UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY

<u>**Faculty of Business and Information Technology**</u>

Bachelor of Informatics to Technology Management major in Bachelor of Information Technology

Major Program Modification

January 2017

Prepared by: John Friedlan

Motion: That CPRC recommend to Academic Council the approval of the Technology Management major in the Bachelor of Information Technology.

1. **Rationale and Introduction**

In April 2016 Academic Council approved the Bachelor of Informatics degree with a Major in Business Technology Management; this proposal was subsequently approved by the Board of Governors and submitted to the Ontario Universities Council on Quality Assurance (Quality Council) and the Ministry of Advanced Education and Skills Development. Following its review, the Quality Council raised concerns about the Bachelor of Informatics degree program. After discussion with the Quality Council and the Office of the Provost, the decision was made to convert the proposed Bachelor of Informatics Technology Management Major into majors in our existing Bachelor of Commerce and Bachelor of Information Technology degrees. This proposal outlines the Bachelor of Information Technology major in Technology Management.

The BIT Technology Management major offers a focus on information technology with a complementary set of business courses designed to meet the needs of today's technology-enabled economy. The program will develop student skills in data analytics, information systems, change management, and data security. Students completing the major would qualify for the Certified Business Technology Manager (CBTM) designation from Canadian Coalition for Tomorrow's ICT (Information Communication Technology) Skills (CCICT), once they obtain sufficient work experience. There are also two Bachelor of Information Technology Diploma to Degree pathways; one for students with a college computer system technician diploma and one from a college computer programmer diploma. The major will be ready for a September 2017 start, pending necessary approvals.

This major is consistent with UOIT's mandate and FBIT's priority to be market relevant. It also builds on and supports UOIT's and FBIT's priorities to develop pathways for students from college programs. Existing pathways, and others in development, are intended to align with this program. The focus on informatics integrates with research being conducted in the Informatics Research Institute and in associated incubators. It is a direct response to market demand for professionals with domain specific knowledge and ICT related skills. According to Statistics Canada (2008) the labour market for professionals with business informatics skills was an IT occupation that continued to thrive through the recession due to industry need.

Description of the ways in which the major fits into the broader array of program offerings: The BIT – Technology Management major will take advantage of UOIT and FBIT's existing strengths. The interdisciplinary nature of the Faculty of Business and Information Technology will expose students in the major to additional perspectives on the impact of technology and information systems on individuals, organizations, and society. In particular, the BTI – Technology Management major will complement the proposed new BCom – Technology Management major by developing graduates with a higher level of technical programming related skills who will be able to work with the business analyst input from the BCom – Tech. Management graduates. These two majors will allow for graduates from UOIT across the entire spectrum of technology management needs expressed by industry. We will be the only school in Canada to offer this diversity of skill development in technology management. We have over 30 faculty members with expertise in Business or Technology Management disciplines. They are all active and productive in terms of teaching and research. The existing degree requirements for the Bachelor of Information Technology program will complement the learning outcomes of the Technology Management major by providing domain specific expertise and examples that would be faced by graduates throughout their careers. Students in the Technology Management major will be able to work on interdisciplinary projects with colleagues from other FBIT majors that will reflect real-world environments.

This program also complements existing graduate programs at UOIT in Computer Science, Information Technology Security, and Health Informatics. In addition, the development of the proposed major will help strengthen existing relationships and develop new partnerships through national (e.g. Canadian Neonatal Network, Canadian Advanced Technology Alliance, IBM, TD Bank, RBC, Canadian Coalition for Tomorrow's ICT Skills) and regional organizations (e.g. Durham Region, Lakeridge Health).

