



University
of Victoria

Faculty of Engineering

Strategic Plan

2007 - 2011

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Executive Summary

PRINCIPAL GOALS

- Ensure the content and delivery of all programs are of the highest quality.
- Provide students with a broad educational experience.
- Provide an environment for ground-breaking research and scholarship.

PEOPLE

Goal:

- Engage students, faculty, staff and others in the ongoing development of the Faculty.

Objectives:

- Ensure principles of fairness and equity are incorporated into all areas of the Faculty by holding information and workshop sessions, and conducting anonymous surveys and reviews of improvements needed.
- Ensure a diverse community of students is able to study in the Faculty by better advertising/promoting, enhancing scholarship and bursary support, increasing enrolment in graduate programs and establishing awards for international students.
- Increase the number of women, aboriginal and minority students graduating by advertising and supporting outreach activities, recruiting female faculty, and by promoting our programs to show their importance/relevance for aboriginal students.
- Provide a learning environment that builds a sense of community by emphasizing clubs and associations and providing better work/study areas.
- Improve quality and breadth of graduate programs by seeking support through grants, scholarships, bursaries and through enhanced promotion of the programs.
- Attract, recruit and retain a diverse group of research-oriented faculty of the highest international status.
- Provide appropriate support for sessional lecturers, ensuring compensation levels are appropriate, and encourage their participation in Faculty activities.
- Engage retirees and members of the regional community in research and teaching.
- Provide enhanced support for lab instructors and teaching assistants.
- Attract, recruit and retain a diverse group of staff by providing rewarding and fulfilling careers.

QUALITY

Goals:

- Offer undergraduate/graduate programs that will attract the highest caliber students.
- Encourage all faculty in their teaching, research and scholarship.
- Ensure research enhances teaching.

Objectives:

- Engage in academic planning and assessment to develop innovative approaches to prepare our students as leaders.

- Ensure all programs are of high quality, enriched by research and developments in other units.
- Ensure ongoing review of programs and course offerings by appropriate curriculum committees.
- Enhance the quality of experiential learning by maintaining and improving laboratories, and by supporting and enriching the co-op program and extra-curricular activities.
- Determine if distance delivery is an appropriate model for programs in the Faculty.
- Enhance international activities across academic programs, research and development through co-op placements, student recruitment and research.
- Become recognized as a leader in engineering and computer science research worldwide.
- Disseminate/promote research knowledge to the wider community and to recognize all forms of research and scholarly contributions including scholarship of teaching.

RESOURCES

Goal:

- Secure resources in all areas to support academic and research programs.

Objectives:

- Provide and develop administrative and support services to meet the needs of the Faculty.
- Maintain and enhance the physical resources for teaching and research.
- Provide/obtain equitable funding and resources for equipping undergraduate laboratories and research settings for graduate students by working with university and provincial bodies for enhanced funding.
- Provide support for the Faculty's development team to maintain relationships with community, donors and alumni.

OUTREACH

Goal:

- Broaden impact with ongoing interaction with alumni, community and agencies.

Objectives:

- Improve the involvement of alumni in activities, news and support of Faculty
- Institute annual receptions and award ceremonies to engage alumni, community and agencies
- Organize presentations and lectures of research activities and educational outreach to the public and industry.
- Develop relationships with diverse constituencies, institutions and other agencies.
- Enhance our position in the engineering and computer science community.

ASSESSMENT

Ultimately the success of the Faculty of Engineering will be measured in terms of our ability to attract and retain outstanding students, staff and faculty; the extent to which our programs prepare our students for success in their careers; and the quality and impact of our research and development activity.

MISSION

The Faculty will build on the strength of its students, faculty, staff and alumni, and their accomplishments to maintain and enhance its position as a leader in engineering and computer science education and research. We will continue to adapt to advances in science and engineering theory and practice by evolving our academic curricula and research programs to address the needs of our students, industry, the profession and society.

VALUES AND PRINCIPLES

We are committed to the following values and principles:

- Recognition of teaching, learning, research and creative endeavours as essential to the economic and societal wellbeing of British Columbia and Canada.
- Freedom of speech and inquiry, critical and analytical thinking, open and rational discussion, intellectual and ethical integrity, adherence to the highest academic standards, and protection of academic freedom.
- Equal rights and dignity of all persons, equity in educational opportunities and employment for all, and inclusiveness in both education and research.
- Collegial forms of governance that provide appropriate opportunities for all members of the Faculty to participate.
- Environments for work and study that are safe, supportive and healthy, and that foster mutual respect and civility, recognizing that people are our primary strength.
- Public and internal accountability.

