied Science

The Faculty of Applied Science has a history of strong involvement in continuing education for the purposes of extending our expertise into the community for the benefit of our graduates in need of upgrading and for the benefit of the economy of British Columbia. While there have been numerous programs and courses developed for these two purposes, the two most successful programs have been the BC TEL Engineering Program and Management Skills in Advanced Technology. These two programs have been offered over the past twelve years and have proven to be very successful to all parties concerned: the Faculty of Applied Sciences; the employers of the students; and the students themselves.

An Object Technology Program pilot was launched in November 1998 with the same objectives as the above two programs:

1. To offer high quality continuing education to our own graduates as well as to other people in the community.
2. To help the Information Technology sector solve one of their most pressing problems; the maintenance of a high degree of knowledge within their employees guaranteeing their company a competitive advantage in today's knowledge based economy.
3. Through involvement with industry in these continuing education programs, the Faculty of Applied Sciences will also become acquainted with industry research needs and this will lead to partnerships in regard to research and technology transfer opportunities. Indeed, the BC TEL program was most successful here in terms of spawning research and technology transfer with both BC TEL and MPR Teltech.

Thus, for the Faculty of Applied Sciences, continuing education serves not only to deliver high quality education to our graduates and to the community at large, but by becoming involved in these activities it serves to open doors to research and contract opportunities with industry. It is this larger mandate that the Continuing Education Office in Applied Sciences strives for and to this date has been successful in accomplishing. We approach the OTP with the same philosophy and expectations.

B. The Present Proposal

The OTP pilot and this proposal are a response to frequent requests from industry to offer substantive professional development programs that will increase the number of information technology professionals with the latest technologies needed for the industry. Object Technology has been widely adopted by the software industry as a new means of effective software design and development. Objects form the basis for the modern operating systems, programming languages, and new development methodologies. These innovative tools and techniques represent a major shift in the software industry towards the use of more efficient development processes. In British Columbia, the software industry requires significant numbers of information technology professionals trained in Object Technology.

The British Columbia high technology industry is now the leading job creator in the province. At the end of 1997, total employment in the British Columbia technology sector reached 57,000 jobs. This figure is projected to grow to approximately 99,000 jobs in BC technology companies by the year 2000, assuming consistency with current trending of 22 percent.*

The British Columbia information technology sector is by far the leading sector within the BC technology industry, accounting for over 85% of revenue and job creation.

This phenomenal rate of growth had led to a significant increase in the number of information technology job opportunities that are going unfilled. It is estimated that over 1,700 technical positions in BC's information technology sector are currently vacant, and that the unmatched supply of such skilled workers is approaching a critical point. Growing competition for software development professionals from the US and other jurisdictions, combined with the limitations on the number of graduates that our universities and colleges can produce, will only widen the gap in the years to come.

Compounding this shortage, is the need to stay up to date with current technologies in an industry where advances are simply coming too fast. The need for quality training in these new technologies is critical.

The Simon Fraser University Object Technology Program, delivered in a team environment, will graduate 120 students each year. There will be two intakes of 60 students every six months, on or about November 1 and May 1. The first "pilot" course, starting November 2, 1998, will have 30 students enrolled. This limited enrolment will allow for any adjustments to the program that may be necessary before setting up a second classroom/computer lab by May 1999.

The Program will be administered by the Faculty of Applied Sciences. A Curriculum Advisory Committee has been formed from faculty in the Schools of Computing Science, Engineering Science and industry. The "Committee" will be responsible for ensuring the academic quality of the curriculum and the quality of the instruction. As such, it will review the curriculum along with instructor and student feedback after each offering of the Program and will make the necessary adjustments needed to maintain the highest quality curriculum and instruction.

* Technology Industries in BC – A 1997 Report Card

Admission Criteria

1. Student prerequisites
All applications will be screened for the following prerequisites:

- A post secondary degree or diploma preferably in a scientific or technical field,
- Knowledge of one or more programming languages,
- Working knowledge of Windows 3.1 or Windows 95,
- Business experience in information systems, accounting, or materials management will be considered an asset.

