

**SIMON FRASER UNIVERSITY**  
**Senate Committee on University Priorities**  
**Memorandum**

**S.04-29**

**TO:** Senate

**FROM:** Bill Krane  
Acting Chair, SCUP  
Acting Vice President,  
Academic

**RE:** New Media Environments  
Stream in the School of Interactive  
Arts and Technology

**DATE:** March 18, 2004

---

At its March 17, 2004 meeting SCUP reviewed and approved the proposal from the Senate Committee on Undergraduate Studies for the New Media Environments Stream in the School of Interactive Arts and Technology, which is now forwarded to Senate.

**Motion**

That Senate approve and recommend to the Board of Governors the development of the New Media Environments stream in the School of Interactive Arts and Technology.

encl.



c: R. Blackman  
B. Lewis  
R. Cameron  
R. Woodbury  
T. Calvert  
G. Nicholls  
J. Waterhouse

M E M O R A N D U M  
SIMON FRASER UNIVERSITY  
FACULTY OF APPLIED SCIENCES

---

**DATE:** March 22, 2004  
**TO:** Bill Krane, Acting Chair, Senate Committee on University Priorities (SCUP)  
**FROM:** Brian Lewis, Dean, Faculty of Applied Sciences  
**RE:** New Media Environments (NME) stream, School of Interactive Arts and Technology

---

This is in response to your request for clarification of the issues surrounding the development of a new stream in the School of Interactive Arts and Technology called New Media Environments. Dr. Ze-Nian Li, Director of the School of Computing Science, and Dr. Tom Calvert, Director of the School of Interactive Arts and Technology have seen this memo and agree to its contents.

As noted in the e-mails already circulated to SCUP -- SIAT, CS, and my office have agreed to support the development of this new stream as a third interactive arts stream.

We have also agreed that the addition of this new stream should not be allowed to supplant the development of a joint, information technology oriented multimedia program, and that the NME stream and the Joint MM Program should be developed concurrently.

Finally, we will need to develop a more efficient process to communicate and coordinate information technology programming at Surrey: this would include the needs of both of these opportunities, as well as the TAD program, which is within the original mandate of SIAT to develop. This coordination is important for several reasons: rational information technology program development in light of DTO targets and student demand for programs, avoiding redundancy and overlap across Schools, and collegial governance within the Faculty of Applied Sciences.

A joint committee will be planning the Joint Multimedia Program and SIAT welcomes CS participation on the SIAT curriculum planning group. Other avenues for communication and coordination of IT programming are being explored within this context.

*Brian Lewis*

---

Brian Lewis  
Dean  
Faculty of Applied Sciences

cc: Z.N. Li, Director, School of Computing Science  
T. Calvert, Director, School of Interactive Arts and Technology  
R. Cameron, Associate Dean, Faculty of Applied Sciences

# SIMON FRASER UNIVERSITY

## MEMORANDUM

**To:** Senate Committee on University Priorities

**From:** R. Blackman, Chair  
Senate Committee on Undergraduate Studies

**Subject:** Faculty of Applied Sciences – School of Interactive Arts and Technology  
(SCUS Reference: SCUS 04-8 c)

**Date:** March 17, 2004

*R. Blackman*

---

At the SCUS meeting held on March 16, 2004, SCUS approved in principle and recommended approval by SCUP of the New Media Environments Stream in the School of Interactive Arts and Technology.

At that SCUS meeting, SCUS also approved curriculum revisions for the TechOne Program, and approved curriculum proposals and the associated Calendar description for the School of Interactive Arts and Technology.

The relevant documentation has been forwarded to SCUP for consideration at the March 17, 2004 meeting.



# Proposed 2004/5 Calendar Entry: School of Interactive Arts and Technology

Robert D. Cameron, Associate Dean, Faculty of Applied Sciences, and Tom Calvert, Director, School of Interactive Arts and Technology

Revision D - March 16, 2004

## Introduction

This document presents calendar text for inclusion in the 2004/5 SFU calendar as a new entry under *Faculty of Applied Sciences*. This text outlines lower division requirements for BA and BSc degrees to be offered by the School in three Senate-mandated streams (Performance and Media Art; Interaction Design; Technology in Arts and Design) as well as one proposed new stream in New Media Environments. Concurrent with the development of the upper division of these streams, the text also affirms a commitment to the development of a joint multimedia arts and technology program in partnership with the School of Computing Science. Documentation of the requirements of the previously approved BSc(Information Technology, TechBC) and BSc(Interactive Arts, TechBC) degrees is also included.