GOALS

The Faculty's principal goals are to:

- Ensure the content and delivery of our undergraduate and graduate degree programs are maintained at the highest level of quality so as to prepare students for successful careers as socially and environmentally conscious professionals, well prepared for the life-long learning professional careers require;
- Through innovative degree options and cooperative education, together with other forms of experiential learning, provide our students with as broad an educational experience as possible;
- Provide the environment and infrastructure necessary for faculty members, graduate students and other research personnel to pursue individual, collaborative, and interdisciplinary research and scholarship competitive on both the national and international levels.

PAST AND PRESENT

The Faculty of Engineering was established on July 1, 1983 with one department, the current Department of Electrical and Computer Engineering. The Department of Mechanical Engineering commenced its undergraduate and graduate programs in the 1987-88 academic year. The Computing Science Group within the Department of Mathematics, which was formed in 1969, became a separate Department in 1980, and joined the Faculty of Engineering in 1988. The Faculty has now grown to include 84 faculty members, 80 staff, over 300 graduate students and 1,400 undergraduate students across the three departments.

During the last five years, the Faculty has gone through a major faculty renewal process. Thanks to the Double the Opportunity initiative, the Canada Research Chairs (CRC) program, and retirements, 36 new faculty members, 30 at the Assistant Professor level, have been appointed. This means that just less than half of our faculty members have been at the University for five years or less. These new appointments are in established and emerging areas and include five external CRC chairs. The high quality of those appointed reflects our continuing emphasis on innovative research and on offering flexible and up-to-date programs.

There are distinct advantages to the relative newness of the Faculty: a dynamic group of experienced academics and young researchers has been recruited from around the world, research laboratory facilities contain some of the latest and most sophisticated equipment available and the curriculum has been developed to prepare our students for the challenges of the 21st century.

We offer Bachelor of Engineering programs in Computer, Electrical and Mechanical Engineering that are accredited by the Canadian Engineering Accreditation Board (CEAB), and Bachelor of Science Major and Honours programs in Computer Science. Master's and doctoral degrees are offered by each department through the Faculty of Graduate Studies. In September 2003, we introduced a new undergraduate degree program, a Bachelor of Software Engineering, which was accredited by CEAB in June 2007 coincident with the first graduating class. We have developed an option in mechatronics / embedded systems that is open to undergraduate students from across the Faculty – an innovative approach to this highly interdisciplinary area where students learn to work in teams with peers from other disciplines.

Students in Electrical Engineering can take a Physics or a Music option. Recently, the Department of Computer Science greatly expanded its degree options for students with new combined degrees in Geography, Health Information Sciences, Music, Psychology, and Visual Arts. These complement the Major and Honours programs in Computer Science and the combined degrees with Mathematics, Physics and Statistics. Computer Science also

offers options in bioinformatics and software engineering. Options in business are available in all undergraduate programs.

Cooperative education, which combines academic studies with related job experience, has played a critical role in the undergraduate degree programs in our Faculty since their inception. The benefits of cooperative education are particularly well demonstrated in disciplines with direct practical application and we thus view co-op as one of the crucial strengths of this Faculty. There have been 9,139 work term placements in the past ten years.

Research in engineering and computer science is of critical importance to the socio-economic well being of British Columbia and Canada. Our Faculty contributes directly to the knowledge-based economy and to developing the highly qualified personnel required to drive that economy. It is essential that our students receive a solid background in fundamentals, obtain training on leading edge technologies, acquire first-hand experience of engineering and computer science practice, and have the ability to adapt to and be leaders of innovation.

Research interests in the Faculty of Engineering are very broad, covering both theory and practice. Our research funding is also diverse, ranging from government agencies (*e.g.* NSERC, CFI, BCKDF, B.C. Innovation Council), to industrial sponsored research, to contract research. Total research funding in 2006 including CRCs and the NSERC Design Chair exceeded \$8.8M.

High-quality research is clearly the cornerstone of graduate programs. In rapidly evolving disciplines such as ours, it is also essential for the health of the undergraduate programs. Our curricula must evolve and stay up-to-date at a rapid pace, and that requires faculty members be working at the leading edge of their areas of research expertise. Since its inception, the Faculty of Engineering has been firmly committed to the expansion and enhancement of its research activities, both for the benefits the research will bring, and as the foundation for our degree programs.

The latter half of the 1990's was a time of financial restraint that put significant pressure on the University of Victoria and the Faculty of Engineering. Fortunately, the fiscal climate improved and the University and the Faculty have undergone significant growth and improvement since 2000. The recent opening of the Engineering / Computer Science Building represents a major development in the Faculty, providing the space required for the continued development of our teaching and research programs.