2. Student Selection
The student selection process will help to identify applicants with the best potential for success. The process will consist of the following:

- A programming aptitude examination
- A resume and reference contact phone number from a recent work supervisor
- A personal interview session

The Curriculum

Participants will complete a minimum of 700 contact hours in the classroom/computer lab. There will be eleven courses delivered in software design and development, combined with a project in Object Technology. The curriculum will be overseen by a Curriculum Advisory Committee drawn from faculty in the Schools of Computing Science, Engineering Science, and industry.

Core Courses	Hours
Object Oriented Primer	24
Data Base Analysis and Design	70
Software Project Management and Quality Control	30
Fast Track to PowerBuilder	24
Application Development Using Visual Basic	90
Career Strategies	24
Internet Design and Integration	70
Object-Oriented Analysis and Design	70
C++ Programming	90
Java Programming	90
Distributed Computing	24
Object Technology Project	100
Course Total	700 hrs

Course Descriptions

Module 1: Object Oriented Primer (24 hours)

Object Technology has rapidly become an all-pervasive supporting technology throughout the computing industry. Objects are the foundation of modern operating systems, languages and development methods, and are shaping the future of distributed computing using distributed object technology. This course provides a detailed introduction into the principles of object technology. Designed to provide students with a solid foundation in object technology, it examines the details of encapsulation, object relationships, inheritance and polymorphism. These are covered both generically and in relation to modern object-oriented languages. The terminology and notation are taken from the Unified Modeling Language (UML) which has become the de facto standard for describing object systems.

Module 2: Data Base Analysis and Design (70 hours)

Relational Database Management Systems (RDBMS) provide the core technology for implementing many client/server systems. The prime objective of this course is to detail how real-world data requirements are captured, modeled, and most importantly, mapped efficiently onto a RDBMS product such as Oracle or SQL Server. A good database design is essential before client or server applications can be developed using the wealth of tools now available. Starting from real-world problems, the course examines the various techniques available to analyse the business processes and ultimately produce an Entity-Relationship (ER) model and map it to a relational database schema. Design topics covered include normalization, referential integrity and constraint techniques, data architecture, data warehousing and physical implementation. Exercises and demonstrations are used throughout the course to reinforce the lectures. A CASE tool will be used throughout the exercise to support the creation and conversion of models.

Module 3: Software Project Management and Quality Control (30 hours)

This module provides an overview of software development management issues that are important for individual programmers to be aware of. Software lifecycles and the typical distribution of effort among development phases. Human Computer Interaction (HCI) Design: the critical importance of involving end users in all phases of the interface design process. Project Estimating: project size metrics (e.g. function points), estimating effort for individual tasks, effort for re-use of object-oriented code. Project planning: CPM and PERT, Gantt and CPM Charts. Monitoring the development: measuring progress, dealing with schedule slippage, change control. Managing the project team. Configuration management for multiple releases: beta releases, tracking bugs and enhancements to release, releases for other platforms. Quality Assurance: building quality in, design walkthroughs and inspections for reviewing quality, metrics to measure quality and to help with project management, why quality assurance function must be independent, monitoring quality via configuration management, deciding when a product is ready to release. Testing: writing test cases, unit vs. integration vs. system testing, black vs. glass box testing, regression testing, special considerations for object-oriented testing.

Module 4: Fast Track to PowerBuilder (24 hours)
In this intensive hands-on course, you will learn and practice the skills needed to develop Windows-based, client/server business applications using PowerBuilder. The course emphasizes the use of object-oriented programming techniques and introduces user objects and user events. PowerBuilder painters and the PowerScript language are used to construct windows, menus, user objects and DataWindow objects as part of the progressive development of MDI (Multiple Document Interface) business application accessing a relational database.

