FACULTY OF APPLIED SCIENCES

ACADEMIC PLAN
2007–2010

Simon Fraser University

October 2006
EXECUTIVE SUMMARY
We have had remarkable success achieving what we set out to accomplish in the last 3-year plan.

The 2004-2007 plan of the Faculty of Applied Sciences was dominated by several major themes:

1. “Double the Opportunity”: doubling our capacity for education and research in high tech areas; planning and commissioning entirely new physical configurations for 5 of 6 Schools in the Faculty; the construction of two new buildings; establishing strategies to increase the number of graduates in computing science and electrical engineering; developing new programs at undergraduate and graduate levels.

2. Managing the takeover of The Technical University of British Columbia: the creation of the new School of Interactive Arts and Technology (SIAT) in the Faculty; development of new curricula and the negotiation of complex academic, administrative and human resource issues in a very short time frame; planning and designing space for TechOne, SIAT, CS and ES in the new SFU Surrey campus at Central City.

3. Synergy and Interdisciplinarity: new core programs have included Biomedical Engineering, new lower-level and upper-level undergraduate programs at SIAT, and new joint programs launched by Computing Science with various partners. At the graduate level, we have developed the Leonardo Summer Institute, the Leonardo Lecture Series and the Leonardo TPM Conference Competition. New CRC hires
have been targeted to interdisciplinary areas. There has been a substantial increase in interdisciplinary activity across the Faculty.

4. Diversity and Advancement: we have as well accomplished important objectives in the areas of diversity, advancement and international relations, described below.

Goals and objectives for 2007-2010 reflect these continuing themes: attracting more students to education and research in applied areas; expanding and distinguishing the Applied Sciences footprint at the Surrey campus; developing interdisciplinary and synergistic strengths in research as well as graduate and undergraduate programs; increasing diversity; developing greater links with local and international communities. The Faculty three-year plan does not attempt to capture the specific strategies and plans of each of the Schools, but lays out Faculty-level goals and actions which can assist and add value to each of the units in their teaching and research, help attract students and faculty, and help to identify Simon Fraser University as THE place to study in applied science areas.

FACULTY CORE ACTIVITIES
Research, teaching and public service in applied areas. The Faculty of Applied Sciences brings to the University and the community a critical mass of concern and commitment to applied research and teaching, and interdisciplinary, synergistic approaches to technology and information technology, involving multiple areas of application. It encourages links between the hard sciences, social sciences and the arts. The Faculty of Applied Sciences is an excellent example of an approach which assures that research and education address practical problems of Canadian society. We have Schools in Communication, Computing Science, Engineering Science, Interactive Arts and Technology, Kinesiology, and Resource and Environmental Management. The focus of our Faculty’s programs are multidisciplinary and interdisciplinary. For us, collaboration with government, industry, and non-government organizations is an essential element in keeping the “applied” in applied sciences. This helps SFU overcome some of the barriers associated with traditional discipline-based programs.

PLANNING ASSUMPTIONS
The major assumption of the following plan is steady FTE growth in the Faculty in conformity with the University enrollment plan.

**STRATEGIC INFLUENCES**

Strategic opportunities which are reflected in the plan below include: the development of entirely new programs at Surrey; new, interdisciplinary joint programs across units and across faculties; enhanced partnerships with external communities in the development of labs, chairs, programs, and student awards; development of interdisciplinary clusters around imaging science, applied biomedical technologies, and new media; new international initiatives.

Strategic uncertainties include: meeting enrollment growth assumptions; possible faculty restructuring, which is currently being discussed within the University. The results cannot be predicted, and have not been considered as part of this 3-year plan, although each unit in the Faculty has been considering possible impacts on itself more or less seriously, and certain considerations can be found in the unit plans.

**FACULTY OBJECTIVES** *(Cost items are listed here as possible, and noted in the financial plan which is attached)*

Undergraduate Program Objectives

1. Launching the Mechatronics program in Surrey; developing a complete syllabus, bringing in additional faculty, and welcoming students to the second year of the program in Fall 2007. (Anticipate a full program of 300 undergraduate and 60 graduate students; anticipate hiring 3-5-4 faculty; 2 new staff; anticipate significant one-time laboratory expenses – approx. $1m)


3. Strengthening the new Biomedical Engineering program in Burnaby. (Anticipate 1 hire in year 2).
4. Meeting continuing demand in Communications, both undergraduate and graduate. (Possible new staff position; possible new hire in year 2 or 3)

5. Working with the Faculty of Health Sciences: exploring opportunities for joint programming with Kinesiology and Engineering Science; collaborations in the area of health information systems, drawing upon expertise in the Schools of Communications and Computing Science.

6. Working with the Faculty of Business Administration to develop joint programs in areas including new media and engineering.