The Faculty of Engineering has achieved almost all of the goals set forth in its January 2000 Academic Renewal Plan. This document lays out our plans and objectives for the next five years. It is modeled on the University of Victoria Strategic Plan and represents the Faculty of Engineering's aspirations in the context of the University's strategic objectives.

Faculty Research Areas

Advanced Manufacturing
Advanced Materials
Applied Electromagnetics
Biomedical Engineering
Computational and Continuum Mechanics
Computer-Aided Design and Manufacturing
Computer Graphics
Combinatorial Algorithms
Computational Electromagnetics
Devices, VLSI and Nanotechnology
Digital Signal Processing
Digital Systems Design
Information Security and Privacy
Integrated Energy Systems
Microwave Integrated Circuits
Music Information and Sound Technology
Numerical Analysis
Object Technology
Oceans Engineering
Optics, Optical Systems and Technology
Robotics, Mechanisms and Mechatronics
Parallel and Distributed Computing
Parallel and Intelligent Systems
Pervasive Systems
Signal Processing in Communications
Software Engineering
Software Systems
Thermofluids and Transport Phenomena
Wireless Communication

FUTURE DIRECTIONS

In order to continue to be nationally and internationally competitive in the changing landscape of engineering and computer science, we must strive to offer innovative and flexible programs of study and research that match the needs of society and allow us to quickly respond to future developments and trends. To ensure that our graduates are well prepared for the technological, societal and environmental challenges of the 21st century, engineering and computer science education must constantly evolve to be relevant to the lives and careers of our students. Our curriculum must be exciting and intellectually challenging to attract academically strong and highly-motivated students and must cover the standards and practices encountered in the work place. Our Faculty and staff must be connected to the needs and issues of the broader community, and must prepare our graduates for life-long learning.

We anticipate continued growth in the depth and breadth of the teaching and research activities across the Faculty. We also foresee the need to augment opportunities for interdisciplinary initiatives in recognition of the expanding

critical partnerships between engineering and computer science and other fields.

Undergraduate Programs

The current enrolments in our undergraduate programs do not meet the levels envisioned under the Doubling the Opportunity initiative nor what is needed for us to play an appropriate role in addressing the need for technically skilled graduates to support the BC and Canadian economies. We are working in three main areas in this regard:

Student recruitment – We have greatly increased our efforts in undergraduate student recruitment in the last three years. While the enrolments have not met the objectives, these efforts have been valuable in that we have not seen the level of decline in IT areas that has impacted Canada and North America in general. We plan to continue and increase our efforts in undergraduate recruitment across BC and Canada in collaboration with UVic Communications and the Registrar's Office.

Student retention – The attrition between first and second year is of concern. We are examining ways to address this in terms of the general learning environment for students, assistance and curriculum. Student retention issues are being addressed in curriculum reviews. We recently worked with the Department of Mathematics and Statistics to open a MATH Help Centre in Engineering. We are looking at other forms of tutorial assistance that will benefit our students, particularly in first year.

Student diversity – Despite having made significant efforts towards the recruitment of female students and having achieved success in attracting female faculty members, the number of women we attract to our programs is still disappointingly low. This is not an issue unique to our Faculty, but it is one we are committed to addressing. The Women in Computer Science program has recently been expanded to Women in Computer Science and Engineering. The Faculty is committed to supporting this initiative for the long term and to also supporting efforts in high school liaison. We are committed to maintaining and enhancing the learning environment particularly with regard to female students and other minority groups.

Curriculum – Continued evolution of undergraduate programs rests primarily within the Departments, but certain initiatives are undertaken at the Faculty level.

The BEng and BSENG degree programs have a common first year and also share a number of higher level courses. This collection of courses is referred to as the 'common core.' We have formed a BEng/BSENG Common Core Curriculum Task Force to review these courses, including courses offered by other units such as Chemistry, English, Mathematics and Statistics, and Physics, to ensure the common curriculum is appropriate and meets the balance required between the fundamentals and student interests.

We anticipate this review will lead to curriculum revision for the 2008 and possibly subsequent calendars.

The Faculty has been awarded a five year NSERC Environmental Design Chair (began January 2006). The primary objective of this Chair is to better integrate design throughout the undergraduate curriculum. The Chair, Dr. Peter Wild (MECH), has undertaken a number of initiatives to accomplish this. The Faculty is strongly committed to this Chair and to ensuring the initiatives introduced through the Chair are continued and supported into the future.