Module 5: Application Development Using Visual Basic (90 hours)
With over two million users, Microsoft Visual Basic is by far the most popular Windows development environment in use in major organizations today. This course will provide comprehensive coverage of the Visual Basic programming environment. It has been carefully structured to provide adequate time for practical hands-on exercises. The course recognizes the importance of coding for reuse and uses an object approach throughout. Emphasis is also given to the database connectivity features of Visual Basic, i.e, the Access compatible database engine (JET) and the manipulation of databases purely through code.

Module 6: Career Strategies (24 hours)
This course focuses on resume development, the importance of networking, interview techniques, workplace realities, and career planning for software development professionals.

Module 7: Internet Design and Integration (70 hours)
The growth in both the usage and subscriber base of the Internet has been enormous, and most organizations are now looking at how best to develop and support Internet services for their customers and staff. The Internet offers the possibility of electronic communication at low cost to customers, suppliers and partners, whilst giving access to an ever increasing range of information sources. This course provides a thorough examination of Internet technologies, i.e, the TCP/IP protocol stack, various application protocols (SMTP, POP, FTP), techniques for linking web sites to databases, web site development, web design tools, Java Scripts, Java applets, and Internet security.

Module 8: Object-Oriented Analysis and Design (70 hours)
The object-oriented approach extends and improves on traditional methods of system development. Object-oriented models effectively capture and communicate system and user interface requirements in a way that closely resembles the real world and which is extensible in response to change. The Unified Modeling Language (UML) is now the foremost OO development approach, and represents the unification of Rumbaugh's OMT, the Booch method and Jacobson's Objectory. The UML provides a basis for future standards in object-oriented development and draws on the practical application of OO methods by many people. This course covers the complete development process, including user interface design, showing how to clarify requirements by building a model of the problem domain and how to progress the model through design to implementation.

Module 9: C++ Programming (90 hours)

C++ is undoubtedly the most widely used programming language for implementing object-oriented systems. This course introduces and explores the major concepts of a modern, block-structured, high-level language such as: data types, control flow, function calls, modular programming, programming organization and build cycles, using and implementing classes, dynamic memory, object relationships, inheritance, polymorphism and architectural issues.

Module 10: Java Programming (90 hours)

Java is now viewed as a serious development language for corporate systems. This course is designed to provide a comprehensive introduction to the Java language, its object-oriented features and the main classes required for building useful Java applications and applets. Java has all the attributes you would expect of a modern programming language, such as object orientation, multithreading, and a class library for handling facilities such as the graphical user interface and networking. This highly practical course will show you how to develop simple Java applications and applets. This includes a thorough grounding in the language, together with important features such as user interface design, exception handling, multi-threading, and Java Beans.

Module 11: Distributed Computing (24 hours)

Today, many organizations are implementing client/server and distributed computing technology to reduce costs and improve IT services. This course paints the big picture of client/server computing and demonstrates how the power available on the desktop can be applied to corporate data. It also covers the common interconnection and client application development products. Specific focus is provided on the area of inter-process communication middleware, and covers distributed objects, DCE Architecture, COM, and CORBA.

Object Technology Project (100 hours)

Over the duration of the program participants will be assigned system design and development activities putting into practice skills and techniques as they are acquired. Each phase of the multi phase project will build cumulatively towards the completion of a fully functional object based system that incorporates a relational database, graphical user interface, world wide web, and distributed object components

Instructional Staff

The instructional staff will be comprised of accredited industry and academic professionals, recruited specifically for their expertise and teaching ability. Where possible, the instructional staff will also include teaching assistants selected from the Applied Sciences Schools of Computing Science and Engineering Science graduate students. The graduate students will provide instructional support and assistance to both the industry instructors and the students. The Program will provide an excellent development opportunity for the grad students. The Program will be overseen by a Curriculum Advisory Committee drawn from faculty in the Schools of Computing Science and Engineering Science, Continuing Studies, and industry to ensure the quality of the instruction. A list of those who have expressed an interest in contributing to the development of the curriculum and guiding the quality of instruction follows this proposal.