Technology Management Major

According to Canadian Coalition for Tomorrow's ICT Skills (CCICT) there is a large industry-based need for professionals with business skills who have relevant information communication technology (ICT) skills to help achieve high levels of productivity and innovation, and to develop competitive advantages in Canadian organizations. Statistics Canada data provides supporting evidence for this need as employment in the Information Systems and Business Analyst area grew 38% from June 2009 to June 2010. This continues to be the expected trend for the next decade. Given the increased level of ICT integration into all business processes, graduates with these skills are increasingly in demand by employers in all sectors.

In 2010 CCICT launched a $2 million "digital jobs for tomorrow" campaign for the development of business informatics programs and to support university partners and students enrolled in accredited programs. CCICT has created a certification to encourage and accredit programs in business technology management. The Bachelor of Information Technology Technology Management major achieves all the required learning outcomes to meet the CCICT's accreditation standards. Students completing the major would qualify to become Certified Business Technology Manager (CBTM), once they complete the work experience requirements.

Graduates from IT program with a major in Technology Management find employment identifying business problems and needs in order to design, implement, and maintain solutions that help organizations transform their business processes and information systems to meet the needs of the organization. This includes all types of information systems from office communication systems to strategic digital dashboards. Graduates will be qualified to hold positions such as business-IT advisors, industry IT specialists, business analytics consultants, information systems analysts, , and ICT managers. Roles include:

- Analysis, planning and design of information systems
- Development of IT solutions for problems related to a specific department or domain
- Design and implementation of databases
- Modeling and IT-supported optimization of business processes (e.g. process re-engineering)
- Design of high-quality interactive systems from the aspect of both task and application design.

Societal Need

Employers need people who understand how to leverage technology to meet the changing needs of the global economy to provide a competitive advantage for their organization in the marketplace. Demand in informatics related professions is high and growing fast. Already more than 200,000 professionals are in business technology management jobs in Canada. It is estimated that employers in every industry will need 182,000 more ICT employees by 2019 (Digital Adoption Compass, 2014). Ontario is estimated to need 76,300 ICT employees by 2019 with 52,700 of those positions needed in the Greater Toronto Area (Digital Adoption Compass, 2014). Graduates from the Technology Management major will help drive technology-enabled changes within Canada and the global economy, helping to improve innovation and economic growth.

Employers are looking for graduates who will have a clear ability to analyze situations, design appropriate technology-enabled solutions, and communicate these solutions effectively to non-technology savvy

individuals. The graduates will need strong leadership and project management skills to solve problems and implement solutions.

Degree Requirements

a. Program Learning Outcomes – Major in Business Technology Management

Please see **Appendix A** for tables listing the Technology Management major program learning outcomes for the Bachelor of Information Technology program.

b. Admission Requirements

Students can apply to the Bachelor of Information Technology - Technology Management program directly through the OUAC admissions process, therefore students must meet the admission requirements for entry into the BIT program.

c. Program Structure

Calendar copy and program maps for the proposed major can be found in **Appendix B**.

d. Program Content

Course outlines and new course forms can be found in **Appendix C.**

RESOURCE REQUIREMENTS

Faculty members

List of core faculty associated with the new program component, including appointment status, home unit, areas of teaching and research interests, supervisory experience (graduate programs only), and any new faculty requirements and gaps they would be expected to fill – **Appendix D**

a. Additional academic and non-academic human resources

None required.

b. Physical resource requirements

No additional resources will be required.

BUSINESS PLAN

a. Statement of funding requirements

There are no additional funding requirements as the courses that make up the major are already being offered through the BCom and BIT programs.

b. Statements of resource availability

N/A

c. TIMELINE/DATE OF IMPLEMENTATION

The major would commence in September 2017.

