Bow Valley Tech Oil and Gas Engineering: Program Summary

The Bachelor of Science in Oil and Gas Engineering at Bow Valley Tech is a viable baccalaureate engineering program that will add value to Alberta's advanced education system. The potential learner demand for this program is not currently being met by other institutions in Alberta, and the clear and present industry requirement for Oil and Gas Engineering graduates underscores its status as a vital area for the continued development of Alberta's infrastructure and economy. Bow Valley Tech's ability to offer this program through the Faculty of Engineering in 2010 and beyond derives from a series of factors that leverages its existing strengths and responds to the emergent underlying changes in Alberta's economic and post-secondary environment.

Since 1916, Bow Valley Tech has been consistent in answering the evolving needs for economically and socially relevant academic and industrial training in Alberta. Adding baccalaureate degree programs such as the Bachelor of Science in Oil and Gas Engineering to Bow Valley Tech's suite of academic offerings represents the logical extension of this institution's strategic priorities. Bow Valley Tech has continuously demonstrated its ability to design and implement quality educational experiences that address the needs of learners and industry, and that facilitate lifelong learning opportunities for all suitable learner times, choices, and locations, and this background of institutional quality and excellence makes Bow Valley Tech particularly suited to offer the Bachelor of Science in Oil and Gas Engineering as a baccalaureate engineering program.

The Bachelor of Science in Oil and Gas Engineering is a unique credential that meets a specific set of technical criteria in Alberta. Its viability in the Alberta post-secondary engineering continuum stems from its not competing directly with petroleum engineering credentials within Alberta or indeed across Canada, and from its addressing the fundamental upstream engineering requirements of Alberta's energy sector. As a comprehensive review and comparison of current North American petroleum engineering programs has clearly demonstrated, Bow Valley Tech and the Faculty of Engineering are in an enviable position with the Bachelor of Science in Oil and Gas Engineering to transcend the limits that other Canadian universities experience in offering courses which focus on production engineering.

Furthermore, the Bachelor of Science in Oil and Gas Engineering fills existing and emerging gaps in energy-sector baccalaureate engineering education that have been articulated by petroleum industry stakeholders, professional associations, and other post-secondary institutions. The combination of rigid foundations in engineering theory, a robust response to industrial Oil and Gas Engineering issues, and Bow Valley Tech's proven strengths in applying the practical fundamentals of petroleum technology will ensure that the Bachelor of Science in Oil and Gas Engineering equips its graduates for an engineering career in which they immediately contribute productivity and effectiveness to their employers.

Industry stakeholders have played a crucial role in developing the Bachelor of Science in Oil and Gas Engineering program, providing feedback and validation as part of a process to ensure that the program map and program outcomes respond to the needs of the energy sector. Because the Bachelor of Science in Oil and Gas Engineering addresses the particular technical needs of the energy industry, and because the program also addresses the general employability essentials that are necessary for success in Canada's professional work environments, this baccalaureate engineering program will successfully serve the academic and professional aspirations of engineering students and petroleum sector employers alike.

The Bachelor of Science in Oil and Gas Engineering will demonstrate its worth through its ability to deliver qualified graduates to an upstream petroleum production industry whose need for functional and highly competent engineering professionals has never been greater. While with a first-year intake quota of 32 students for the program it is reasonable to anticipate an attrition rate of 20 percent due to the program's greater academic rigor, this CEAB[1]-compliant baccalaureate program will have the indisputable benefit of providing all of the competencies required by engineering programs in other Canadian universities, as well as of serving as a qualifying credential for graduate studies in North American engineering schools. Additionally, the program's higher entrance requirements and its tightly focused academic orientation will result in the self-selection of oil and gas engineering student candidates who are strongly motivated to enter and to succeed in the Bachelor of Science in Oil and Gas Engineering program. This process will also reinforce the marketplace credibility of the Bachelor of Science in Oil and Gas Engineering credential as a fully equivalent parchment to those offered by other baccalaureate oil and gas engineering programs in North America.

Bow Valley Tech's degree program development and approval process incorporates comprehensive system-wide feedback mechanisms in the context of this institution's strategic plan, which identifies three crucial directional priorities. The Leader in Learning directional priority, which defines academic excellence and learner experience as its key performance indicators, envisions positive learner experiences and learning-centred academic results as being central to the success of Bow Valley Tech's baccalaureate programs and of its graduates. The Entrepreneurial Outlook directional priority, which defines market-focused education and community connections as its key performance indicators, anticipates a close correlation between specific industry needs and general labour demands in designing and delivering relevant and effective training and education programs, of which offerings such as the Bachelor of Science in Oil and Gas Engineering represent the apex of Bow Valley Tech's academic suite. The World-Class Service Culture directional priority, which defines infrastructure management and people in a continuous learning culture

[1] Canadian Engineering Accreditation Board.

as its key performance indicators, presupposes an academic environment in which learners, employers, and employees alike are treated fairly, ethically, and effectively under conditions befitting the manner in which Bow Valley Tech would treat with a customer.