Evaluation

a. The Student

The evaluation of students will be structured as follows:

- 40% of the overall grade based on invigilated examination
- 30% on assignment work
- 20 % on the object oriented project
- 10 % on the internship

While there are 11 instructional modules in the program, only 9 will factor into the evaluation process. The Object Oriented Primer and Career Strategies modules will be excluded from overall evaluation as they are not rigorously tested. Each of the following modules will be weighted equally:

Data Base Analysis & Design	Internet Design & Integration
Software Project Management & Quality Control	Object-Oriented Analysis & Design
Fast Track to PowerBuilder	C++ Programming
Application Development Using Visual Basic	Java Programming
Distributed Computing	

For a Participant to successfully complete the six-month formal training component, the Participant must:

a) pass every module,
b) obtain an overall Program grade point average of 2.25 or higher, and
c) receive no more than one 'D' Grade in the Program.

For a Participant to successfully complete the six-month internship, the Participant must:

a) complete the six-month internship with an OTP sponsoring company to the reasonable satisfaction of the University, or
b) complete six months of full time employment with a computer software development company or similar work experience where, in the sole discretion of the University, the six months employment provides a comparable and positive equivalent.

b. The Curriculum

The curriculum will be monitored in two ways: First, the Curriculum Advisory Committee will ensure the curriculum remains current and relevant by reviewing it on an annual basis and where appropriate suggesting alterations. Second, the Curriculum Advisory Committee will meet after each offering of the OPT Program with the Industry Advisory Committee to ensure the curriculum is meeting the needs of the companies that are supporting the internships and that are hiring the graduates of the OTP program.

c. The Instructors

The instructors will be evaluated after every session they instruct. This will be accomplished through the standard SFU teaching evaluation instrument. The results of the evaluation will be shared with the instructors. Individual interviews between each instructor and the Director of Continuing Education in the Faculty of Applied Sciences will be held after each module

Location

Initially, the Program will be delivered at Discovery Park, adjacent to the main Simon Fraser University campus. Applied Sciences Continuing Education will assume responsibility for its administration. Plans are underway to relocate the program to the Spencer Building, adjacent to the Simon Fraser University Harbour Centre campus, in May 1999.

Internship

The six-month internship is designed to provide relevant work experience in a professional environment. Internships will begin at the conclusion of the six-month formal training component. Each student will be paid on a monthly basis during the internship. Each student must complete both the six-month formal training component and the six-month internship to receive an Object Technology Program certificate.

Curriculum Advisory Committee

Nick Bryant
Systems Implementation Manager
GTE Enterprize Solutions

Dr. John Dill
Professor
School of Engineering Science
Simon Fraser University

Cathie Dunlop
Director
Extension Credit Evaluation ·
Simon Fraser University

Bob Macdonald
Director
Applied Sciences Programs
Simon Fraser University

Peter Stunden
President
Fifth Era Knowledge Corporation

Russell Tront
Lab Instructor II
School of Computing Science
Simon Fraser University

Industry Advisory Board

Nick Bryant
Manager
Systems Implementation
GTE Enterprise Solutions

Ian Dowdeswell
Delian Consultants Ltd.
Chair, Telelearning NCE

David Hunter
Manager, Telecom and Media Solutions
Development
IBM Pacific Development Centre

Tommy Lee
Vice President, Product Development
MDSI   :
           :

Brian Leeners
President and COO
Totally Hip Software Inc.