APPROVAL DATES

Date of Submission to CPRC	January 9, 2017
Faculty Council Approval	January 12, 2017
CPRC or GSC Approval	January 20 2017

Academic Council Approval	

Program Learning Outcomes	UDLEs	How the program design supports the attainment of student learning outcomes	Learning outcome: Method of assessment
1. Understanding Business Processes Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Communication skills • Awareness of limits of knowledge	Core program course in each year of the program, build from simple business choices towards increasingly complex business decisions over the course of the program. Many courses feature group projects where students must apply various methodology must be used within the constraints of the level of knowledge the students have attained.	All UOIT programs, including this program, are required to document in each course students' performance attributes via course assessment tools, which range from assignments, quizzes, midterms, technical laboratory projects, case analyses, simulation exercises, presentations, written reports, group projects, and a 4th year capstone consulting project.
Compare and contrast the role, processes, and structure of support functions of a business (e.g. management, marketing, finance, R&D, IT, human resources)			
Discriminate among the role, processes, and structures of operational functions of a business (e.g. sales, manufacturing, distribution, customer support			
Apply appropriate knowledge areas from the International Institute of Business Analysis (IIBA) Business Analysis Body of Knowledge (BABOK) to manage specific projects			
Analyze and evaluate a business process, develop the "to-be" design, and then to create the implementation plan and the business change management plan to implement this design			
2. Project and Change Management Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Program course in each year of the program present increasingly complex decisions based on a more in-depth understanding of the Project Management and Change Management concepts. Courses feature group projects where students must utilize a variety of methodologies and understand how professional decision must be made with limited knowledge.	
Explain financial, operational, and reputational risk management. Articulate the implications for business decisions of cyclical and even-driven external risks (e.g. credit crunch, pandemics, global warming, peak oil)			
Create and justify a risk management plan to mitigate risks inherent in business in the implementation of information and communications technologies (e.g. systems development, data security and privacy, business continuity, outsourcing, off-shoring and infrastructure)			
Compare and contrast the choices and activities in procurement and management of purchased IT products and services			
Apply the Project Management Institute's Project Management Body of Knowledge (PMBOK)'s approach to academic and industry based projects			
Appraise the best practices for organizational change Management			

Create an appropriate IT and lifecycle management plan (networks, desktop and data centre hardware, operating systems, databases) for a given organization or project.			

Program Learning Outcomes	UDLEs	How the program design supports the attainment of student learning outcomes	Learning outcome: Method of assessment
Evaluate IT investment decisions(e.g. make technology choices that will ease the integration of unpredictable future technologies)			The learning outcomes for this program were adapted from the required learning outcomes to meet the CCICT's accreditation standards. Once the accreditation review is completed, students completing the major would qualify to become Certified Business Technology Manager (CBTM), once they complete the work experience requirements. This designation accreditation requires external review from industry and academic reviewers to ensure the learning outcomes are demonstrated through a comprehensive set of assessment methods.
3. Strategy and Economics of Information Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Awareness of limits of knowledge • Autonomy and professional capacity	Courses in strategy and economics build on the core knowledge and provide student more a more complete understanding of the use of various techniques for planning. Group projects require students to apply various methodology within the constraints of the level of knowledge the students have attained.	
Optimize the contributions of IT to the competitive strategies, innovations, decision-making and operations of various sizes and types of organizations, industry sectors, processes and functions			
Describe the impact of IT for individuals, groups, and communities, including culture, social and environmental issues			
Explain the business values, economics and governance of IT and the IT function within organizations, including IT's role, structure, challenges and career paths			
Evaluate the choices and activities in procurement and management of purchased IT products and services based on the structure, offerings, and dynamics of the Canadian and international IT industries. This includes the economics of ICTs and specific subsectors (e.g., ERP, open source, outsourcing, web, mobility)			
4. Information Management Program Learning Outcomes	• Depth and breadth of knowledge • Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Courses throughout the program, provide students with an understand of Information Management, how to apply the skills as a professional. The courses also help develop skills in communicating this information and recognizing the bound of the knowledge.	
Evaluate data standards and utilize these standards in the design of systems			
Explain, and evaluate information quality and the effect on decisions			
Describe and explain the theoretical and practical elements of legal requirement and ethical practices in the collection and storage of information			
5. Strategic Use of Business Intelligence & Data Analytics Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Awareness of limits of knowledge	Students are provided knowledge of Business Intelligence and Data Analytics through courses in the program. The students are able to use the skills learned to solve business situations through assignments and	
Appraise the discipline of knowledge discovery and data mining and its differences to transaction/operational systems			
Design date warehouse based data stores.			