7. An information technology minor, drawn from existing courses in Computing, Engineering, and Interactive Arts, that can be combined with a variety of majors from this and other faculties.

8. Re-creating and permanently staffing TechOne as a FAS- and University- entry-level signature cohort program for students interested in technology and design, with technical and non-technical streams. In cooperation with Apple, piloting a digital technology initiative that would include the use of video iPods as an instructional innovation within FAS programs.

9. Developing a CMNS-SIAT joint major around new media.

10. New international initiatives based either on the dual degree model pioneered by this Faculty, or the degree completion model.

11. Recruitment: undergraduate enrollment in 2005-06 was up across the Faculty. However, DTO targets proved to be unrealistic and unreachable in the original 4-year time frame. An extended time frame has provided some breathing room but numbers will still be difficult to reach. Demand for Communication Studies remains strong, but factors such as DTO program retention, WQ requirements, a stagnant demographic market, and strong competition from other post-secondary institutions, all work against expanding enrollment. The Faculty cannot afford to sit still and is developing an aggressive recruiting and retention agenda for both domestic and international students. Coordination between School and Faculty recruiters is paramount.
Within the Faculty, there are intensive recruitment activities being carried out at the School and Faculty levels. These activities include school visits to math and science classes, participation in large Education and Career Fairs, Open House activities at Surrey and Burnaby, and workshops with hands on activities for students. Over the past two years, Computing Science has funded additional recruitment staff positions and hired Co-op students to do outreach to local high schools. This year, in a period when enrollment numbers are decreasing, they have succeeded in enrollment increases.

The primary emphasis on recruiting for 2007–2010 will be on promoting the interdisciplinary nature of FAS programs. We will be celebrating and promoting the applied technology linkages between all the Schools and marketing the benefits of the successful Co-operative Education program to students. The domestic and international Co-op program combined along with the wide range of international exchange programs developed by SFU, will enhance the positioning of Simon Fraser University as a top choice of many students.

We will work with FAS Schools to develop a suite of recruiting materials that showcase the FAS and SFU brand. We will work with recruitment officers in Schools to assure that they can steer prospective students to other FAS Schools as appropriate. We will foster a “recruiting culture” in FAS with increased participation by students and by faculty and by administration.

11. Retention: while SFU is working to increase international student enrollment numbers, there are significant issues of retention of these students, and the majority of these students come from China, Hong Kong, Taiwan and Korea. There are also domestic retention issues in FAS Schools, which have lowered their admission requirements in order to try to meet the DTO targets. The drop in admission averages has resulted in a higher rate of students who have to leave the program or are on academic probation. We are planning to develop additional summer courses, tutorials and curriculum changes to enhance retention between 1st and 2nd years in ES, CS and SIAT, linked to more flexible entrance requirements.

Graduate Programs and Research Objectives
1. Applied Biomedical Sciences. Over the next three years, FAS is establishing a series of new joint graduate programs under the title of Applied Biomedical Sciences. These programs will be introduced initially as cohort-based graduate programs beginning September 2007, while the process of approving them as regular graduate programming proceeds. The initial two programs will be Neuromuscular Engineering, and Medical Image Sciences, and will be joint programs between Computing Science, Engineering Science and Kinesiology. The third program will be in the area of Nano/Micro Biomedical Devices.

The Neuromuscular Engineering Graduate Program will focus on neuromuscular (neural and muscle) sciences related to movement in normal and clinical disorders from the perspectives of rehabilitation/injury prevention, treatment, diagnosis, and assistive devices. The program will be grounded in the associated disciplines of biomechanics, biomedical engineering, cell physiology, systems engineering, imaging science, and human physiology.

The Medical Images Sciences will focus on the University's growing core of expertise in visualization, medical imaging and biomedicine. The program will be grounded in the associated disciplines including computational sciences, applied mathematics, visualization, network and wireless communications, biomedical engineering, cell physiology and biomedicine. (Stipends for program directors will be needed; anticipate the creation of funds for graduate student and research support, with private participation)

2. Develop a Centre for Medical Imaging and Technologies, built around the new LEEF chair in medical imaging; this will involve a partnership with researchers across FAS Schools, and across the University. (Prepared to fund additional position in support of the Chair in 07-08; space is allocated and $500k x 2 is committed to building the laboratories.)

3. Development of the Master of Digital Media professional degree program, with participation from Computing Science and from SIAT and partners from institutions across Vancouver.
4. Develop incentives and manage enrollment to increase PhD student numbers in relation to MA student numbers across the Faculty.

5. Develop and increase incentives to attract more externally funded graduate students.

6. Increase research funding over the three-year period for operating grants, and increase research dollars attracted from industry.