Graduate Programs

Increasing numbers of graduate students will help to fuel the continued expansion of all of the research programs which exist in the Faculty as well as the national and international research projects in which many faculty members are involved. The large number of recent hires and ongoing faculty renewal will continue our expansion into new and exciting research areas that will in turn attract strong graduate students. Our objective is to maintain the ratio of graduate students to regular faculty above 4 (the traditional level) and increase that towards 5 as resources permit. The Faculty will work with the University to encourage the province of British Columbia to support graduate education at a level comparable to other provinces (Alberta, Ontario, Quebec).

Cooperative Education

Experiential learning is central to engineering and computer science education. Cooperative education (Co-op) is offered across the University of Victoria and has been a foundation of all our undergraduate programs since their inception. Co-op is also available in our graduate programs and we are seeing increasing interest in that opportunity.

Our plan is to maintain and enhance the Engineering & Computer Science / MATH Co-op program with a view to increasing participation in the optional Computer Science / MATH co-op and at the graduate level. We also plan to examine ways we might make the mandatory BEng co-op program more flexible to accommodate student needs and ongoing interest from some co-op employers in work terms longer than four months.

Research

Engineering at the University of Victoria is a research intensive Faculty and the Faculty's objectives are to assist our researchers to increase and diversify their funding, and to continue to maintain and enhance a research environment that will allow our members to contribute at the leading-edge of engineering and computer science through scholarship, industrial interaction and professional contributions.

We seek to be recognized as being amongst the top institutions for engineering and computer science research in Canada and to be seen as a place of choice for graduate

students, postdoctoral research fellows and other research personnel in our areas of emphasis. To that end, we will invest more in publicizing and promoting the strength of our research activity and contributions.

We recently appointed an Associate Dean (Research) whose mandate includes encouraging research development by seeking, identifying, and facilitating research funding opportunities for faculty, and assisting with the coordination of group, multidisciplinary and intercollegiate proposal submissions.

The opening of the new Engineering and Computer Science Building in May 2006, and the subsequent reallocation of space in the Engineering Office and Lab Wings, has allowed us to address the need for research and graduate student space in a significant way. However, the new faculty members hired in the last few years are quickly building impressive research programs which will continue to drive the need for enhanced facilities.

Research Centres

There are at present three Research Centres associated with the Faculty of Engineering:

- Centre for Advanced Materials and Related Technology (CAMTEC)
- Institute for Integrated Energy Systems (IESVIC)
- Laboratory for Automation, Communications and Information Systems Research (LACIR)

Research Centres have the potential to make significant contributions to the ongoing growth of the Faculty and the University. These Centres foster collaborations among faculty and students from different engineering disciplines and from non-engineering disciplines. Such collaborations often give rise to research activities that might not otherwise be pursued.

We will work to further strengthen the contribution of the Research Centres to the Faculty and the University by

- improving efforts to coordinate the activities of Centres, Departments and the Faculty,
- in collaboration with the Vice-President Research, developing a clearer definition of the administrative relations between Centres and the Departments and the Faculty,
- ensuring Centres are involved as appropriate in the integration of research into our teaching programs particularly regarding interdisciplinary initiatives, and
- supporting the introduction of new Centres as appropriate to capitalize on particular clusters of research strength particularly in areas of interdisciplinary interest.

Integration of Teaching and Research

Research is naturally closely integrated with faculty members' teaching at the graduate level as well as in many fourth year undergraduate courses. The NSERC Environmental Design Chair will assist in the further integration of research into many aspects of our undergraduate programs. The Faculty is undertaking a review of the Faculty Evaluation Policy which is the basis for the evaluation of faculty performance for salary, tenure and promotion considerations. This review is considering ways to recognize faculty members' efforts in integrating research into undergraduate teaching.

Integration of teaching and research must work in both directions, and the review of the Faculty Evaluation Policy thus includes considering how to appropriately recognize, access and reward scholarship of teaching and learning. We anticipate having a revised policy in place in Fall 2007.

Expanding the Faculty

Compared to other universities of comparable size and quality across Canada, the Faculty of Engineering is small in terms of the number of Departments and program areas. The faculty hired in recent years have already begun to expand our research activities and it is now essential that we integrate those activities into our teaching programs through new courses and where appropriate new specializations, options and programs. The long term objective is to expand the Faculty to include a greater spectrum of engineering disciplines with continued attention to the balance of teaching and research, opportunities for students at the undergraduate and graduate levels, and the immediate and longer term needs of industry and society. This cannot be done at the expense of existing programs and will require the Faculty to work with the University, and through the University with the provincial government, to secure the needed resources.