One crucial component of Bow Valley Tech's degree program development and approval process is the identification of transfer and articulation opportunities both into and from the Bachelor of Science in Oil and Gas Engineering program. Learners would enter the program either directly from Grade 12 graduation, or from Bow Valley Tech's current Oil and Gas Engineering Technology diploma program on completion of a suite of bridging courses. Students in the Bachelor of Science in Oil and Gas Engineering program will be also be able to transfer to and from other similar programs in North America, with the program's core curriculum in its first two years additionally facilitating entry to and exit from differing engineering programs prior to the Bow Valley Tech program's third year. It is worth noting that Bow Valley Tech's tradition of smaller class sizes and more accessible faculty will make the Bachelor of Science in Oil and Gas Engineering program a priority for students whose learning styles respond most effectively to applying engineering concepts on a practical level.

In light of the priorities and the expectations that the provincial government has identified, it is crucial to understand how this context defines the academic and workforce objectives of Bow Valley Tech's Bachelor of Science in Oil and Gas Engineering program, and particularly how the program responds to two especially important provincial priorities. The program satisfies the need to create opportunity for Albertans by giving its graduates the knowledge and the tools to enhance value-added activity, increase innovation, and build a skilled energy sector workforce to improve the long-term sustainability of Alberta's economy. Furthermore, the program also satisfied the need for Alberta as a whole to become a more resourceful and responsible economy by ensuring that its graduates are able to take the lead in developing Alberta's energy resources in an environmentally sustainable way. Ultimately, by providing educated and engaged engineering professionals to energy-sector towns and cities throughout Alberta, the program meets the provincial expectation for strong and vibrant communities well into the future.

Support for the Bachelor of Science in Oil and Gas Engineering program has been strong across a number of stakeholder constituencies. Current Bow Valley Tech students and Bow Valley Tech alumni alike have expressed enthusiasm for the program, with alumni remarking on the benefits of a unique and upstream-focused degree program to Bow Valley Tech and to its graduates. High school students noted that obtaining a baccalaureate degree such as the Bachelor of Science in Oil and Gas Engineering would generate enhanced career paths and greater employment potential for graduates of the program, and made the point that Bow Valley Tech's reputation for highly qualified faculty and a vibrant campus life would make the baccalaureate program all the more viable.

Bow Valley Tech's market analysis, which considers the strong student and workplace demand for its current petroleum technology programs at the diploma and applied degree level, clearly states the case for the Bachelor of Science in Oil and Gas Engineering program. The conservative intake projections for the first four years of enrolment in the program will ensure the short-term viability of the program through the use of Bow Valley Tech's current infrastructure and laboratory resources and through Enrolment Planning Envelope funding, and will ultimately set the stage for the program's long-term success. The Bachelor of Science in Oil and Gas Engineering program will be scheduled into e-Learning classrooms for the theoretical aspects of the program. Facility sharing will incorporate laboratories available on campus which are being used by other diploma programs and will be used by the Oil and Gas Engineering degree program as well.

The Bachelor of Science in Oil and Gas Engineering will share facilities and instructors with Bow Valley Tech's current engineering technology programs to make the best possible use of institutional resources, and will initiate the recruitment of MSc and Ph.D. level instructors for the degree program to ensure adherence to CEAB instructional standards. Curriculum development for the program will focus on meeting the academic requirements for professional engineer designation, which will entail a higher level of training in mathematics and science. Technology program students will complete a bridging program to bring their math and science skills up to the level of the degree program, but in-stream students and graduates will be given the opportunity to enter the degree program if they so desire.

Tuition for Bow Valley Tech's Bachelor of Science in Oil and Gas Engineering, based on 2008-09 rates, will be $7500 per year, and will include the use of a laptop computer. The proposed tuition is in line with Bow Valley Tech's current tuition policies, and broadly similar to tuition costs at other comparable institutions. Although the Faculty of Engineering does not anticipate an extraordinary drain on Student Finance Board funding for candidates in the Bachelor of Science in Oil and Gas Engineering program, student loan acceptance rates for the program may increase due to the differences in program length.

The Bachelor of Science in Oil and Gas Engineering is Bow Valley Tech's response to rising demand from Canada's energy sector for a distinct baccalaureate engineering program that answers the need for skilled, trained, and competent petroleum industry professionals with a background and a focus on upstream petroleum engineering. It addresses the emerging priorities of Bow Valley Tech as a first-rank academic institution in Alberta; it addresses the emerging priorities of the province as a vibrant, innovative, responsive, and responsible society; and it addresses the emerging priorities of the petroleum industry as an employment sector of choice for practical, entrepreneurial, and technically-minded professionals. With a strong level of support for the program from industry,

academia, students and alumni, and the general public, the Bachelor of Science in Oil and Gas Engineering is poised for success in the marketplace. With a strong array of infrastructure and instructors with the experience and the dedication to deliver petroleum engineering instruction at Bow Valley Tech, the Bachelor of Science in Oil and Gas Engineering is poised for success in Alberta's evolving post-secondary environment. For all of these reasons, Bow Valley Tech and the Faculty of Engineering look forward to commencing instruction as projected in the Bachelor of Science in Oil and Gas Engineering program in September of 2010.