7. Increase the number of externally funded endowed research chairs, leveraging the Burnaby Mountain Endowment funds.

8. Develop several new advanced research labs, in partnership with internal partners such as ICURS, and external partners including Sun Microsystems, IBM and Sierra Wireless. These include the ES Stargate Laboratory and the CS Laboratory in Computational Safety and Security. ($500k committed)

9. Support the development of CS’s Surrey-based Open-Source project (“COSTAR”).

Diversity Objectives

The Dean has provided leadership and direction to School Directors and hiring committees to recognize diversity as a priority in the hiring process for new faculty positions. Participation of Equity Committee representatives is required on all FAS faculty search committees, and their presence at the table is important. Several Schools have now established gender committees, and we have increased the number of female faculty in FAS from 17% to 21% since 2001. Computing has increased from 8.3% to 16.4% and Engineering from 8.3% to 14.3%.

The Faculty will continue to be proactive in working to attract diverse groups of students. We actively supported female students attending conferences such as the biennial Grace Hopper Conference. This has led to the development of a high school female team competition, where young women develop websites for non-profit organizations.

Hiromi Matsui, FAS Director of Diversity and Recruiting, is Co-Chair of the national CCWESTT project, Women in Science,
Engineering, Trades and Technology (WinSETT), funded by Status of Women Canada, NSERC and others, currently in Phase II. This collaboration has led to her participation in a Coordinating Committee on Women in Science & Technology chaired by Arthur Carty, Science Advisor to the Prime Minister. Hiromi will continue to work with science leaders in Ottawa to promote the recruitment and retention of women.

We will continue to work on the Engineering Memorial Fund, so a commemorative work of art can be purchased and installed in the Applied Science Building.

**Co-operative Education Objectives**

Co-operative education remains a priority for the Faculty. We believe in the education value of the work experience, and fought hard to finally have the co-op term experience accepted for additive credit for students across the University.

There is again reason for optimism as we enter our next three-year cycle, with expanding numbers of co-op opportunities in high technology sectors, new media sectors, biomedical and pharmaceutical sectors. We will be working to place our co-op students in areas of Olympic activity, and increasing our exposure to not-for-profit and public sectors.

We would like to see co-op increases by 5% on an annual basis throughout this period.

**Advancement Objectives**

The annual turnover of advancement officers has thankfully ended, and we have begun to make real progress in this area. Notable achievements of 2005/6 have included: a gift offer of $1 million to create an endowed Chair through the Chiropractors Society for the School of Kinesiology; a gift offer of $1.25 million gift in kind for the Sun Centre of Excellence, an interdisciplinary project with FAS, FASS, FHS; receipt of an initial gift of $250,000 from the Heart and Stroke Foundation of BC and Yukon to support the $4.25 million LEEF Chair in Medical Imaging Technology.
Significantly, we have established an External Advisory Council to the Dean of Applied Sciences.

Objectives over the next 3 years include:
1. Leveraging gifts for student endowments by offering Burnaby Mountain Matching Funds.
2. Confirming the LEEF Chair appointment and completing the funding package.
3. Continuing to build relationships in the community, roughly spending development time: 1/3 engaged in long-term cultivation activities, 1/3 engaged in stewardship and 1/3 in shorter-term solicitation activities.
4. Enhance communication within the Faculty to support advancement initiatives; continue to develop communications material about research activity for the Faculty and external communities.
5. The Faculty advancement officer has established her goals for the next 3 years as follows: $1 million per year in a combination of outright donations and new pledges; and that within three years the Faculty will be raising $2 – $4 million annually.

Administration and Space

Budget processes have changed throughout the University and have had tremendous impact on the budget people working at the Faculty and School levels. The direction is, in general, positive but more work intensive. Much more responsibility and work is landing at the Faculty and School levels.

Increased activity in the FAS Advancement and Recruiting portfolios is straining our clerical resources. A part time temporary position was easily filled with duties in early 2006. A longer-term temporary position is planned for 2006-07. Some job description changes and possible restructuring will be needed after the move to TASC 2. At that time, clerical and other administrative support will be assessed with respect to resources vs. needs. We are assessing the need for additional grants facilitation staff, given the increase in research faculty.

(Anticipated: one new staff)
The research portion of Computing Science and (almost) all of Resource and Environmental Management made successful moves to TASC 1. Communication made a complete move into the Shrum Science Centre where REM and Earth Science had been. Engineering began its reconsolidation in ASB as renovations were made to the vacated Computing space. The School of Interactive Arts and Technology moved its administrative offices to the Surrey tower and is now moving its classrooms and labs. CS and ES offices, labs and teaching spaces are opening or will soon be opening in Surrey.

TASC 2 is due to open in Fall 2006, which will finally give Communications and Kinesiology space to hire new faculty, open spaces for research labs in CS and ES, and complete REM's move from the old East Academic Annex. The Dean's office plans to consolidate more aspects of its operations, including the Research Resource and Network Support Groups, in TASC 2.

**SUMMARY FINANCIAL PLAN** is attached.