

Ted Rogers School – Business Technology Management Program

Report on the Progress of the Developmental Plan (2017-2022)

submitted to the

Academic Standards Committee of the Ryerson University Senate

by

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This plan has been developed in consultation with the TRSM administration, TRSITM faculty, students, and input from the BTM program review team, and academic standards committee. It outlines the priorities for the program and plans to address the issues and challenges in the next 5 years.

Priority 1 – Full-time Faculty Complement

Faculty members are the critical resources dedicated to providing a quality education to our students. Over the past few years, our faculty complement decreased where the number of students and demand (in terms of teaching, services and developing aspirations for SRC) continued to increase. This trend is prevalent, and our full-time faculty complement needs to be maintained. As evident by the data provided with the program review report (as well as the more recent AACSB re-accreditation report prepared at the TRSM level), there has been an increasing need for additional support from sessional instructors to deliver our courses. ITM needs to hire more tenure-stream faculty to further alleviate the high student to faculty

ratio and to maintain the AACSB accreditation standard. The student to faculty ratio needs to be comparable to the rest of TRSM and Ryerson University. We are continuously monitoring our teaching (and research) needs to identify the areas where we need more faculty resources, and develop plans for hiring top notch faculty in those areas.

Progress to date: In the summer of 2017, we lost 4 LTF, hired 5 new LTF for a 3 year term, and renewed 1 LTF for a 1 year term that is about to expire. As a result, we will have the same number of LTF in FALL 2018 as we did when this developmental report was written.

In addition we hired a new tenure stream faculty in the summer of 2017 and 2018 respectively. We have one tenured member of our faculty retire, and are in the process of transferring another tenured faculty from another school within TRSM.

In the meantime, our student body keeps growing, therefore there is still much need for new full time faculty to bring our faculty to student ratio to Ryerson standards. Although not as fast as we would desire, the trend in our faculty compliment is in the right direction.

Priority 2 – Student Quality

This objective aims to ensure the consistency in our ability to graduate students with the right skills that the current job market requires. To build the necessary theoretical and practical knowledge needed by our students and the societal demand for ICT professionals with a specific skill set, a strong foundation in quantitative skills must be present.

Based on observations, it is noted that students at the bottom of their incoming cohort often struggle in the BTM program and demand a disproportionate amount of our resources, which cannot be used to further enhance the ability of our high-quality students. Furthermore, based on observations, due to the higher admission requirements (entering average) for the Business Management program (BM), students who apply for this program and do not receive admittance as first choice often come into BTM. Those students remain in the BTM program in the first year and take courses for Business Management or another program within TRSM, with the intention of switching programs. Thus, students that select BTM as their first choice are not provided with sufficient resources to further enhance their academic learning experiences. For instance, lack of resources often hinders the ability to proceed with lab-intensive components because not all of our students are provided with the foundational knowledge required to perform the required skills.

The BTM program is more streamlined than before and standards need to be defined in order to prevent the retention rate from declining. The School seeks to gradually increase admission standards every year until the same standards as the School of Accounting and

Finance are met. What give us optimism in this respect are the increased math requirements for admission that are recently approved by the TRSM faculty council for all TRSM programs, which require the students to have taken “Functions” in high school. We think students’ deficiency in quantitative skills significantly plagues our program, and this new requirement will address that to a great extent. As an academic unit, we are committed to keep monitoring student success to better define admission standards for the program

In addition, we also will maintain high standards in the first year required courses, and measure and analyze the performance of students in those courses along with other metrics such as retention rates. Ensuring high standards in the first year of study will further enhance the academic success rate of students as the students continue to progress through the curriculum. By checking the performance quality in the first year, the School can monitor its ability to continue delivering the learning outcomes we are committed to deliver.

