opportunities for post-secondary education in surrey have grown exponentially due to significant expansion of two local universities. Simon Fraser University (SFU) made a strategic investment in surrey with the creation of its surrey campus in 2002. The SFU surrey campus functions as both the major research university in the Fraser Valley, and a catalyst for City Centre development.

Founded in 1981, Kwantlen Polytechnic University (KPU) has provided the backbone for education in surrey. In 2008, KPU received a university designation from the provincial government, increasing its mandate from a university college to a teaching university heavily engaged in applied research. KPU offers a breadth of education opportunities, from leading-edge research in sustainable agriculture, to trades and technology education.

School District 36 (SD 36) educated the highest number of primary and secondary students of all school districts in British columbia, and is one of only a few districts with increasing enrolment – in 2009 surrey was home to over 67,000 students. surrey is home to a robust community of 25 independent schools, including the co-ed, non-denominational southridge, which was ranked as the second best school in British columbia.

surrey’s young demographic, which is significantly higher than the metro Vancouver average, exemplifies surrey’s potential for future prosperity. A growing student population combined with new opportunities for post-secondary education will increase the average local level of educational attainment and power an educated workforce required to grow a prosperous community and economy.

Education is a significant economic driver for surrey. School District 36 is the City’s largest employer with over 8,700 staff. Census info reports 2.3% of surrey’s labour force are employed as teachers and professors. The figure under-reports the total economic contribution of education as it does not include many types of education sector jobs, including administrative and English as a second language positions. Post-secondary institutions offer well-paid, knowledge-based jobs that attract highly-educated people into the community.
Surrey’s post-secondary institutions take a pragmatic approach to education. Rather than compete with established post-secondary institutions in the region, Surrey’s universities offer specialized curriculum that provides cutting-edge education and training in high-demand fields. Surrey’s unique post-secondary approach to education is exemplified by its close partnership with business, and well-developed co-operative education programs. A strong relationship between academia and business promotes a relevant curriculum, as well as graduates that enter the workforce with applied knowledge and practical experience. Finally, Surrey offers accessibility for students. For example, KPU promotes its attainable admission standards that enable opportunities for students who might not otherwise enter post-secondary education.

The City of Surrey has formal agreements in place with both SFU and KPU that recognize strong existing relationships and identify areas for collaboration such as the common goal of creating a well-educated community and labour force.

“I can’t think of a better location for a rapidly expanding urban research university than Surrey’s City Centre. Our faculty and students are benefiting from connecting their research and studies to dynamic Surrey companies and organizations and are active participants in the rich arts and cultural communities in Surrey.”

Joanne Curry
Executive Director
SFU Surrey

“With deep roots in the Surrey community, and as Surrey’s largest university, Kwantlen has provided educational opportunities to thousands of students over the last 30 years. Kwantlen, as British Columbia’s polytechnic university, is proud to graduate work-ready students who will meet the future labour market needs of a growing, diverse and vibrant Surrey.”

Dr. David W. Atkinson
President
Kwantlen Polytechnic University
SFU Surrey has evolved from an institution focused on design and technology to a comprehensive research institution. The SFU Surrey campus at Central City was designed by acclaimed architect Bing Thom, which has won numerous national and international awards. The architectural masterpiece, along with its growing student population is helping to create a vibrant City Centre. Located adjacent to the Surrey Central SkyTrain station and transit bus loop, the institution puts students in close proximity to the resources available at SFU’s Burnaby and Vancouver campuses, connecting them to communities in Metro Vancouver and the Fraser Valley.

SFU Surrey has outlined an ambitious plan to expand, and intends to double enrolment by 2016. In 2010/11, with $10 million in Knowledge Infrastructure Program (KIP) grants, SFU Surrey is upgrading and renovating over 54,000 square feet of space adjacent to the campus’ main public space. SFU Surrey’s Podium 2 will provide teaching and research facilities allowing the campus to meet student demand. In total, SFU received $59.4 million in KIP funding to upgrade chemistry laboratories on the Burnaby campus and for the expansion at the Surrey campus.