Experiment with examples of business intelligence and data analysis including the use of various qualitative and quantitative methods of analysis to achieve a strategic goal		case studies.		

Program Learning Outcomes	UDLEs	How the program design supports the attainment of student learning outcomes	Learning outcome: Method of assessment
Compose appropriate user interface mechanisms with information and knowledge created by business intelligence and data analysis solutions			
Examine introductory concepts relating to ethics and privacy and the challenges these place on knowledge discovery and data mining			
6. Systems Design Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Communication skills • Autonomy and professional capacity	Program course in each year of the program present increasingly complex of the System Design Process. Courses start by providing basic knowledge of the processes and increase the challenge by requiring application of this knowledge, and clear communications their ideas. Group projects help develop the understanding of professionalism and their own autonomy, even within a group.	
Analyze a business need, develop Request for documents (RFx), evaluate the responses, and structure a contract with the successful vendor. Evaluate the effectiveness, appropriateness and usability of an implemented information system			
Explain, create, and evaluate algorithms, data structures, and networked communication protocols to develop modern computer software			
Explain the current and future issues in IT operations (e.g. delivery of service levels, change control, green IT)			
Set-up and analyze hardware capabilities, runtime structures, and software interoperability			
Justify choice of programming language, hardware architecture, and functional or object-oriented software design			
7. Technology and Security Program Learning Outcomes	• Depth and breadth of knowledge • Knowledge of methodologies • Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Courses in technology and security provide student a strong understanding of the security and technology aspects of technology management. Students develop their understanding of how being a profession with an understanding of security impacts them and how limits to knowledge can present challenges.	
Describe and explain the theoretical and practical elements of IT security and security management, including practices, policies and procedures, in the context of the changing needs of IT for organizations.			
Describe and explain aspects of IT security and security management in the context of the wider world, addressing legislative and societal requirements			
Explain the technical concepts of IT Security, including cryptography, malicious logic, identity and auditing			
Construct, explain, and evaluate security policies and Procedures			
Develop and execute technology-focused and user-centred performance and usability evaluations			
8. General Business Program Learning Outcomes	• Depth and breadth of knowledge		

| Discuss the history and interpret the current role and future trends (e.g. globalization, social responsibility) of business within society and the global economy | • Knowledge of methodologies
• Application of knowledge
• Awareness of limits of knowledge | | |

Program Learning Outcomes	UDLEs	How the program design supports the attainment of student learning outcomes	Learning outcome: Method of assessment
Compare and contrast various business designs and models (e.g. networked, supply chains, open innovation, collaborative ecosystems) and formulate appropriate models for various cases.		Program course in each year of the program present increasingly complex business concepts and provide students the opportunities to utilize this knowledge and discover how limited knowledge can affect their decision.	
Compare and contrast various kinds of organizations by industry sector, ownership, governance, and size – their business models, key performance factors, dominant structures, and processes		Many courses feature group projects where students must apply various methodology must be used within the constraints of the level of knowledge the students have attained.	
9. Team Management Program Learning Outcomes Evaluate and apply the strengths of a diverse workplace (including ability, ethnicity, religion, gender, sexual orientation, age, generation) Persuade, influence, motivate and provide guidance (In a team setting) Facilitate a range of group innovation, analysis and decision making techniques (In a team setting) Engender and sustain trust of team members (In a team setting) Effectively use technologies to facilitate and support group activities and processes (In a team setting) Exhibit an understanding of the strengths of a diverse workplace (including ability, ethnicity, religion, gender, sexual orientation, age, generation)	• Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Group projects are used throughout the program to provide students a solid level of experience with both leading teams and working in a team in a professional manner. Courses require student to present their work in a variety of different styles and medium to help enhance their communications skills.	
10. Communications Program Learning Outcomes Apply a mastery of ethical reasoning, client relationship management, business courtesies and self-presentation in all aspects of the program Communicate clearly, efficiently and effectively in both oral and written methods in a business context Construct a strategy for business communications leveraging social media tools, practices and networks Formulate ideas effectively in public presentation settings, including graphics, layout and writing components	• Knowledge of methodologies • Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Courses throughout the program require students to use their skills to make decision requiring professional ethics and apply their knowledge and the techniques in projects and cases. Courses require student to communicate their ideas and opinions in a variety of different styles and medium to advance the students' communications skills.	