Academic standards and quality are essential in our ability as a School to deliver the curriculum that will provide for quality jobs and allow for job employability for students. New standards for admissions will help adhere to the academic route outlined in the learning outcomes and University Degree Level Expectations (UDLEs). By increasing the admissions requirements, the student to faculty ratio may improve, thereby allowing faculty members more opportunity to introduce, reinforce, or create proficiency in the learning outcomes developed. Faculty members will be more able to cater to students’ needs.

Progress to date: The Math requirement TRSM wanted to implement as an admission standard has been rejected by the university, and this was a big setback for BTM. In the meantime, at least as far as their GPAs are concerned we have a higher quality of an incoming cohort in 2017 than that in any other academic year. The mean and median GPA for the 2017 cohort was 81.46% and 81.16% respectively, where these numbers were 80.40% and 80.33% in 2016 and below 80% before 2016. While less than half our students had a GPA of 80% or above prior to 2016, that ratio was 55% in 2016, and jumped to 63.1% in 2017. We are still advocating for higher admission standards in the hopes of increasing, especially the math proficiency of the incoming cohort.

As for first year performance and retention, our first year students take 3 ITM courses that we track. At ITM100, the averages were 2.39 in Fall 2016 and 2.49 in Fall 2017; at ITM107, the averages were 2.37 both in Fall 2016 and Fall 2017; at ITM207, the averages were 1.74 in Winter 2017 and 2.08 in Winter 2018. All in all the average first year performance for our students is in the C- to C+ range. We would like this to go higher to the C+ to B- range. The trend in these numbers is in the positive direction which is reason for optimism.

The retention rates for these 3 courses were as follows:

ITM100: 89.74% in Fall 2016 and 94.4% in Fall 2017

ITM107: 80.43% in Fall 2016 and 85.66% in Fall 2017

ITM207: 72.37% in Winter 2017 and 84.33% in Winter 2018.

The trend on these rates is also in a favorable direction.

Priority 3 – Curriculum Enhancement

Our program review not only disclosed a need for a strong core curriculum, but also up to date electives that complement the core in leading to valuable career paths. For that we need to carefully balance the technical and managerial courses that we offer. Our curriculum committee regularly meets to address these challenges, and as a result new courses on topics such as such as “ICT and Diversity”, “Mobile App Development”, and “Website Development” have already been developed. We also made “IT Security” a required course in our core. We will also will start looking into developing offerings in Internet of Things (IoT) as it is one of the next big technology-related developments that will influence organizations and society as a whole.

Our peer review team suggested that analytics should be one of the career paths our program supports. We are very receptive to this suggestion. TRSITM has offered analytics courses (under different titles) for almost a decade now. We have two popular elective courses in the area with plans to offer two more. One of the new courses on applied big data analytics will introduce R, as recommended by the team to build skills in data handling and visualization. The other course will cover big data infrastructure issues, and will complement our existing courses on IT infrastructure and cloud computing. Our faculty has both the potential and interest in developing the analytics area further than a combination of four electives. We will work with other units in TRSM, for example, to create Toronto-relevant specializations as capstones to the analytics core (e.g., financial analytics, retail analytics, and health analytics).

Progress to date: Following our BTM Periodic Program Review, in order to fill the gap in the learning outcomes related to the core courses, we included two important courses into our existing program. After updating the content of these courses namely, ITM 820 Information Systems security and Privacy and ITM 618 (Business Intelligence and Analytics), they were added to the list of BTM core courses effective Fall 2017 and Fall 2018. These courses are added as 3rd year core courses. These courses combined, have improved all aspects of the learning outcomes (LO1 through LO14) with a focus on reinforcement and proficiency (please see the Appendix).

Figure 1 shows the frequency analysis of the learning outcomes (LO1 through LO14) with respect to core BTM and non-BTM core courses (values of indicators such as **I** (Introductory, **R** (Reinforcement) and **P** (Proficiency) are combined).