It is not surprising that there are a number of areas in the Faculty that are ready for expansion: areas where we have established and strengthened our expertise; areas where we have recently invested resources such as software engineering and mechatronics; and areas of growing interest in terms of research and teaching. These include:

- biomedical engineering
- energy systems
- environmental engineering
- nanotechnology
- oceans engineering

Our immediate goal (2007) is to study these areas regarding opportunities for our students, opportunities for research, distinguishing our Faculty from others across Canada, and integration with our existing strengths. The outcome will be a plan for expansion of the Faculty.

PEOPLE

Our goal is to recruit and retain a diverse community of excellent students, faculty and staff as the basis for the success of our undergraduate, graduate and research programs. In addition we will engage our alumni and the community in the ongoing development of our Faculty.

Objective 1: *To ensure that the principles of fairness and equity are incorporated into all procedures and activities in the Faculty of Engineering.* [all units]

Action:

- 1.1 Use appropriate venues such as information sessions and workshops to ensure everyone is well aware of the principles and their implementation in the Faculty.
- 1.2 Conduct an anonymous survey of faculty, staff and students both to raise awareness and to establish the Faculty's perspectives and concerns on the issues.
- 1.3 Review the relevant processes, structures and activities in the Faculty to determine what improvements, if any, should be made to promote the principles of fairness and equity.

Students

Objective 2: *To ensure that outstanding students from diverse regions and backgrounds have the opportunity to study in the Faculty of Engineering and that there are no hurdles to success except academic and creative ability.* [Dean's Office, Departments, BSENG]

Action:

- 2.1 Work with University Communications and the Office of the Registrar to ensure we better advertise and promote our programs and to ensure that outstanding students from diverse regions and backgrounds are admitted to all our programs.
- 2.2 Work with the University Development Office to ensure that adequate scholarships and bursaries are available to students in all of our programs. Where possible, we will initiate contact with industry for fundraising purposes.
- 2.3 Increase enrollments of graduate students from diverse regions and backgrounds by increasing the visibility of existing graduate students in this category, providing incentives for them to advertise UVic in their undergraduate institutions, and trying to establish more awards that are open to international students.
- 2.4 Make the admissions process as transparent as possible to potential applicants, and utilize our international faculty for promoting the Faculty around the world.

Objective 3: *To increase the number of women, aboriginal and other minority students graduating from the Faculty of Engineering.* [Dean's Office, Departments, BSENG, GoWEST, Women in Computer Science and Engineering]

Action:

- 3.1 Continue and increase our effort to attract female students through better advertising and through continued support of the outreach activities of Women in Computer Science and Engineering, Let's Talk Science, Science Venture / GoWEST and other groups that are directed to high school recruitment and to attracting more female students to Engineering and Computer Science.
- 3.2 Continue and increase the efforts for recruitment and retention of female faculty to provide role models and create a supportive learning environment for women.
- 3.3 Establish relations with the Aboriginal Liaison Office at the University of Victoria to ensure that aboriginal students are admitted to the Faculty and successfully complete their studies, and work to design degree options and combined programs which will appeal to aboriginal students, or by publicizing our existing programs to emphasize their importance and relevance for aboriginal students and aboriginal communities.

Objective 4: *To provide a learning environment that builds a sense of community that is welcoming to all students.* [all units]

Action:

- 4.1 Enlarge and emphasize clubs and departmental associations, and encourage the Engineering Students' Society and Computer Science Course Union to be more active in enhancing the learning environment.
- 4.2 Ensure that students get well acquainted and are grouped into effective study groups by making sure that they meet in small groups in the lab sections, and by providing appropriate study areas. Having large lectures is not that deleterious if we have many active lab sessions, where students are encouraged to meet, greet, study together, and continue associating.
- 4.3 Work to provide better study and project work areas for undergraduate students.

Objective 5: *To continue to improve the quality and breadth of our graduate programs with the goal of attracting highly qualified and motivated graduate students and to ensure that there are no hurdles to success except academic and creative ability.* [Departments and Research Centres]

Action:

- 5.1 Seek increased funding, both public and private, for graduate students in the form of grants, fellowships, scholarships and bursaries to bring our support in line with that of other British Columbia and Canadian universities.
- 5.2 Increase the promotion of our graduate programs and research centres to encourage high quality students, both Canadian and international, to join our Faculty.

Research Personnel

Objective 6: *To further strengthen the research enterprise in the Faculty through postdoctoral fellows and research associates and assistants.* [Assoc. Dean (Research), Departments, Research Centres]

Action:

- 6.1 Seek increased government and external funding for postdoctoral studies so that the total number of funded postdoctoral fellows in the Faculty of Engineering increases significantly by 2010 and to ensure we are competitive on a national level.
- 6.2 Provide a supportive and inclusive environment for postdoctoral fellows including appropriate financial and infrastructure support.
- 6.3 Ensure that postdoctoral fellows are provided opportunities to contribute to the development of the Faculty.