SFU Surrey is a leading provider of a wide breadth of distinct undergraduate, graduate, and professional programs, including a strong co-operative education component. First-year cohort programs are designed to ease students’ transition from high school to university by providing first-year learning experiences that are taught in small-group, participatory environments that develop lifelong skills such as teamwork, critical thinking, analytical thinking, and effective communication through 5 programs areas: Explorations (Arts and Social Sciences), BusOne, Science Year One, Systems One (Computing and Engineering), and TechOne (Design and Technology).

Simon Fraser University (SFU) has been identified as Canada’s top ranking comprehensive university several times in the last decade. In comparison with other Canadian universities, SFU continues to achieve excellent results in annual competitions for research awards from the three federal granting agencies (SSHRC, NSERC, and CIHR). SFU received $6.4 million from the Federal Indirect Cost of Research program in 2009/10, which was used to invest in research facilities and supporting infrastructure. In measuring research intensity (Tri-Council funding per faculty member), SFU surpasses several medical/doctoral universities and all but one comprehensive university, a fact that demonstrates the high quality and competitiveness of its research programs.
Mechatronics Systems Engineering

The interdisciplinary Mechatronics Systems Engineering (MSE) program offered by SFU Surrey is one of only two such programs in North America. Mechatronics is the integration of mechanical, electronic, software and computer engineering for the development of advanced electromechanical products and systems for a wide range of industrial applications. Such products and systems are an integral part of the emerging developments in green energy technology, biomedical engineering, advanced design and manufacturing to allow for sensing, diagnostic and autonomous processing capabilities. Examples of mechatronics devices vary from surgical robots to consumer products such as digital cameras that integrate advanced technology concepts in engineering and computing science to provide versatile user interfaces, intelligence and precision.

Current research themes at MSE include: energy systems, electromechanical design, intelligent systems and bi/micro-mechatronics. This industry-focused program also blends business concepts with engineering training by offering effective communication and business of engineering courses, as well as requiring 3 mandatory co-operative education terms for students at the undergraduate level. In 2010, the Mechatronics program received $925,000 from the federal government’s Western Economic Diversification program to purchase leading-edge equipment.

Software Systems

In response to increasing industry demand for high-calibre software professionals, the School of Computing Science has created a new Bachelor of Science program in Software Systems exclusively at the Surrey campus. Software Systems graduates are in high demand across a wide range of industries that includes financial institutions, transportation industries, resource development corporations, government agencies, and communications companies.

Embedded software is found in applications and items used every day: appliances, cell phones, internet search engines, online music and movie distribution, and brakes in cars. It’s also used in more specialized areas such as financial analysis software, medical imaging software and safety critical applications such as air traffic control systems.

Software Systems is a discipline whose focus is the cost-effective development of reliable high-quality software solutions. This program is designed for students interested in a practical hands-on learning approach to developing the kinds of technologies that are the backbone of operations in virtually every modern business. Software Systems graduates will enter the work force with the strong technical, teamwork and management skills that are sought after by today’s top employers. Many program graduates are employed as Software Engineers, Network Administrators, Database Developers, Video Game Developers & more.
Science, Life Sciences, Mathematics, and Management and Systems Science

Science at SFU Surrey has four components: Science Year One, Life Sciences Year Two, the Mathematics Program, and the Management and Systems Science Program.

Science Year One is a suite of first-year science courses, spread over two semesters that has been designed for students beginning post secondary education. The program has a flexible cohort structure and provides students with first-year courses in biology, chemistry, earth sciences, physics and calculus.

Life Sciences Year Two consists of second-year science courses spread over two semesters in biology, chemistry, kinesiology, molecular biology and biochemistry (MBB), and statistics. Like Science Year One, Life Sciences Year Two is characterized by small classes and guaranteed access to course seats. The program has a flexible cohort structure and offers the second-year courses needed for majors in the biological sciences and MBB. Together, the Science Year One and Life Sciences Year Two programs are an excellent platform for those wishing to apply to professional schools in medicine, optometry, pharmacy, dentistry, chiropractic, veterinary science, and other life science areas.