Philip Mansfield
Research Department Head
Paradigm Development Corporation

Ron Marteniuk
Dean of Applied Sciences
Simon Fraser University

Kevin Savage
Manager, Education & Development
Services
ICBC

Alfred Tong
Senior Vice President
Group Systems Development Centre
Hongkong Bank of Canada

Micheal Veadry
General Manager, Application
Development Management Group
Information Systems Management (B.C.)
Corporation

David Wills
Vice President
Emerging Technology
Sierra Systems Consultants Inc

Sponsor Companies

Confirmed	Number of students
Blue World Information Technology	1
CREO Products Inc.	1
Cymbolic Sciences International Ltd.	2
Glenayre	2
GTE Enterprise Solutions	2
Honeywell Measurex	1
Hongkong Bank of Canada	2
IBM Canada Ltd	2
Insurance Corporation British Columbia	1
Information Systems Management (BC) Corporation	5
Mobile Data Solutions Inc	3
Northern Telecom	2
Paradigm Development Corporation	1
Phillips, Hager & North Investment Management Ltd.	1
Prologic	2
Seagate Software	1
Sierra Systems Consultants Inc.	2
Totally Hip Software Inc.	1

Four Letter Enclosed:

1. R.J. Tront and J. Delgrande, School of Computing Science, SFU
2. J. Dill, School of Engineering Science, SFU
3. N.R. Bryant, GTE Enterprise Solutions
4. D. Hunter, IBM Pacific Development Centre

SIMON FRASER UNIVERSITY

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December 29, 1998

Ron Marteniuk, Dean
Faculty of Applied Sciences
Simon Fraser University

Dear Ron:

SFU Applied Sciences Continuing Education is seeking senate approval to issue Non-Credit Certificates for their Object Technology Program. On behalf of the SFU School of Computing Science, and with the concurrence of the Director of the School of Computing Science (Jim Delgrande), I am writing to support this certificate initiative.

As you probably are aware, recent reports commissioned by the provincial government have shown over 1000 job vacancies in B.C. for trained software development professionals. In addition, this is one of the few growth sectors in the provincial economy. Thus, there is a critical need to provide and expand programs to fill this void. Our faculty's Continuing Education group has created an exciting self-supporting program to address this need, and the first class is already enrolled.

The Object Technology Program is aimed at degree-holding individuals who wish to quickly update or quickly retrain to enter the cutting edges of the software development industry. The content of this concentrated program is targeted to coincide exactly with the current industry move toward object-oriented and distributed software architectures.

It seems appropriate that the graduates of this intensive 700 hour program receive a senate sanctioned non-credit certificate. In this regard I have examined the curriculum, laboratories, example examinations, and graduation criteria. A few changes suggested by myself and the other academic and industry representatives on the OTP Curriculum Advisory Committee have been incorporated in the program. With suitable future monitoring via the School of Computing Science's participation in this committee, and with occasional instructor exchanges, I believe that the program is deserving of senate approval to grant non-credit graduation certificates.

Yours sincerely,

Russell J. Tront
Instructor, School of Computing Sci.

Jim Delgrande, Director
Director, School of Computing Sci.

RECEIVED

JAN 0 5 1999

FACULTY OF
APPLIED SCIENCES

cc. Bob Macdonald, Director, Applied Sciences Continuing Education.

SIMON FRASER UNIVERSITY

SCHOOL OF ENGINEERING SCIENCE

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January 14, 1999

Ron Marteniuk, Dean
Faculty of Applied Sciences
Simon Fraser University

Dear Ron,

Continuing Education in the Faculty of Applied Sciences is requesting Senate approval to issue non-credit certificates for their Object Technology Program. This letter is written with the approval of the Director of the School of Engineering Science to support Continuing Education's application.

The Object Technology Program is primarily for people who already have a degree, but wish to upgrade or shift to a software development area, to both improve their own situation and to respond to the high demand evident from industry. Program content seems well targeted to meet the specific current interests of industry as they move to more object-oriented approaches.

A non-credit Senate-approved certificate seems entirely appropriate for graduates of the Object Technology Program. I have reviewed the description of the courses, laboratories and graduation requirements, and with the changes suggested by me and the other members of the Objective Technology Program curriculum committee (from both industry and academia) I believe the program is suited to the needs of both the participants and industry, and is deserving of Senate approval.