Faculty

Objective 7: *To recruit and retain a diverse group of faculty of the highest national and international standards in those areas where the Faculty of Engineering chooses to develop its teaching and research programs.* [Dean's Office, Departments]

Action:

- 7.1 Each department will work with the Dean to maintain a recruitment plan that is responsive to objectives of this strategic plan while addressing short term development and long term objectives of the department within the applicable resource constraints.
- 7.2 Continue to attract and retain first-class research-oriented faculty by offering employment conditions (salaries, starting grants, course assignments) which are competitive with other Canadian universities especially in reference to the other engineering and computer science departments.
- 7.3 Make special efforts to ensure employment in the Faculty is attractive to people of diverse backgrounds and make special efforts to accommodate spouses and partners of faculty applicants.

Objective 8: *To provide appropriate recognition and support for sessional lecturers so they can contribute optimally to the Faculty's teaching mission.* [Assoc. Dean (Undergraduate Programs), Departments]

Action:

- 8.1 Develop appropriate support material (manuals, introductory lectures) for new sessional lecturers to enable them to make the most productive use of the Faculty's teaching resources.
- 8.2 Encourage the University to provide compensation levels that are appropriate to attracting high quality sessional lecturers.

- 8.3 Ensure that sessional lecturers are integrated into the activities of the Departments and the Faculty.

Objective 9: *To engage retirees and members of the regional community who are able to make significant contributions in research, teaching and professional development.* [Dean's Office, Departments, Research Centres]

Action:

- 9.1 Take advantage of the talents and skills of high caliber academics and professionals who choose to retire in Victoria.
- 9.2 Encourage the development of flexible retirement options by the University so that retirees can continue as active and valuable members of the Faculty.
- 9.3 Encourage the creation of a Retiree Liaison Office at the University level to enable retirees to inquire about collaboration possibilities, and to provide information about their capabilities and the extent of their possible contributions.

Lab Instructors and Teaching Assistants

Objective 10: *To provide appropriate recognition and support for lab instructors and teaching assistants so they can contribute optimally to the Faculty's teaching mission.* [Assoc. Dean (Undergraduate Programs), Departments, BSENG]

Action:

- 10.1 Provide appropriate orientation and training for lab instructors and teaching assistants.
- 10.2 Work with the University towards an enhanced level of compensation for teaching assistants.
- 10.2 Establish a Teaching Assistant of the Year award for each Department in the Faculty of Engineering.

Staff

Objective 11: *To recruit and retain a diverse group of outstanding staff by providing rewarding and fulfilling careers in the Faculty.* [all units]

Action:

- 11.1 Implement a new staff orientation program.
- 11.2 Work with the University to ensure that staff receive competitive compensation.
- 11.3 Implement a plan for staff career, professional and personal development. Foster an environment to support and improve staff development and encourage staff to seek out training programs, workshops, and seminars which will be beneficial to their careers.
- 11.4 Nominate staff for appropriate recognition and establish Faculty awards recognizing distinguished service by staff.
- 11.5 Encourage every unit to form a staff committee to meet at least once a term to discuss issues and to improve communication lines across the different areas.

QUALITY

Every academic enterprise is measured by the quality of its endeavours. Our goals are to

- offer undergraduate and graduate programs that will attract the highest quality students from British Columbia, across Canada and abroad, and that will prepare them for productive and rewarding careers;
- engage faculty, students, research personnel and staff in research and scholarship of international quality that will contribute to knowledge and benefit society;
- ensure that the strength of our research serves to enhance the quality of our teaching programs.

Education

Objective 12: *To engage on a continuing basis in academic planning and assessment that supports the goal of quality by considering all aspects of academic development and innovation.* [all units]

Action:

- 12.1 Continue to ensure our programs prepare our students as leaders who are
- technically competent
 - capable and creative designers
 - critical thinkers
 - effective communicators
 - team players
 - life-long learners
 - globally aware
 - professionally responsible and ethical
 - positive in attitude and outlook
- 12.2 Identify and implement a set of accepted quantitative indicators to allow the quality of our programs to be compared to other institutions in Canada for both student recruitment purposes and to provide a measure of our progress over time.

Objective 13: *To ensure that our undergraduate and graduate programs are of high quality, responsive to disciplinary and interdisciplinary developments and student needs, and enriched by the research environment of the Faculty and other units.* [Dean's Office, Departments, BSENG]

Action:

- 13.1 Ensure there is an ongoing review of programs and course offerings by the Undergraduate and Graduate Curriculum Committees.