SFU Surrey offers a new BSc major/Honours program in Industrial Mathematics with emphasis on Operations Research – the science of applying advanced analytical methods to help make better decisions. For over 60 years operations research has been helping businesses, institutions, and governments run more efficiently and effectively. This program offers a unique blend of theory and practice of optimization methods, mathematical modeling, and application software. Graduates look forward to a wide variety of careers in economics, management, actuarial science, statistics, education, systems analysis, engineering, biomedical applications, telecommunications, transportation, finance, accounting, architecture, and national defense.

SFU Surrey’s Management and Systems Science (MSSC) program is a versatile and dynamic program where students develop the excellent analytical and computing skills and the business savvy that companies crave. Students in MSSC take coursework in five key areas: Computing Science, Business Administration, Mathematics, Economics, and Statistics. Through their coursework, MSSC students learn to use computerized systems and quantitative methods to manage corporate productivity and make businesses more competitive.

Expanding Health Education and Research Capacity at SFU Surrey:

In 2010 SFU Surrey received a $10 million provincial/federal government grant to build teaching labs in Chemistry, Biology, Physics and Kinesiology to support expanded Science and Health Science programs.
Interactive Arts and Technology

The School of Interactive Arts + Technology (SIAT) is an interdisciplinary research focused school where technologists, artists, designers and theorists collaborate in innovative research and immersive study. A SIAT degree in Interactive Arts and Technology prepares students to play a leading role in the conception of new media and the design of inventive technologies. A SIAT education combines the science of human experience, the analysis of media and culture, the creation of original and experimental works of art, and the implementation of new technologies. Students bring these resources to bear on the most vital and innovative sectors of the economy, building the technologies and experiences that increasingly shape our lives.

Vancouver Institute for Visual Analytics (VIVA)

Researchers from SFU and the University of British Columbia have collaborated with industry partners to launch the Vancouver Institute for Visual Analytics (VIVA) with a $1.25 million investment from the Boeing Co. Visual Analytics is an emerging field that uses computers to analyze and visually convey massive amounts of data in a form that people can more readily understand. The technology is particularly useful to decision-makers in increasingly data-intensive sectors such as health care, transportation and public safety. The Institute’s Director, SFU Surrey’s Dr. Fred Popowich, is Associate Dean of the Faculty of the Applied Sciences and Professor at the School of Computing Science – while two of the Institute’s principal investigators are faculty from SFU Surrey’s School of Interactive Arts + Technology.

World Literature

World Literature is ideal for students who are keenly interested in literature, languages, cross-cultural dynamics and international travel. It examines how meanings change as literature moves from one culture to another. World Literature discovers writing from around the globe—poetry, fiction, drama, screenplays, travelogues and essays—that has circulated beyond its original culture to acquire new life in other languages, nations and traditions.

Students can combine the study of World Literature with travel, international exchanges, or field schools. Although English is the language of instruction in World Literature, students also have the opportunity to study world languages such as Chinese, Italian, Japanese, Persian, Spanish.

SIAT designed the energy control systems for West House, the sustainable laneway home on display during the Olympic Games.
Criminology

Criminology is the study of crime and of how society responds to crime. The School of Criminology at SFU focuses on crime, criminality and criminal justice, and prepares students for careers in law enforcement and criminal justice (policing, probation and parole). Many students use their Criminology degree as a foundation for law school or graduate school.

SFU’s internationally renowned School of Criminology now offers its undergraduate program at SFU Surrey. Criminology courses are integrated with a wide range of disciplines including psychology, sociology, political science, economics, history, philosophy, and computing science. Students are provided with an interdisciplinary understanding of the complexities of criminal and deviant behaviour, society’s reaction to crime and justice, the operations of the criminal justice system, and key areas of law such as criminal law and the law relating to human rights.