Program Learning Outcomes	UDLEs	How the program design supports the attainment of student learning outcomes	Learning outcome: Method of assessment
11. Critical, Innovative Thinking and Ethics Program Learning Outcomes Evaluate a new technology, criticize its strengths and weaknesses, appraise its usefulness to solve business problems and clearly, effectively and efficiently communicate the results Interpret the overall organizational learning and innovation process / life-cycle, and evaluate its role in organizational success	• Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	In this program students are present with the opportunity to apply the basic skills the have to new technologies and situations through consulting projects and a capstone design course. Students are expected to apply the knowledge and proficiencies they have obtained throughout the program to these real world situations	
12. Integrative Program Learning Outcomes Analyse a business problem – collect relevant information, describe and compare options and risks, and make recommendations. Appropriately use of relevant techniques such as systems thinking, qualitative, and quantitative analysis Design and communicate a moderately complex technology-enabled solution to a business problem Effectively plan, manage, and lead a business technology project Apply and synthesize programming knowledge with an understanding of business processes and practice. Manage software and creative web and media application teams	• Application of knowledge • Communication skills • Awareness of limits of knowledge • Autonomy and professional capacity	Throughout the program, culminating in fourth year capstone program student are require to integrate the abilities and concepts from all their courses to analyze situations in a professional manner. The student be able to successfully communicate the results of their work to both other professionals and more general audience.	

APPENDIX B

Technology Management Major

The Technology Management major is offered to students interested in interdisciplinary studies in Commerce and Information Technology. The program will develop student skills in data analytics, information systems, change management, and data security. Students completing this program will qualify for the Certified Business Technology Manager (CBTM) designation from Canadian Coalition for Tomorrow's ICT (Information Communication Technology) Skills (CCICT), once they obtain sufficient work experience. Graduates will be qualified to hold positions such as business-IT advisors, industry IT specialists, business analytics consultants, information systems analysts, interactive media developers, technical writers, ICT managers, and e-commerce managers.

Program details and degree requirements – Technology Management

To be eligible for the honours Bachelor of Information Technology degree, students must successfully complete 120 credit hours, including all courses outlined in the following program map.

Although reasonable efforts will be made to adhere to the following program map, course requirements and term offerings may change. For the most up-to-date list of course offerings, please visit the faculty website at businessandit.uoit.ca.

Year 1

Semester 1 (15 credit hours)

- INFR 1100U – Introduction to Programming
- INFR 1016U – Introductory Calculus
- BUSI 1520U – Business Computer Applications
- BUSI 1020U – Business Communications
- BUSI 1600U – Management of the Enterprise

Semester 2 (15 credit hours)

- General Elective*
- INFR 2140U – Object Oriented Programming
- INFR 1010U – Discrete Mathematics
- INFR 2810U – Computer Architecture
- BUSI 2000U – Collaborative Leadership

Year 2

Semester 1 (15 credit hours)

- General Elective*
- INFR 2600U – Introduction to Computer Security
- BUSI 2120U – Accounting for I.T.
- BUSI 2050U – Managerial Economics
- BUSI 2550U – Introduction to Project Management