Objective 14: *To diversify the opportunities for and enhance the quality of experiential learning in the Faculty.* [Dean's Office, Departments, BSENG, Co-op]

The Faculty has made a substantial commitment to experiential learning for our students by way of operating up to date teaching laboratories and offering extensive co-op programs. The Faculty has also sponsored, on a more limited basis, extra-curricular activities of undergraduate students such as participation in design competitions and technically focused student clubs and groups, and several other experiential learning opportunities involving outreach to elementary and secondary school students.

Action:

- 14.1 Maintain and constantly improve the undergraduate and graduate laboratories with state-of-the-art facilities, equipment and technical support.
- 14.2 Establish undergraduate and graduate laboratories and facilities that allow the full spectrum of curricula to be taught in a hands-on environment.
- 14.3 Continue strong support for and further enrich the co-operative education program with attention to increasing flexibility for students where possible.
- 14.4 Support the engineering and computer science oriented extra-curricular activities of undergraduate students (e.g. student project clubs) through funding and space allocation.
- 14.5 Continue to support experiential learning opportunities for our students through involvement in outreach to elementary and secondary school students.

Objective 15: *To support further development of distributed learning as a mechanism for increasing access to higher education.* [Departments, BSENG]

Action:

- 15.1 This has not been a high priority to date and our experience in this area is somewhat limited. The degree to which this should be pursued and the resources that should be allocated in this area are subjects for ongoing discussion.

Objective 16: *To continue to integrate and enhance international activities across academic programs, research and development.* [all units]

Action:

- 16.1 Increase international co-op placements and interaction with international employers.
- 16.2 Increase international student recruitment efforts and study-abroad opportunities as appropriate.
- 16.3 Encourage the growth of international research activity through appropriate exchange agreements and by welcoming international visitors to the Faculty.

Research

Objective 17: *To position the Faculty as a leader in engineering and computer science research in Canada and*

internationally. [Assoc. Dean (Research), Departments, Research Centres]

Action:

- 17.1 Encourage interdisciplinary collaborations of faculty and students and support interdisciplinary research activities carried out by the Research Centres.
- 17.2 Strengthen the visibility of research activities in the faculty by organizing presentations and lectures and by encouraging the flow of visitors from industry and other institutions.
- 17.3 Maintain and enhance the quality of our research facilities by providing institutional support towards keeping technologically up-to-date research labs and funding the qualified personnel required to maintain them.
- 17.4 Identify and implement a set of accepted quantitative indicators to allow the quality of our research activities to be compared to other institutions in Canada for both graduate student and faculty recruitment purposes and to provide a measure of our progress over time.

Objective 18: *To promote and expand the transfer of research knowledge for societal benefit and to increase the recognition, celebration and dissemination of the research and scholarly contributions of members of the Faculty of Engineering.* [Assoc. Dean (Research), Departments, Research Centres]

Action:

- 18.1 Be a source of experience for our students and remain open to new developments in the subjects we teach to keep our programs up to date.
- 18.2 Work with UVic Communications to develop a communications plan for the Faculty to ensure our research activities are widely known.
- 18.3 Generate regular reports, media coverage and general awareness articles in order to raise the profile of the Faculty's research and scholarship at the local, provincial, national and international levels.
- 18.3 Create promotional videos for student recruiting and for showcasing student design projects to non-technical audiences.
- 18.4 Increase nomination of faculty members for University, national and international awards and recognitions of their research and scholarship, and establish Faculty level awards as appropriate.

RESOURCES

Our goal is to secure the resources – human, financial and infrastructure – necessary for the support of our academic and research programs in a learning and working environment of the highest possible quality.

Administrative and Support Services

Objective 19: *To develop the administrative and support services necessary for meeting our goals in teaching and research.* [all units]

Action:

- 19.1 Provide and continuously monitor administrative and support services that meet the needs of the faculty, staff and students.

Information Technology and Resources

Objective 20: *To maintain the state of the art information technology infrastructure and information resources required to meet the strategic objectives of the Faculty.* [all units]

Action:

- 20.1 Continue to ensure the Faculty has state-of-the-art networking and related information technology infrastructure.
- 20.2 Work to complete wireless internet access throughout the Faculty of Engineering buildings.
- 20.3 In all units in the Faculty, work towards enhanced cooperation on issues such as responding to security threats, reducing system downtime (especially for essential services like e-mail), and maintaining consistency between software on different systems.