At SFU Surrey, the School of Criminology also offers a Police Studies program, which focuses on issues such as policing, police management and ethics and accountability. This specialized knowledge of policing – and its social and legal context – is complemented by a broad foundation in Criminology. Students in the program study a wide range of topics, including criminal profiling, terrorism, policing illegal drug markets, and forensic studies.
SFU SURREY: Commercialization and Entrepreneurship Focused

SFU Surrey has a number of programs designed to move ideas out of academia and into industry. The University Industry Liaison Office (UILO) at SFU facilitates the creation of new university-industry research and development partnerships, and commercializes the results of university-based research. SFU Surrey is part of an effective network of research commercialization - since its inception SFU’s UILO has generated 74 spin-off companies, with a cumulative total facilitated investment over $68 million.

The Venture Connection program brings academic, research and commercialization experts throughout – and beyond – SFU together with active participation from business leaders in the community to provide support and educational programs for student, faculty and community entrepreneurs who want to create successful start-up companies.

Entrepreneurs-in-Residence (EIR) are committed leaders with a proven track record of company creation, equity financing, and developing go-to-market strategies. The EIR program provides a structure for connecting senior, serial entrepreneurs with SFU researchers and their innovations for the purpose of increasing the number and quality of spin-off companies.

Venture Labs is an early-stage business incubator that provides support for business ventures in which SFU students form the majority of owners/ partners. Student entrepreneurs meet regularly with experienced mentors to review progress with the participant venture to help them achieve the milestones set for the business during the program’s duration of 8-12 months.

Students In Free Enterprise (SIFE) is a global student organization that encourages students to develop social entrepreneurial projects and gain entrepreneurial skills. SIFE Simon Fraser is an established, yet growing organization with more than 60 active members running 21 projects.

SIFE CASE STUDY
Student Entrepreneurship

Developed and managed by SIFE, SFU’s Student Entrepreneurship of the Year is based on the idea that competition fuels innovation, motivation equals perspiration, and risk provides an even greater reward. The Student Entrepreneur of the Year competition reaches across all eight of SFU’s faculties and its three campuses, capturing the attention of more than 25,000 students. The Student Entrepreneur of the Year 2009 event expanded to include a workshop and panel portion open to undergraduate, graduate students, and the local community, greatly increasing the exposure of this event.
Kwantlen Polytechnic University (KPU) is British Columbia’s polytechnic university. The polytechnic mandate presents an enviable opportunity for the institution to identify cutting-edge areas for research and curriculum development, create synergies between new research and demonstrated strengths, and continue to build on its reputation as a leader in applied education that contributes to exceptional career success.

KPU offers a breadth of programs at its two Surrey-based campuses, and a campus located just inside the Langley border. Program offerings span from trades to business, to unique research in urban agriculture at the Institute for Sustainable Horticulture. KPU’s reputation for career-oriented education is a product of close working relationships with local, national and international enterprises, a well-developed co-operative education program, an international exchange program, and a dedication to creating a culture of entrepreneurship among its students.

KPU has demonstrated a commitment to sustainability exemplified by an early adoption of green building practices with Surrey’s first LEED® Gold building, the Cloverdale campus. Kwantlen is one of only two post-secondary institutions in B.C. to receive the BC Power Smart Leader in 2008 and 2009, and the only institution to ever receive the prestigious Excellence in Energy Management Award.

**KWANTLEN PROGRAMS**

**School of Business**

KPU has the second largest business school in Western Canada with an enrolment of 4,800 students and 169 faculty members. The internationally accredited School of Business has experienced significant growth over the past six years averaging a seven per cent increase per year. KPU offers certificate, diploma and bachelor degree programs in 13 business-related disciplines. Industry-focused KPU was the third accredited post-secondary institution in the province for the Certified Management Accountant (CMA) designation.