Semester 2 (15 credit hours)

- INFR 2820U – Algorithms and Data Structures
- INFR 2830U – Operating Systems
- INFR 1550U – Law and Ethics of I.T.
- BUSI 1450U – Statistics
- BUSI 2410U – Managerial Finance

Year 3
Semester 1 (15 credit hours)

- INFR 3600U – Cryptography and Network Security
- INFR 2670U – Introduction to Cloud Services
- BUSI 2603U – Operations Management
- BUSI 3550U – Systems Analysis and Design
- BUSI 2210U – Marketing for I.T.

Semester 2 (15 credit hours)

- Open Elective*
- INFR 3810U – Database Systems
- INFR 4351U – Human Computer Interaction and User Evaluation
- BUSI 3040U – Information Systems
- BUSI 3580U – Network Systems

Year 4
Semester 1 (15 credit hours)

- INFR 4680U – I.T. Security Policies and Procedures
- BUSI 3700U – Strategic Management for Professionals
- BUSI 4590U – Topics in Informatics
- Technical Elective*
- Open Elective*

Semester 2 (15 credit hours)

- BUSI 3670U – Risk Management
- BUSI 4570U – Strategic Information Technology Management
- BUSI 4995U – Capstone Study Project II
- Technical Elective*
- Open Elective*

Electives

Students in the Technology Management major must complete seven elective courses as a part of their degree requirements. The electives are divided as follows:

- Two General Electives (6 credit hours). A general elective is considered a course outside of BIT (i.e. without the INFR or CSCI prefix).

- Two Technical Electives (6 credit hours). A list of approved INFR/CSCI courses will be sent to UOIT.net emails prior to registration.

- Three Open Electives (9 credit hours). Students may enroll in any courses from any faculty as open electives, subject to credit restrictions. These courses may be either non-INFR/non-CSCI courses or may include INFR/CSCI courses.

Technology Management major requirements

The Technology Management major in the Bachelor of Information Technology (Honours) program requires a minimum of 30 credit hours in technology management courses.

Technology Management core courses

- BUSI 2550U – Introduction to Project Management
- INFR 2600U – Introduction to Computer Security
- BUSI 2670U – Introduction to Cloud Services
- BUSI 3040U – Information Systems

- BUSI 3550U – Systems Analysis and Design
- BUSI 3670U – Risk Management
- BUSI 3810U – Database Systems
- BUSI 4570U – Strategic Information Technology Management
- BUSI 4590U – Topics in Informatics
- INFR 4680U – It Security, Policy, and Procedures

- BUSI 3550U – Systems Analysis and Design
- BUSI 3670U – Risk Management
- BUSI 3810U – Database Systems

Bachelor of Information Technology **Fall 2017 Start DRAFT**
Computer System Technician

1 Fall	**INFR 1100U** Introduction to Programming	**INFR 1016U** Introductory Calculus	**BUSI 1520U** Business Computer Applications	**BUSI 1020U** Business Communications	**BUSI 1600U** Management of the Enterprise
1 Winter	**INFR 2140U** Object Oriented Programming	**INFR 1010U** Discrete Mathematics	**INFR 2810U** Computer Architecture	**BUSI 2000U** Collaborative Leadership	General Elective
2 Fall	**INFR 2600U** Introduction to Computer Security	**BUSI 2120U** Accounting for I.T.	**BUSI 2050U** Managerial Economics	**BUSI 2550U** Introduction to Project Management	General Elective
	I.T.M. Skills Workshop				
2 Winter	**INFR 2820U** Algorithms and Data Structures	**INFR 2830U** Operating Systems	**INFR 1550U** Law and Ethics of I.T.	**BUSI 1450U** Statistics	**BUSI 2410U** Managerial Finance
	I.T.M. Skills Workshop				
3 Fall	**INFR 3600U** Cryptography and Network Security	**INFR 2670U** Introduction to Cloud Services	**BUSI 2603U** Operations Management	**BUSI 3550U** Systems Analysis and Design	**BUSI 2210U** Marketing for I.T.
	I.T.M. Skills Workshop				
3 Winter	**INFR 3810U** Database Systems	**INFR 4351U** Human Computer Interaction and User Evaluation	**BUSI 3040U** Information Systems	**BUSI 3580U** Network Systems	Open Elective
	I.T.M. Skills Workshop				
4 Fall	**INFR 4680U** I.T. Security Policies and Procedures	**BUSI 3700U** Strategic Management for Professionals	**BUSI 4590U** Topics in Informatics	Technical Elective	Open Elective
	BUSI 4990U Capstone I				
4 Winter	**BUSI 3670U** Risk Management	**BUSI 4570U** Strategic Information Technology Management	**BUSI 4995U** Capstone II	Open Elective	Technical Elective