Yours truly,

John Dill, Professor
School of Engineering Science

cc: John Jones, Director, School of Engineering Science

GTE

GTE Enterprise Solutions
8999 Nelson Way
Burnaby, BC
V5A 4B5
604/293-5319

November 3 1998

Dr. Ron Marteniuk
Dean of Applied Sciences
Simon Fraser University
8888 University Drive
Burnaby, BC V5A 1S6

Dear Sir,

As an industry participant in Simon Fraser University's Object Technology Program (OTP), we at GTE wish to encourage the University's commitment and support for the certification of this leading-edge program. The OTP, designed to prepare those with previous training in science & technology with a strong basis in state-of-the-art software development, will provide its participants with the skills and tools needed to succeed in today's Information Technology world.

As a software development organization, we at GTE are feeling the acute shortage of software development professionals: local analysis has shown that there are well over 1,000 unfilled IT vacancies in the Lower Mainland alone, and studies commissioned by all levels of government point to an ever-increasing need for trained IT staff in the years ahead. In our organization alone, we have unfilled vacancies for over 10 people, and even with modest growth, this shortfall will only increase unless the pool of qualified resources is increased. Through the OTP, the University will directly help industry by increasing the size of this resource "pool".
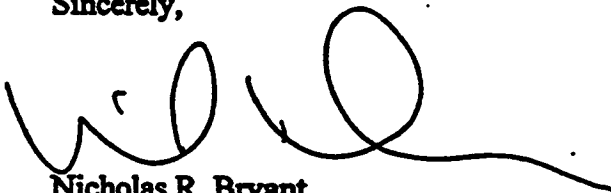
While this province-wide shortage of IT professionals is perhaps the most compelling reason for the University to embrace this forward-looking initiative, there are other significant aspects of the program which make it appealing to both GTE and other members of the provincial community:
- The software industry is clean, well paying, and provides stable, healthy employment independent of the local economic climate. Helping to grow this industry directly benefits everyone.
- The OTP provides a means to upgrade the skills of those who would otherwise be underutilized in the economy.

- The public exposure of this program to both members of the community and those outside the community will help foster the notion of the Lower Mainland being a "High-Tech-friendly" location for new industry: again, something that can only benefit all concerned.

The success of the program is dependent, however, on its credibility within the software development industry. Unless the program can be demonstrated to uphold a certain academic standard, it will have difficulty being accepted. We thus feel that it is extremely important that the University Senate certify the program appropriately in order to provide the credibility needed in order for the OTP to become the success story that it is waiting to become.

Sincerely,

Nicholas R. Bryant
Manager, Systems Implementation
GTE Enterprise Solutions

IBM Canada Ltd.
8999 Nelson Way
Burnaby, BC V5A 4B5

September 25, 1998

Dr. Ron Marteniuk
Dean, Faculty of Applied Sciences
Simon Fraser University
8888 University Drive
Burnaby, B.C.
V5A-1S6

Subject: SFU Object Technology Program

Ron
The purpose of this letter is to congratulate you on your initiative and creativity in launching this OTP program, and thank you for inviting us to be one of the founding Corporate partners.

One of the reasons IBM recently located it's newest global software development centre, the PDC, in Vancouver, is the availability of a stready stream of high tech skills from local universities, and your OTP program is a good example the type of program that we, and others, need to meet the increasing demand for Information Technology skills.

We believe your OTP program is an important complement to existing Computing Science programs in B.C. because it allows university graduates and/or experienced industry professionals to go back to school and quickly specialize in one of the fastest growing areas of the I/T industry, Object Programming.

We wish you all the best, and look forward to getting our first two graduates from your program next spring.