KPU offers a range of business administration bachelor’s degrees that include specializations in accounting, entrepreneurial leadership, human resources management and marketing management. The innovative entrepreneurial leadership degree focuses on managing and leading small to medium-sized businesses and launching new business enterprises. Courses include: managerial finance, human resource management, business strategy, entrepreneurial finance, and information technology for business. In addition, as part of the School of Business, a new Bachelor of Technology in Information Technology provides an education in information systems, planning, design and security, data communications and networking, data warehousing and mining, business and management, communications and liberal education.
Co-Operative Education

Kwantlen’s Co-operative Education (Co-op) program provides students with paid, academic-related work experience that applies the skills learned through their program of study. Co-op experience expands professional skills and increases career networking and contacts while giving a competitive edge in the marketplace upon graduation. Kwantlen’s Co-op office has established solid relationships with some of the best employers in B.C. and sees its priorities as enhancing these community-based relationships while nurturing the success of students in the classroom and workplace. As a result, Kwantlen Co-op students have a well-earned and top-notch reputation in industry through work-integrated learning preparing them to be future leaders in our communities.

Faculty of Trades and Technology

Kwantlen Polytechnic University’s Cloverdale campus, which opened in 2007, is a high-tech centre built to address a recognized shortage of skilled trades people and qualified technologists in B.C. The Faculty of Trades and Technology provides highly-trained graduates to support Surrey’s diverse manufacturing sector. Kwantlen’s manufacturing-related programs and apprenticeships include CADD technologies, electrical, metal fabrication, industrial mechanic, plumbing, welding, parts and warehousing, and building construction. Students begin their careers as apprentices and as their knowledge, skills, and aspirations grow they advance through their trades apprenticeship all the way to their Red Seal certification. Many students then leverage their Red Seal certification and industry experience through unique programs that allow them to complete a bachelor’s degree at Kwantlen Polytechnic University.

The Faculty of Trades and Technology has a number of industry partnerships in specialized areas that compliment the Red Seal certified trades. Kwantlen has one of the most technically sophisticated welding facilities in North America and conducts advanced certification and re-certification for industry professionals. Kwantlen also has key training partnerships responding to the specific needs of companies, including large corporations such as BC Hydro and Kiewit Corporation.
Institute for Sustainable Horticulture

The Institute for Sustainable Horticulture (ISH) is a research institute and resource for the School of Horticulture as well as other faculties at Kwantlen. Research is applied and industry focused; staff at ISH work with faculty to integrate research into the curriculum and provide internships in the biocontrol lab. Undergraduate research experiences teach problem-solving skills and empower grads to tackle real-life problems that they’ll face in their future careers. Staff at ISH are developing Kwantlen’s new sustainable agriculture degree and have recently launched an extension education program in urban agriculture. In November, six Kwantlen students (School of Horticulture, Environmental Protection Technology) will be heading to Cuba to participate in field research trials as part of a food security project developed jointly with the province of Sancti Spiritus and ISH.

Faculty of Community and Health Studies

The nursing program is anchored by two bachelor programs. The Bachelor of Science in Nursing prepares students to function as registered nurses (RN) in acute care, intermediate and/or long-term care, clinics, home care and community agencies. The Bachelor of Psychiatric Nursing prepares students to function as registered psychiatric nurses (RPN) in a broad range of settings that provide challenging and exciting opportunities in health care. KPU also provides certification for nurses trained in other Canadian provinces and international countries.

Kwantlen’s Community and Health Studies programs provide modern facilities that offers students hands-on training. Some of the innovative, fully-equipped facilities include classrooms and a nursing research centre that reflects a real-life hospital setting providing hands-on clinical training, learning lab, and a nursing lab with a Sim — a life-sized computer-controlled mannequin — that simulates the symptoms of various illnesses through changes in breath, pulse and eye movement. Kwantlen is one of only two nursing programs in B.C. that uses this sophisticated sim technology in its instruction.