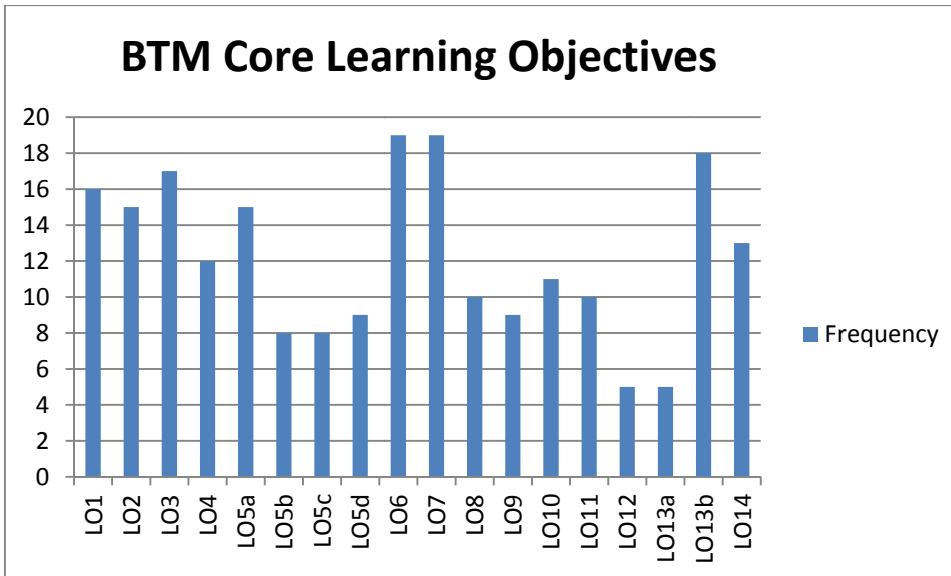


Figure 1: BTM Core Learning Objective (including non-BTM core courses)

Also, Figure 2 shows the frequency analysis of core courses (BTM & non-BTM combined) with regards to five knowledge areas namely: Integrated Learning, IT-Enabled Business Improvement, Business Fundamentals, Technology Fundamentals and Personal & Interpersonal.

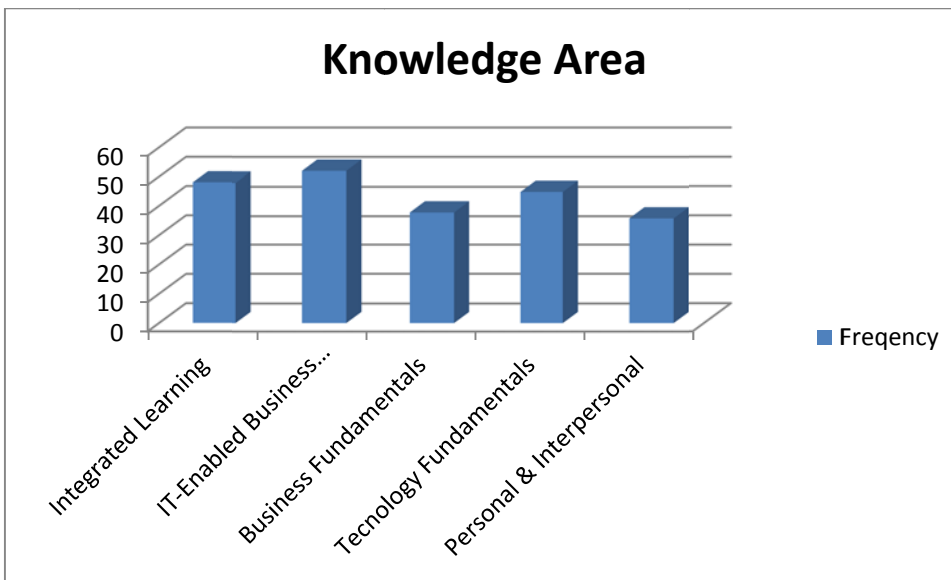


Figure 2: Frequency analysis of Knowledge Area

Furthermore, in order to improve the knowledge area of Business Fundamentals, we introduced a new course called Business Process Management (currently under catalog number ITM 703). This course will start as an elective course in Fall 2018 and then will be added to the list of BTM core courses replacing the existing ITM 410.

