

Final Assessment Report

Society, Technology and Values (Undergraduate Option)

April 2016

Summary of the Program Review:

In accordance with the university's Institutional Quality Assurance Process (IQAP), this Final Assessment Report (FAR) provides a synthesis of the external evaluation and the internal response and assessments of the Society, Technology and Values (STV) undergraduate option. This option has been delivered since 1991 by the Department of Systems Design Engineering, and is associated with the [Centre for Society, Technology and Values](#) (CSTV)¹. The STV option was last reviewed in 2008.

The current self-study (Volumes I, II, III) was submitted to the Associate Vice-President, Academic on July 30, 2015. The self-study Volume I presented the program description and learning outcomes, an analytical assessment of this option and program data prepared by the Office of Institutional Analysis & Planning (IAP). Also submitted were CVs (Volume II) for each key faculty member/instructor involved with the provision of the STV option.

The Associate Vice-President, Academic evaluated and selected an arm's-length external reviewer from Volume III: Dr. Edward Jones-Imhotep, Department of Science and Technology at York University. A second reviewer was chosen from internally: Dr. Troy Glover, Department of Recreation and Leisure Studies, University of Waterloo.

The reviewers read the self-study documentation and then conducted a site visit to the University on December 8, 2015. The visit included interviews with the Associate Vice-President, Academic, the undergraduate Associate Dean of Engineering, the Chair of the Department of Systems Design Engineering, the Director of CSTV/option coordinator, full-time instructors and sessionals, as well as staff, teaching assistants and current STV students.

This final assessment report is based on information extracted, in many cases verbatim, from the self-study, the external reviewers' report and the program response.

¹ CSTV not a "centre" in the Senate-approved sense of the word. Its focus is on teaching rather than research.

Program characteristics:

The original STV option began in 1985 as an Interdisciplinary Option for all undergraduates, and the first offering of STV 100: Society, Technology and Values: Introduction was in 1987. In the early 1990s courses in the option focused more on meeting the needs of Engineering students, partially in response to requirements of the Canadian Engineering Accreditation Board. STV courses were specifically designed or redesigned to meet the Engineering faculty's complementary studies requirement for List A - Impact of Technology on Society. As well, all STV courses meet Engineering's List C requirement for Humanities and Social Sciences.

STV is neither a department nor a program. It is a six-course undergraduate [option](#) that is offered by the [Centre for Society, Technology and Values](#) which is open to students from all faculties. STV courses promote a critical awareness of the interactions of human values, modern technology and the structure of society. Of those students who enroll in STV courses, most take only one STV course to satisfy program requirements.

Summary of strengths, challenges and weaknesses based on self-study:**Strengths**

- STV has offered courses for almost three decades and has a long and established relationship with the Faculty of Engineering
- Students in STV courses have an opportunity to hone their communication skills and learn to think about their work from outside their own discipline, ultimately improving their professional abilities and qualifications
- STV is flexible and can provide instruction on a variety of subjects relating to society and technology and values/ethics to students in a variety of programs using instructors from a diverse range of disciplines—math, engineering, philosophy, history, fine arts, English, theology, classics, computer science, biology

Challenges

- Lack of awareness on campus about the nature of STV courses - only 25% of students who have taken an STV course were aware of the option
- Low participation - only about one student per year enrolls in the undergraduate option
- Some Engineering departments have started teaching in these areas to more clearly satisfy accreditation requirements. If increasing numbers of Engineering students can meet List A requirements in their own departments, demand for STV courses may drop
- The Knowledge Integration program in the Faculty of Environment seems to be offering specializations in two areas - Design, and Science and Technology Studies, and this overlap with STV courses may make it harder to attract students to the STV option

- The name of the courses - Society, Technology and Values - might not appeal to students with their current desired outcomes, goals, and visions for careers

Weaknesses

- STV courses have evolved in an *ad hoc* manner and without a clear rationale or clear links among existing courses; there is also content overlap among courses
- Because all STV courses are on the Faculty of Engineering Complementary Studies Electives List A and List C Engineering students often take the bulk of seats in these courses
- All STV courses are offered at night in three-hour slots. This is undesirable pedagogically and unappealing to many students, but ensures that the maximum number of Engineering students can enroll, because many have little free time during the day
- STV has no female faculty and only one female staff/academic assistant, and only one permanent faculty member and one full-time contract instructor which is not enough to allow for expansion and innovation of courses

Summary of key findings from the external reviewers:

The reviewers felt that the STV option is part of a larger intellectual ecology at Waterloo in the fast-growing and dynamic area of Science and Technology Studies (STS), and that if tapped effectively, Waterloo's considerable strengths in this area could help to position it alongside the leading sci-tech universities in North America. The reviewers thought there was tremendous potential in formalizing CSTV's designation as a "centre" and expanding its presence to include a research profile on campus. As a research centre, CSTV could play a crucial role at Waterloo in establishing a formal research cluster committed to examining the social impact of technology. Furthermore, the reviewers felt that Waterloo has an impressive potential to join peer institutions in this area such as MIT, Cornell, Princeton, Rensselaer, Berkeley, Caltech, and Stanford. Hence, given this potential strength and broad appeal, the reviewers strongly encourage Waterloo to think about STV's future.

Program response to external reviewer recommendations:

Recommendations

1. **Increase visibility and strengthen identity/ improve profile:** STV faces significant difficulties with low visibility and problematic identity - two seemingly crucial factors largely responsible for low enrolment in the option. Alongside a stronger online presence, reviewers encouraged STV to work with other interested groups on campus to develop a seminar series, and co-sponsor special events and student awards and activities.

Response

STV believes they must build on their strengths first and then expand their reach - part of which will involve rebranding. It is generally agreed that the word “values” in the STV course designations is not helpful. Perhaps a better label for the option would be Technological Studies (TS) or Technological Society Studies (TSS), although neither is used commonly at other schools. STV also believes that there are fundamental questions about the relationship between technology and other elements of society that should be explored by all students of this university.

- 2. Expand collaboration/ improve ties with other groups:** To position itself more centrally within the university, the reviewers strongly encouraged STV to develop formal ties with faculty in other units, particularly in the Faculty of Arts.

Response

STV is motivated and excited to explore further links with other science and technology endeavours on campus, aiming to solidify such links. However, STV’s immediate goals are to improve course offerings and the learning outcomes for its students. STV wants to improve on what they have in place and position that model to maximize its fit and usefulness in the current University structure. To this end, they want the STV option to be acknowledged as a coherent program for “technology studies” that is open to all students. At the same time, STV courses must continue to satisfy the specific demands of “the social impact of technology” course content required by Engineering students.

- 3. Expand intellectual scope/ expand scope, critical perspectives:** To bring STV offerings into closer alignment with the current state of the field, broaden its appeal, and better meet its stated pedagogical goals, the reviewers strongly recommended expanding the critical perspectives offered in STV courses (e.g., envirotech, feminist technology studies, disaster studies, continental philosophy of technology, postcolonial studies, and critical disability studies). The expansion itself could be realized through additional faculty appointments, curricular reform, or cross-listings with other units at Waterloo.

Response

STV states that it cannot expand its current course offerings meaningfully without some combination of more faculty members, a larger budget and various compromises. To increase STV course diversity while maintaining existing enrolment figures for Engineering students, STV is open to increasing class sizes for existing courses, especially the 80-student lecture courses (STV 100, 202, 205 and 210). This could free up resources to offer increased seminar-style, theory courses for advanced students.

However, increasing class sizes will require additional resources for extra teaching assistants, at least until the new budget model is in place and a balance can be reached.

Until then, it should be possible to increase the base class sizes from 80 to 100 or 120 students or even larger, particularly for the fundamental courses: STV 100 and STV 202. Without an augmented budget, current grading methods, which emphasize written analysis and related skills, may be compromised. CSTV plans to proceed with caution. However, working to solve this problem could also increase STV's ties with other departments across campus.

Introducing new senior STV courses, as suggested by the reviewers, would also be desirable. It is not clear, however, that such courses would have much general appeal until cross-faculty interaction improves, non-Engineering student enrolment increases, or a stronger option/minor exists to draw senior students through a course progression. One possible way to extend current resources would be to offer a joint course with a faculty member from another department, or to cross-list STV courses with similar offerings in other departments. As CSTV rebuilds the curriculum and option, they will explore the possibilities recommended by the reviewers.

- 4. Long-term plan/ new long-range vision:** To ensure the various activities and reforms are coordinated in the context of a set of clear goals, it is one of the reviewers strongest recommendations that STV develop a long-term plan for transformation and renewal - one that articulates its vision within Waterloo in the coming years.

Response

The current STV courses and option present a unique focus on technology studies, and deserve to be strengthened. However, the program believes that a cross-faculty, collaborative science and technology studies program is needed at Waterloo and that the Centre for Society, Technology and Values should play a fundamental part in the creation of a unit with strong teaching and research capabilities.