The Faculty of Community and Health Studies is involved in a number of research projects that fulfill two main goals: clinical, community-based nursing research that advances the delivery of health care and patient outcomes; and nursing education and scholarly work that develop outstanding curriculum and excellence in teaching. Much of the research is particularly relevant to local, national and international communities with topics including: improving the working environment of nurses, developing strategies to increase the diversity in the nursing program, and improving the fitness and nutrition level of students in elementary schools.
Faculty of Humanities

The Faculty of Humanities is one of the fastest growing faculties at Kwantlen Polytechnic University, comprised of six departments: creative writing, English, fine arts, modern languages, music and philosophy. Students have the option of two BA majors (English and general studies), a Bachelor of Fine Arts (BFA), five associate of arts degrees (creative writing, English, general studies, music and philosophy), three minors (creative writing, English and philosophy), and certificate/diploma programs (fine arts and music).

Over the past two years, there has been an unprecedented level of activity in the division, with degree development topping the list of priorities. Currently, there are proposals for BA majors in creative writing, music, philosophy, and a minor in modern languages. A seventh humanities department, focusing on interdisciplinary studies, is a likely possibility, as is the expansion of modern languages. New student scholarships are being established, and a number of curriculum-related fieldtrips to Asia and Europe are in development.

Faculty of Social Sciences

Kwantlen’s Faculty of Social Sciences has grown significantly over the last seven years. Almost 3500 students are now enrolled in social sciences programs each semester, and 14 innovative new bachelor’s degrees have been launched. The applied degree programs in criminology and psychology were developed with significant input from industry advisory committees and designed to provide job-ready skills. Faculty from the psychology and criminology departments are currently collaborating on a major five-year study examining protective factors that may prevent gang-involvement among youth in our community. Kwantlen Polytechnic University is one of just ten universities chosen from 79 applicants for this notable research grant program, and the only recipient west of Ontario.

The Faculty of Social Sciences also offers a rich choice of degree programs ranging from Asian studies to journalism. True to Kwantlen’s polytechnic mandate, these social science degree programs provide critical insight into the role of social, political, economic and historical forces on relevant social issues, and key skill development specifically designed to prepare students for careers and graduate work.
Surrey is the largest school district in British Columbia with over 67,000 students enrolled in 127 schools. School District 36 (SD36) is one of only a few districts in the province with increasing enrolment. The high volume of construction captures the rate of growth in Surrey with 20 new elementary schools built in the Surrey School District over the last 14 years. Of 19 secondary schools in the district, 13 were built and the remaining schools substantially renovated in the last 18 years. Surrey School District is also Surrey’s largest employer with about 8,700 employees including approximately 5,000 teachers. More of the district’s operating budget is devoted to instruction and less on administration than the provincial average.

Secondary students continue to achieve strong academic performance. The district is at (+/- 1%), or above the provincial average in all required provincial examinations for Grades 10 through 12. The strength of the district is demonstrated by the diversity of programs and high-participation rates. For example, interest in the trades continues to grow with well-subscribed programs. The district had 369 students enrolled in apprenticeship programs in 2008/09. Furthermore, a wealth of programs focuses on development in a number of priority areas, including: literacy, early learning, science, fine arts, aboriginal education, career education, student leadership and social responsibility. A detailed summary of programs and results is reported in the Annual Report on Student Achievement, available on the SD36 website.

SD 36 CASE STUDY
LEED Gold Building

Woodward Hill is the first SD 36 school in Surrey built to LEED Gold Certification for environmental standards. Features include geothermal heating, rubber flooring and skylights in every classroom. A new environmental curriculum was created by teachers to help students increase their environmental awareness. A feature computer screen will soon be installed in the lobby for students to monitor the school’s environmental footprint.
INDEPENDENT SCHOOLS

Surrey’s 25 independent schools complement the public school system by offering alternatives that accommodate diverse religious, cultural, philosophical and educational approaches to learning. Two of Surrey’s independent schools placed in the top 15 secondary schools in British Columbia according to a 2009 report by the Fraser Institute. Southridge, a co-ed, non-denominational campus located in South Surrey ranked second overall in the Province.