Objective 21: *To continue to maintain and enhance the physical resources and a learning and working environment conducive to outstanding education and research.* [all units]

Action:

- 21.1 Ensure teaching and research space properly support our objectives in a manner comparable to the best universities across Canada.
- 21.2 Ensure that existing learning / research environments are kept up to date with current standards.
- 21.3 Support the growth and maintenance of Research Centres affiliated with the Faculty of Engineering.
- 21.4 Enhance experiential learning within the Faculty by providing physical resources that are in line with those encountered in industry.

Funding

Objective 22: *To obtain adequate and equitable funding for our academic and research programs.* [all units]

Action:

- 22.1 Ensure stable and predictable funding for the equipping of undergraduate laboratories (hardware and software) to allow sustained long term enhancement of the quality of our academic programs.
- 22.2 Provide adequate resources, both financial and in terms of research setting, to enable graduate students to reach their full potential.

- 22.3 Lobby for significant university and provincial matching funds to support the training of highly qualified personnel for BC and Canadian industry.
- 22.4 Develop and maintain an information database of funding opportunities for research and operating grants, both from UVic and outside sources, to ensure faculty are aware of all possible funding opportunities.
- 22.5 Develop and maintain an expertise database with information about grant holders, advice on effective grant application writing and identify personnel to help faculty develop grant applications.

Objective 23: *To provide a growing revenue stream for the Faculty through private donations.* [all units]

Action:

- 23.1 Support the Faculty of Engineering Development Manager and Development Coordinator in maintaining excellent relationships with the local community, private donors, corporate donors and Faculty of Engineering alumni.
- 23.2 Implement private donor and corporate donor relations plans to enhance the involvement of potential donors with the Faculty of Engineering (e.g., events, ceremonies, open houses, orientations).

OUTREACH

The Faculty will seek to further broaden its impact through the ongoing engagement of its alumni and through enhanced interaction with the community, other institutions and agencies.

Objective 24: *To substantially improve the engagement and involvement of our alumni in the life and support of our Faculty.* [Dean’s Office, Departments]

Action:

- 24.1 Develop and implement an alumni relations plan to enhance the involvement of alumni in appropriate Faculty activities, to ensure they are apprised of Faculty news and to use their expertise in enhancing student project experiences, development of curriculum etc.
- 24.2 Institute an annual Faculty of Engineering alumni reception with appropriate awards for excellence in professional development, and a “best retrospective scholar” award given out based on nominations of graduates with at least two years of professional experience.
- 24.3 Organize significant anniversary get-togethers.

Objective 25: *To engage the community through educational, research and service programs and public lectures.* [all units]

Action:

- 25.1 Organize presentations and lectures of our research activities and invite the public and industry to attend.

- 25.2 Implement a faculty and graduate student colloquium event and encourage the public and industry to attend.
- 25.3 Encourage educational outreach through faculty lectures in the local community.
- 25.4 Consider creating a program that allows top high school students to work in a faculty research laboratory over the summer.

Objective 26: *To develop effective relationships with the diverse constituencies, institutions and agencies that make up our regional community.* [all units]

Action:

- 26.1 Organize events for the community such as open houses, in which we can demonstrate the work done in our faculty, particularly to high school students.
- 26.2 Organize for-the-public seminars each month, in which we discuss current trends and technologies that impact our community and our society.
- 26.3 Encourage members of the Faculty to give presentations to community interest groups and organizations through the UVic Speakers Bureau and otherwise.

Objective 27: *To further enhance our position in the computer science and engineering communities.* [Dean’s Office, Departments, BSENG]

Action:

- 27.1 Ensure that contributions by all members of the faculty in national and international level teaching and research activities are appropriately valued and recognized.

IMPLEMENTATION AND ACCOUNTABILITY

Implementation of the Strategic Plan is the responsibility of all faculty, staff and students in the Faculty of Engineering under the leadership of the Dean, the Associate Deans, the Department Chairs, the Software Engineering Program Director, the Co-op Program Manager and the Research Centre Directors as indicated above.

The Dean is ultimately accountable for the Faculty’s progress towards its strategic objectives. Each unit is to report on steps taken and progress made regarding the appropriate objectives on an annual basis.

In undertaking the actions identified for each of the objectives, we will endeavour to assess their effectiveness with a view to optimizing the return on our efforts. Ultimately the success of the Faculty will be measured in terms of our ability to attract and retain outstanding students, staff and faculty, the extent to which our programs prepare our students for success in their careers, and the quality and impact of our research and development activity.

This Plan is to be revised each year in terms of the objectives and action items to ensure it remains current, with a full review undertaken after five years.