In addition, the following elective courses have been developed/updated in response our PPR review in order to improve the knowledge areas as depicted in figure 2.

ITM 704 Mobile Application Development
ITM 711 Cloud Computing
ITM 735 ICT and Diversity Management
ITM 780 Web Design and Management
ITM 805 Big Data Analytics (Python & R)

As a final note, we are in the process of developing an advanced business process design course to complement the enterprise architecture offering, and planning to launch a FinTech course in Winter 2019.

Priority 4 – Experiential Learning Opportunities

BTM is unique in its offering of an IT component combined with a business component, thereby creating a distinctive hybridity. The unique skills, knowledge and abilities of our students have allowed for our program to continuously provide a successful co-op program. The current intake of co-op students is 60-70 students. As a leader in co-op, over the next five (5) years, the School seeks to expand the intake to over 100 students. Based on current employer assessments for co-op students, the results are indicative of the success in co-op positions for our students.

Our students should be given greater help in finding capstone partners. For this, we will focus on Toronto startups to give our students an entrepreneurial experience. The co-op program should be a focal point in curriculum design and scheduling decisions because it is strength of the BTM program and potentially of TRSM. Decisions that might affect the viability of the co-op program, such as course sequencing, should be carefully reviewed and justified.

At TRSITM, we also subscribe to the philosophy that we should focus on using faculty members' tacit knowledge to build students' problem solving skills, judgment and expertise beyond what they can read in a book or on a slide and continuously monitor our courses to increase their fit to this profile. We also strive to provide experiential learning opportunities through case competitions and workshops.

We also are in the process of virtualizing our PC labs, where they will be accessible to students and faculty alike through internet enabled devices anywhere and anytime. As a result, we will be able to conduct our regular courses in a hybrid format as opposed to a lecturing format. We are confident that such a move will complement a focus on tacit

knowledge, and would make innovative approaches like flipped class rooms much more feasible.

Progress to date: Our Co-op program remains to be strong and growing. For the 2017-2018 academic year we had 80 applicants to this program all of whom were admitted. The number of applications grew to 142 for the 2018-2019 academic year, therefore we are on target for accepting over 100 students into co-op this year.

We have also made progress in increasing the diversity of capstone projects our students take on. As well, we are encouraging our students for increased participation in case studies for which we are running preparatory workshop and designed a new elective course.

Priority 5 – Student Engagement for Learning and Career Success

The dramatic increase in student enrollment (as stated in this report) created a challenge for the School to enhance student engagement; however, it is important to enhance these efforts as it will increase the chances for students to achieve the learning outcomes developed for the BTM program. Some of the key initiatives relative to this objective include advancing experiential learning and improving both critical thinking and communication skills.

The School will continue to work closely with student organizations in order to develop a long-term student engagement strategy across different organizations. An integral part of this objective includes engaging ITM alumni, especially with those alumni committed to student learning and career success. The School has been supporting our BTM student groups who have been organizing annual BTM alumni nights to improve community building.

As evidenced in the program review report, students want to increase their communication skills and an exemplary platform is case competitions, which require students to have proficient oral and written communication skills. Thus, we proposed more courses should incorporate case learning workshops. This proposal has already been implemented for our fourth year courses.

Progress to date: The School continues to support, through financial means and through a faculty liaison, BTM student groups in their career and networking-focused activities and the alumni night events. We also continuously encourage these groups to reach out to the entirety of the BTM student body and be as representative as possible. Through the same means, we also support students going to case competitions for their preparation and travel. As mentioned above, we also are in the process of launching an IT case study course.