The calendar text has been reviewed and approved at the March 16, 2004 meeting of Senate Committee on Undergraduate Studies, subject to the review and approval of the New Media Environments Stream by Senate Committee on University Priorities.

## School of Interactive Arts and Technology

[Director, etc.]

Students in the School of Interactive Arts and Technology will become digital culture professionals who are well qualified to fill the jobs of the future related to technology and culture. Students with interests in creativity and design will work with technology to generate interactive media projects and systems and will develop strategies for building communities.

### Programs Offered

For students entering TechOne in September 2002 or earlier.

BSc(Information Technology, TechBC)

BSc(Interactive Arts, TechBC)

For students entering TechOne in 2003 or later, the following programs are under development.

BA with Major in Interactive Arts and Technology

BA (Honors) with Honors in Interactive Arts and Technology

BSc with Major in Interactive Arts and Technology

BSc (Honors) with Honors in Interactive Arts and Technology

Minor in Interactive Arts and Technology

### The Four Streams

The programs of the School of Interactive Arts and Technology are designed around four streams, each representing a distinct academic emphasis within an overall theme of people using technology in context.

#### Performance and Media Arts Stream

This stream has an artistic emphasis within the field of Interactive Arts and Technology. In the PMA stream, the interpretation and expression of human experience is explored through interactive technological environments. This stream combines critical theory with artistic practice to produce artworks in the form of installation, performance and exhibition. Its graduates will create new forms of cultural and artistic expression in our technologically mediated society.

#### Interaction Design Stream

This stream examines the relationship between people and technology with the intent to enhance or improve our environment through a reflective design process that incorporates interactive technologies. The fundamental graduate outcomes are a combination of creative action and critical thought that shape the way people make and use highly interactive products, systems and environments.

### **New Media Environments Stream**

The New Media Environments stream combines the creation of digital media art with the understanding of media artifacts and environments within broader cultural contexts. Digital media sits at the intersection of computation and culture; as a consequence, digital media artifacts, environments, and experiences are emergent phenomena. The NME stream builds on this state of emergence as an ongoing characteristic of digital media. At the same time, digital media are studied in the context of their historical, cultural, social, and economic processes.

### **Technology in Art and Design Stream**

This stream studies technological systems used by people in work, learning and play situations. Its emphasis is on system-building with particular emphasis on how people use systems, how to program user-centred systems and how to represent and reason about the objects and environments that people use. Its graduates will be able to make systems that people find useful and engaging.

### **Multimedia Joint Program**

Concurrent with the development of the upper division curriculum for the four streams, the School will also be developing a joint program in multimedia arts and technology in partnership with the School of Computing Science. This joint program will bring an information science and technology focus to the study of multimedia.

### **Co-operative Education Program**

Arrangements for the work experiences are made through the school's co-op coordinators and the University's Office of Co-operative Education.

### **Admission Requirements**

Admission to the School is possible through four routes.

- Direct admission from BC12 or equivalent high school preparation in accord with the requirements listed under the *Admission* section of the calendar.
- Admission to the School upon completion of TechOne, the foundation year program that comprises the standard first year program.
- Internal transfer from another SFU program upon completing requirements equivalent to those of TechOne.
- Direct transfer from another post-secondary institution substantially meeting the requirements of TechOne.

Students apply to either the BA or BSc program upon completion of TechOne or its equivalent. Students must have completed at least 24 credit hours of the core lower division BA or BSc requirements listed below for admission to the respective degree program.

Admission is competitive based on a grade point average calculated over all courses taken from the core requirements of the relevant degree program. In the case of duplicated (repeated) courses, all course attempts are counted equally in the admission average. Students who are unsuccessful in their first admission application may improve their average by taking additional courses from the core requirements.

### **Lower Division Requirements**

The lower division requirements for all planned IAT major and honors programs consist of the lower division core requirements of either the BA program or the BSc program plus the additional lower division requirements of one of the four streams.