Regards

Dave Hunter
Manager, Global Telecommunications Solutions Development
IBM Pacific Development Centre
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SIMON FRASER UNIVERSITY

MEMORANDUM

To: Senate

From: L. Salter
            Chair, SCAP

Subject: Proposal for Certification of
             Non-Credit Programs
             Reference: SCAP 89-24

Date: November 9, 1989

Action undertaken by the Senate Committee on Academic Planning/Senate Committee on Continuing Studies gives rise to the following motions:

Motion 1:

"That Senate approve and recommend approval to the Board of Governors as set forth in S.89-39 the proposal to establish recognized University Certification for Non-Credit Programs."

Motion 2:

"That Senate approve and recommend approval to the Board of Governors as set forth in S.89-39 the proposal for a Certificate Program in Telecommunications Engineering"

Proposal for Certification of Non-Credit Programs

Description:

The University offers, in addition to degree programs and certificate and diploma programs made up of degree related courses, specialized programs of non-degree courses in areas of professional practice. The Program in Telecommunications Engineering for the British Columbia Telephone Company, developed by the Faculty of Applied Sciences and Continuing Studies in conjunction with the University of California at Los Angeles, is a notable example. The educational needs of some groups, such as the B.C. Telephone engineers, cannot be met by traditional university offerings. Their area of interest is too specialized to be met by existing university programs and the traditional 13-week format is unsuitable for both the curriculum and the working lives of practicing professionals. In most cases, such individuals have advanced degrees and neither seek nor need credit toward a university degree. Nonetheless, participants in such programs would like some recognition of satisfactory completion of programs which are academically rigorous and taught at a university level.

There is a strong desire on the part of students enrolled in such programs, and associated business and professional organizations, that the University formally recognize satisfactory academic performance. To this end, it is recommended that the University Senate approve the granting of certificates to participants in approved programs of non-credit courses who demonstrate academic competence at a level comparable to that acceptable in courses which are part of degree programs.

Rationale:

The existence of specialized programs, such as the Program for Telecommunications Engineering, has benefits for organizations, including corporations and government agencies; for the professions; and for the University. The organizations and professions benefit from being able to obtain high quality professional development programs. The University and individual faculty members benefit from close contact with practicing professionals working, in many cases, on problems of theoretical, as well as practical, interest.

Both working professionals and their employers say that university recognition is important in gaining financial support and acceptance for such professional development programs. Official recognition of academic competence contributes also to a sense of commitment on the part of students and a feeling of accomplishment on completion. University certification seems appropriate in cases in which instruction and evaluation procedures and curriculum content are academically comparable to other university programs.

Many universities in Canada, including the Universities of British Columbia and Victoria and three Alberta universities, already offer Senate approved certificates for programs of non-credit courses.

Criteria for the Establishment of Certificates for Successful Completion of Program of Non-degree Courses:

1. A program should be initiated only if the subject matter is such that the University appears to be the most appropriate body to offer the instruction.

2. A program must have a clearly defined educational objective and rationale. The rationale should include a statement of required University resources and community needs.

3. A program must be under the direct and ongoing supervision of an academic department of the University.

Proposed Guidelines for Certificate Programs of Non-degree Courses:

1. Each program would be the specific responsibility of a department, school, Faculty, or centre. The department would be responsible for ensuring the academic rigour of the curriculum and the quality of instruction. In cases of interdisciplinary programs, responsibility may be shared.

2. Programs being proposed as suitable for certificate granting status are to be submitted to the Senate Committee on Continuing Studies for consideration and, if accepted, forwarded by that Committee with its recommendations to SCAP and to Senate for approval. A description of the course/s which make up the program must be submitted, including information on: the content and duration of each course; the proposed instructors; and the means of evaluation.

3. Students would be expected to maintain satisfactory performance in each course to remain eligible for a certificate.

4. Programs would consist of courses which may vary in length and format from standard university credit courses but would include a minimum number of 120 contact hours in total (including lectures, labs, seminars, and tutorials).

June 15, 1989
Prepared by Mark Selman, Director, Extension Credit at Harbour Centre

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