Priority 6 – Diversity in the Community

This program objective is based on the notion that increasing diversity will allow our program to strengthen academic excellence and to enrich the educational experience for both students and faculty. This program objective encompasses increased diversity in the student body, staff and faculty representation, as well as, embedding diversity into our curriculum and educational environment. Efforts will also be made to increase the presence of underrepresented groups in conjunction with designing our curriculum to explore and reflect topics of diversity.

Some of the initiatives proposed to support this objective include supporting students with disabilities and creating a new elective course on ICT and diversity. As explored in the body of this report, diversity initiatives in the BTM program can be enhanced to create a more inclusive and engaging environment for students.

This report highlighted the need to improve the male to female ratio. The change from ITM to BTM increased the number of female that entered into the program, however, females only account for 20% of our student body.

ITM will continue brand awareness initiatives and encourage more female representation. Moreover, the School will continue to identify and remove barriers. Another initiative is to improve diversity in the faculty complement. Diversity in terms of the city and community not only impacts the educational institutions, it also impacts the employment opportunities available to our graduates.

Progress to date: The BTM program is one of the fastest growing program in TRSM.

Table 1, below shows a summary of the number of students enrolled in our program during the period of 2013 to 2017. The table shows a growth of over 14% in 2017 compared with year 2013.

Table 1: Application Summary - Overview	2013	2014	2015	2016	2017
Total Applications Received	2125	2042	2166	2550	2812
Total Offers Issued	1187	1189	1264	1321	1445
Matriculations (Confirmations)	425	451	456	446	485
Ratio of Applications to Matriculations	5:1	4.5:1	4.8:1	6.7:1	5.8:1
Ratio of Offers to Matriculation	2.8:1	2.6:1	2.8:1	2.96:1	2.98:1

This growth is highlighted with an increased number of higher quality students as measured by AGPA. Table 2 and Figure 3 show the distribution of AGPAs during this period. For example, the number of students with AGPA score above 80% has from 36.4% in 2013 to 63.1% in 2017.

Table 2: Final Ontario Secondary School Averages

Year	70-74.9%		75-79.9%		80-84.9%		85-89.9%		90-100%		Total	% > 80%
	# per Class	% of Class	# per Class	% of Class	# per Class	% of Class	# per Class	% of Class	# per Class	% of Class		
2013	52	15.5%	162	48.2%	93	27.7%	23	6.9%	6	1.8%	336	36.4%
2014	41	11.2%	188	51.5%	111	30.4%	19	5.2%	6	1.6%	365	37.3%
2015	27	7.6%	179	50.4%	114	32.1%	28	7.9%	7	2.0%	355	42.0%
2016	26	7.3%	135	37.7%	151	42.2%	39	10.9%	7	2.0%	358	55.0%
2017	1	0.3%	127	36.6%	157	45.2%	54	15.6%	8	2.3%	347	63.1%