#### **BA Lower Division Core (39 credits)**

IAT 100-3 Systems of Media Representation

IAT 101-3 New Media Images  
IAT 200-3 Cognition for Design Science  
IAT 201-3 Usability in Interactive Environments  
IAT/CMPT 265-3 Multimedia Programming for Art and Design

CMPT 120-3 Introduction to Computer Science & Programming I  
CMPT 125-3 Introduction to Computer Science & Programming II

One of  
MACM 101-3 Discrete Mathematics I  
MATH 151-3 Calculus I  
or another approved course in mathematics

TECH 100-3 Fundamentals of Teamwork and Communication I  
TECH 101-3 Fundamentals of Teamwork and Communication II  
TECH 114-3 History and Theory of Technology and Culture

Two additional courses chosen from the Faculty of Arts or the School of Communication.

Students admitted to the 2003 cohort of TechOne may substitute the following predecessor courses for IAT 100, 101, CMPT 120, and 125: TECH 117, 124, 149 and CMPT 118.

### **BSc Lower Division Core (51 credits)**

IAT 100-3 Systems of Media Representation  
IAT 101-3 New Media Images  
IAT 200-3 Cognition for Design Science  
IAT 201-3 Usability in Interactive Environments  
IAT/CMPT 261-3 Spatial Computing  
IAT/CMPT 265-3 Multimedia Programming for Art and Design

CMPT 120-3 Introduction to Computer Science and Programming I  
CMPT 125-3 Introduction to Computer Science and Programming II  
CMPT 225-3 Data Structures and Programming

MACM 101-3 Discrete Mathematics I  
MATH 151-3 Calculus I  
MATH 232-3 Elementary Linear Algebra  
plus one additional calculus course

TECH 100-3 Fundamentals of Teamwork and Communication I  
TECH 101-3 Fundamentals of Teamwork and Communication II  
TECH 114-3 History and Theory of Technology and Culture

One of  
KIN 142-3 Introduction to Kinesiology  
PHYS 120-3 Modern Physics and Mechanics  
or another approved course in the physical sciences

Students admitted to the 2003 cohort of TechOne may substitute the following predecessor courses for IAT 100, 101, CMPT 120, and 125: TECH 117, 124, 149 and CMPT 118.

### **Elective Lists**

Stream requirements are expressed in terms of the following elective lists.

#### List 1 - Media Electives:

IAT 241-3 Animation  
IAT 242-3 Moving Images  
IAT 243-3 Sound Interaction  
IAT 244-3 Digital Photography I: Post Photography

List 2 - Lower Division Cultural Theory electives:  
IAT 203-3 Cultural Icons & Popular Arts  
IAT 206-3 Media Across Cultures

### **Performance and Media Arts Stream (12 credit hours)**

IAT 204-3 Encoding Media Practice  
Plus two lower division media electives (List1)  
And one lower division cultural theory elective (List 2)

### **Interaction Design Stream (12 credit hours)**

IAT 230-3 Design of Digital Environments  
IAT 231-3 Visualizing Interaction  
IAT 232-3 Prototyping and Human Factors  
And one lower division cultural theory elective (List 2)

### **New Media Environments Stream (12 credit hours)**

IAT 204-3 Encoding Media Practice  
And two lower division media electives (List1)  
And one lower division cultural theory elective (List 2)

### **Technology in Art and Design Stream**

The stream requirements for TAD are included in the BSc core requirements. Students pursuing a BA must take the following additional courses.

CMPT 225-3 Data Structures & Programming  
IAT/CMPT 261-3 Spatial Computing  
MACM 101-3 Discrete Mathematics I  
MATH 151-3 Calculus I  
MATH 232-3 Elementary Linear Algebra  
plus one additional calculus course (under development)

### **Upper Division Requirements**

The upper division requirements for IAT major and honors programs are still under development at the time of printing of this calendar.

## **Minor in Interactive Arts and Technology**

A minor in Interactive Arts and Technology is available – this is not specific to any stream.

### **Lower Division Requirements for a Minor**

Students must complete the following courses (21 credits).

IAT 100-3 Systems of Media representation  
IAT 101-3 New Media images  
IAT 200-3 Cognition for Design Science  
IAT 201-3 Usability in Interactive Environments  
CMPT 120-3 Introduction to Computer Science and Programming I  
CMPT 125-3 Introduction to Computer Science and Programming II

Plus at least one of:  
MATH 151-3 Calculus I  
MACM 101-3 Discrete Mathematics I

### **Upper Division Requirements for a Minor**

Students must complete 15 upper division IAT credits. It should be recognized that some upper division courses have lower division prerequisites.