In addition, the faculties of AHS and Environment produce students who apply technology to particular social problems and concerns. STV studies can add awareness and a depth of understanding of the impact of technology that will benefit these students in their chosen careers. It is not obvious that strengthening STV's alignment with Arts should be prioritized over stronger ties with other faculties.

- 5. Investigate and report on factors in low option enrolment/ improve option enrolment:** The reviewers strongly recommended that the CSTV Director investigate the *specific* reasons for low option enrolment, particularly in light of: (a) the significant enrolment of engineers in comparable areas like Peace and Conflict Studies; and (b) the surprisingly low enrolment (6%) of students from Faculty of Arts. Is the low STV option enrolment due to course conflicts? lack of interest? course structure and assignments? problematic identity?

Response

CSTV believes the request to investigate low option enrolments, especially by Engineering students, was based on faulty information. Instead, information CSTV gathered from students in a survey included in the self-study indicated that low option enrolment likely starts with low awareness of the option. Few students anywhere on campus (including Arts) learn of the STV option early enough in their university careers to take advantage of it. As well, Engineering students, with their heavy core course requirements, have little flexibility to enhance their core programs. However, CSTV believes that adding online courses and expanding their list of courses that meet option requirements, including courses from relevant disciplines in various faculties and departments, will make it possible for more students to register for the option and make the option more attractive.

Is the low STV option enrolment due to course conflicts? lack of interest? course structure and assignments? problematic identity? CSTV is interested in investigating these questions, and hopes that discussions with the First-Year Engineering Office and similarly placed undergraduate advisors across campus can help obtain answers and better communicate with prospective and junior students.

***Implementation Plan:**

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	Improve profile of CSTV, STV courses & STV option	<p>Connect with undergrad advisors, Engineering first-year office</p> <p>Connect with Waterloo student “marketing” (open house days, March Break etc)</p> <p>Relocate CSTV in Undergrad Calendar</p> <p>Expand social-media outreach</p>	<p>Campbell, Shelley, staff REQ: marketing materials</p> <p>Campbell, staff</p> <p>Shelley, Campbell, staff</p>	<p>Immediate to two years</p> <p>Immediate</p> <p>Immediate</p>
2.	Increase non-Engineering enrolment	Add reserves to 1 st year courses for junior and non-Engineering students, with commensurate increase in overall class size	Campbell REQ: new TA resources, from Dean of Engineering Office	Immediate
3.	Restructure option	Remove STV 400 requirement; adjust option requirements to simplify enrolment and increase attractiveness	Campbell	One year

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
4.	Rebuild STV curriculum	Move STV 203 to 300-level Move STV 404 to 300-level	Campbell	Immediate
5.	Improve student gender-balance	“Recruit” more undergraduates from faculties with higher ratio of women; improve teaching methods to focus on socially-positive and meaningful outcomes	Campbell, Shelley	Two to five years
6.	Improve CSTV governance and administrative limitations	Reconstitute Advisory Board	Campbell	Two years
7.	Improve profile	Establish new name Host events with Science and Technology Studies Teaching Group (STSTG), and other related groups/programs	Campbell Campbell, Shelley, staff	Two years Two years
8.	Improve ties with other groups	Joint teaching/cross-listing	Campbell, Shelley	Two years
9.	Expand scope, critical perspectives	Joint teaching/cross-listing	Campbell, Shelley	Two years

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
		Increase some class sizes to maximize resources at 100/200 level	Campbell REQ: New TA resources	Immediate
		Introduce new courses as suggested by restructuring option and rebuilding STV curriculum	Campbell, Shelley	Two to four years
10.	New long-range vision	Collaborate with STSTG, other parties, to explore an STS program and long-term research program	Campbell, Shelley	Two to seven years
11.	Improve option enrolment	Restructure option and improve profile (as above)	Campbell, Shelley	Two years

**Note: Recommendations 1-6 are self-identified improvements from the self-study, whereas Recommendations 7-11 (in bold) are from the external reviewers' report.*

The Director of STV, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.

Date of next program review: _____ **2022**
Date

Signatures of Approval:

Chair/Director _____ Date

Faculty or Administrative Dean _____ Date

Associate Vice-President, Academic _____ Date
(For undergraduate and augmented programs)

Associate Provost, Graduate Studies _____ Date
(For Graduate and augment programs)