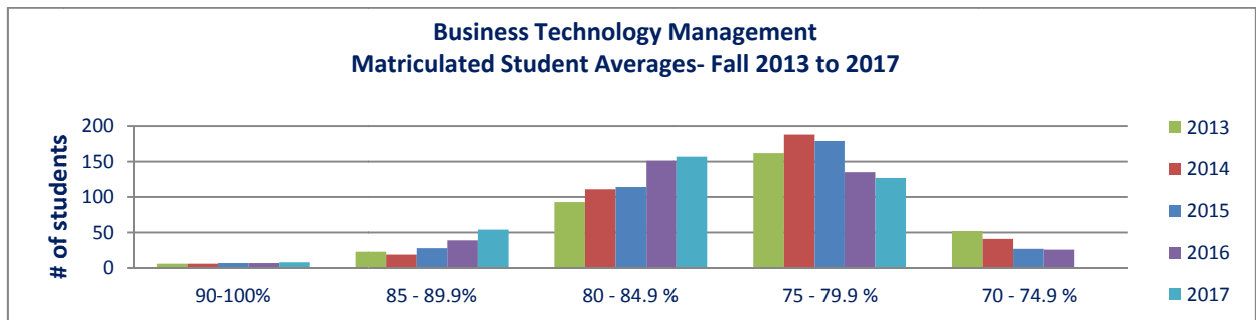


Figure 3: Distribution of AGPA during the period of 2013-2017

In addition, the number of female students enrolled in BTM program has increased from 20% in year 2013 to 25.3% in year 2017. To address the importance of diversity in our school, we have introduced a unique course called ICT & Diversity Management to address the issues of diversity in business and education. ITM School took new initiatives to support the female population of our program. Our school’s website and related social media pages highlight many success stories about our female students whether these stories are related to the Co-op program or various scholarships and awards such as (TRSM entrance scholarship, CIBC ‘s Women in IT and IBM women awards) as well as activities related to ITM female student association (WITM).

As a final note, although our program does not control admissions, our efforts on making BTM an attractive program for a diverse group of potential students and support female students already in the program continue.

Priority 7 – Industry Ties

We intend to increase the amount of interaction students and faculty members get to have with the business community in Toronto. The primary reasons for strengthening industry ties include but are not limited to:

- Increasing the number of opportunities available to Co-op students for work-term placements
- Students graduating from the BTM program will seek careers in the industry, thus, industry ties can facilitate this transition

- The curriculum constantly evolves and with strong industry ties, reflected changes in the industry will help the curriculum remain relevant
- Industry members are willing to invest in research with our faculty members and students, thereby, increasing SRC activities

Furthermore, the alumni association needs to be revived such that business connectors are created and sourcing of Co-op placements and projects for ITM 90A/B are obtained.

The concept of a Business IT Zone identifies the opportunity to leverage the Ryerson Zone model of cross disciplinary teams. As BTM students have a strong technology orientation, collaboration with other disciplines and industry supporters will prove favourable. This will allow for a collaborate space for faculty, students and industry advisors to participate, brainstorm and generate ideas. This initiative is in relation to Ryerson and TRSM's Academic Annual Plans emphasizing the emergence of an entrepreneurial spirit.

Further we recruited five new members to our program advisory council (PAC) in 2016, and we will keep building and nurturing this body. We also changed the structure of this council so that the PAC chair is elected by the other members.

Progress to date: We keep building our PAC with new recruits who are strong industry leaders, three of which joined the council since this report was submitted. The goals on the bulleted list above have been communicated to each PAC member and they seemed receptive to helping the program achieve all of them. We will keep strengthening PAC as a firsthand connection to the Toronto business world.

Priority 8 – Addressing the Competition

In addition to a strong, innovative and up to date curriculum, and effective ways of delivering it (we are in the process of designing the delivery of our lab intensive courses in a hybrid mode by deploying web-based virtualization technology) that give us a competitive advantage, we aim to continue working with our Co-op program, which is the largest in the field, to increase the number of students involved in our co-op program from 70 to 100 by 2018. Beside this, we have applied for BTM accreditation. The process has already started and we hope to get this valuable certification in 2017/2018. Currently, Simon Fraser University is the only accredited BTM School in Canada.

Last, but not least, we are in the process of hiring in targeted areas that we identified as the growth areas in IT Management. Adding highly qualified experts to our already diverse faculty will give us strength in that we do not only teach up to date relevant material to our

students, but we also research novel problems and paradigms, and can be knowledge creators in our field. This will be our competitive edge going forward.

Progress to date: We have already achieved the goal of BTM accreditation and have sufficient application to the coop program (142) to meet the goal of a Co-op cohort of 100. We have hired, as tenure stream faculty, two experts in artificial intelligence, analytics and machine learning with strong research records and future potential to be competitive in this critical area. We are in the process of transferring another faculty member with a proven record in analytics with the hopes of complementing our existing faculty in becoming a center of excellence in applied analytics and artificial intelligence.