## **BSc(Interactive Arts, TechBC)**

This degree program is available to students of the former Technical University of BC and to those students admitted to the TechOne program in 2002.

In the documentation of these requirements, coursework is typically shown in the form of module sequences. These are three 1-credit courses offered in sequence within a single semester. Abbreviated titles of module sequences are shown in preference to individual course titles.

Students must complete the lower division requirements, upper division requirements and additional degree requirements.

### **Lower Division Requirements**

The lower division requirements consist of 36 credit hours of TechOne requirements plus 30 credit hours of TechTwo requirements.

#### **TechOne Requirements**

TECH 104, 105, 106; Process Elements I  
 TECH 107, 108, 109; Process Elements II  
 TECH 110, 111, 112; History and Theory of Technology and Culture  
 TECH 118, 119, 120; Systems of Visual Representation  
 TECH 121, 122, 123; New Media Images  
 TECH 128, 129, 130; Business in a Global Economy I  
 TECH 131, 132, 133; Business in a Global Economy II  
 TECH 151, 152, 153; Introduction to Programming  
 TECH 154, 155, 156; Introduction to Computer Systems  
 TECH 157, 158, 159; Probability and Statistics

Plus 6 credits of mathematics coursework chosen from the following module sequences or other approved mathematics courses.

TECH 137, 138, 139; Fundamentals of Mathematics  
 TECH 145, 146, 147; Linear Algebra and Calculus  
 TECH 161, 162, 163; Linear Systems  
 TECH 164, 165, 166; Dynamic Systems

#### **TechTwo Requirements**

IART 206, 207, 208; Programming Multimedia  
 IART 210, 211, 212; Cultural Icons and Popular Arts  
 IART 213, 214, 215; Design for Digital Environments  
 IART 216, 217, 218; Drawing as Inquiry  
 IART 219, 220, 221; Animation  
 IART 222, 223, 224; Moving Images  
 IART 243, 244, 245; Sound Interaction  
 INTD 210, 211, 212; Project Management  
 INTD 213, 214, 215; Critical and Creative Thinking

Plus 3 credits chosen from

ITEC 240, 241, 242; Algorithms and Data Structures  
 ITEC 240, 251, 252; Data Structures and Software Engineering  
 IART 291-3 Special Topics in Interactive Arts (2000 cohort only)

### **Upper Division Requirements**

The upper division IART requirements consist of a common core of 30 credit hours, plus a 6-credit concentration in either Interaction Design or Performance and Media Arts, plus 6 credits of IART electives.



## Common Core

IART 310, 311, 312; Interaction and Reception  
IART 313, 314, 315; Physical Interaction Design  
IART 322, 323, 324; Interactive Arts Project  
IART 328, 329, 330; Kinesthetic Space  
IART 401, 402, 403; Electronic Culture  
IART 410, 411, 412; Meta-Systems  
INTD 305, 306, 307; Design for Interactive Communities  
INTD 310, 311, 312; Advanced Project Management  
INTD 401, 402, 403; Integration Project I  
INTD 404, 405, 406; Integration Project II

## Interaction Design

Students choosing this concentration must complete  
IART 316, 317, 318; Information Design  
IART 325, 326, 327; Structure and Narrative

## Performance and Media Arts

Students choosing this concentration must complete  
IART 319, 320, 321; Electronic Theatre  
IART 331, 332, 333; Body Interface

## IART Electives

Students must also complete a selection of 6 credits from  
IART 404, 405, 406; Gaming: Personal to Social  
IART 407, 408, 409; Object Interaction  
IART 413, 414, 415; Production for Interactive Installation  
IART 416, 417, 418; Designing Immersive Environments  
or approved IART 400-level special topics courses

## Degree Requirements

In addition to the specific IART requirements listed above, students must complete additional coursework to bring the overall total to 126 credits including at least 45 credits of upper division coursework. This additional work must include at least 3 credits of CMPT/ITEC coursework, at least 3 credits of BUS/MTEC coursework and a further 6 credits of non-IART coursework.

## BSc(Information Technology, TechBC)

This degree program is available to students of the former Technical University of BC and to those students admitted to the TechOne program in 2002.

In the documentation of these requirements, coursework is typically shown in the form of module sequences. These are two or three 1-credit courses offered in sequence within a single semester. Abbreviated titles of module sequences are shown in preference to individual course titles.

Students must complete the lower division requirements, upper division requirements and additional degree requirements.

## Lower Division Requirements

The lower division requirements consist of 36 credit hours of TechOne requirements plus 30 credit hours of TechTwo requirements.

## TechOne Requirements

TECH 104, 105, 106; Process Elements I  
 TECH 107, 108, 109; Process Elements II  
 TECH 110, 111, 112; History and Theory of Technology and Culture  
 TECH 118, 119, 120; Systems of Visual Representation  
 TECH 121, 122, 123; New Media Images  
 TECH 128, 129, 130; Business in a Global Economy I  
 TECH 131, 132, 133; Business in a Global Economy II  
 TECH 151, 152, 153; Introduction to Programming  
 TECH 154, 155, 156; Introduction to Computer Systems  
 TECH 157, 158, 159; Probability and Statistics

Plus 6 credits of mathematics coursework chosen from the following module sequences or other approved mathematics courses.

TECH 137, 138, 139; Fundamentals of Mathematics  
 TECH 145, 146, 147; Linear Algebra and Calculus  
 TECH 161, 162, 163; Linear Systems  
 TECH 164, 165, 166; Dynamic Systems

### **TechTwo Requirements**

ITEC 216, 217, 218; Electronic Circuits  
 ITEC 220, 221; Digital Systems Design  
 ITEC 223, 224; Data Processing and Communications  
 ITEC 240, 241, 242; Algorithms and Data Structures  
 ITEC 237, 238, 239; Signal Processing and Communication  
 ITEC 251, 252; Software Engineering  
 ITEC 260, 261; User Interface Design  
 ITEC 271, 272, 273; Introduction to Computer Graphics  
 INTD 210, 211, 212; Project Management  
 INTD 213, 214, 215; Critical and Creative Thinking

Plus 4 credits of mathematics coursework chosen from the following module sequences or other approved mathematics courses.

ITEC 210, 211; Applied Math  
 ITEC 213, 214; Applied Math II  
 ITEC 274, 275, 276; Applied Math for IT  
 ITEC 277; Stochastic Methods

### **Upper Division Requirements**

The upper division ITEC requirements consist of a common core of 22 credit hours, plus a 23-credit concentration in either Computer and Communication Systems or Software Engineering.

### **Common Core**

ITEC 310, 311; Applied Math III  
 ITEC 313, 314; System Design Processes and Methods  
 ITEC 328, 329, 330; Operating Systems I  
 ITEC 331, 332, 333; Network Systems  
 ITEC 401, 402, 403; Testing and Verification  
 INTD 310, 311, 312; Advanced Project Management  
 INTD 401, 402, 403; Integration Project I  
 INTD 404, 405, 406; Integration Project II

### **Computer and Communication Systems**

ITEC 316, 317; Embedded Systems  
 ITEC 319, 320, 321; Digital Communication Systems  
 ITEC 334, 335, 336; DSP Systems Design  
 ITEC 404, 405, 406; Distributed, Ubiquitous and Autonomous Computing  
 ITEC 416, 417, 418; Multimedia Systems

ITEC 419, 420, 421; High Performance Computer Architecture  
plus 6 additional credits of ITEC 400-level coursework

### **Software Engineering**

ITEC 322, 323; Computer Animation  
ITEC 325, 326, 327; Object-Oriented Analysis and Design  
ITEC 337, 338, 339; Database Systems  
ITEC 407, 408, 409; Geometric Modeling  
ITEC 413, 414, 415; Computer Security  
ITEC 422, 423, 424; Computer Simulation  
ITEC 425, 426, 427; Web-Centred Technologies:  
plus 3 additional credits of ITEC 400-level coursework

### **Degree Requirements**

In addition to the specific ITEC requirements listed above, students must complete additional coursework to bring the overall total to 126 credits. This additional work must include at least 3 credits of IART coursework, at least 3 credits of BUS/MTEC coursework and at least 3 further credits of non-ITEC coursework.