Technical electives include:

- INFR 3120U Web & Script Programming
- INFR 3610U Operating System Security
- INFR 4621U Data Centre Design
- INFR 4611U Trust Systems
- INFR 4661U Security Analysis

Transfer
Bridge

Bachelor of Information Technology **Fall 2017 Start DRAFT**

Computer Programmer

1 Fall	**INFR 1100U** Introduction to Programming	**INFR 1016U** Introductory Calculus	**BUSI 1520U** Business Computer Applications	**BUSI 1020U** Business Communications	**BUSI 1600U** Management of the Enterprise
1 Winter	**INFR 2140U** Object Oriented Programming	**INFR 1010U** Discrete Mathematics	**INFR 2810U** Computer Architecture	**BUSI 2000U** Collaborative Leadership	General Elective
2 Fall	**INFR 2600U** Introduction to Computer Security	**BUSI 2120U** Accounting for I.T.	**BUSI 2050U** Managerial Economics	**BUSI 2550U** Introduction to Project Management	General Elective
	I.T.M. Skills Workshop				
2 Winter	**INFR 2820U** Algorithms and Data Structures	**INFR 2830U** Operating Systems	**INFR 1550U** Law and Ethics of I.T.	**BUSI 1450U** Statistics	**BUSI 2410U** Managerial Finance
	I.T.M. Skills Workshop				
3 Fall	**INFR 3600U** Cryptography and Network Security	**INFR 2670U** Introduction to Cloud Services	**BUSI 2603U** Operations Management	**BUSI 3550U** Systems Analysis and Design	**BUSI 2210U** Marketing for I.T.
	I.T.M. Skills Workshop				
3 Winter	**INFR 3810U** Database Systems	**INFR 4351U** Human Computer Interaction and User Evaluation	**BUSI 3040U** Information Systems	**BUSI 3580U** Network Systems	**Open Elective**
	I.T.M. Skills Workshop				
4 Fall	**INFR 4680U** I.T. Security Policies and Procedures	**BUSI 3700U** Strategic Management for Professionals	**BUSI 4590U** Topics in Informatics	Technical Elective	Open Elective
	BUSI 4990U Capstone I				
4 Winter	**BUSI 3670U** Risk Management	**BUSI 4570U** Strategic Information Technology Management	**BUSI 4995U** Capstone II	Open Elective	Technical Elective

Technical electives include:
- INFR 3120U Web & Script Programming
- INFR 3610U Operating System Security
  - INFR 4621U Data Centre Design
- INFR 4611U Trust Systems
- INFR 4661U Security Analysis

Transfer
Bridge

APPENDIX C

NEW COURSE TEMPLATE

For changes to existing courses see Course Change Template

Faculty: Business and IT	

Course title: Human-Computer Interaction & User evaluation	

Course number: INFR 4351U	**Cross-listings:**	__X Core _ Elective **If Elective, for which program (s):**
Credit weight: 3	**Face to Face Contact hours:** _X__Lecture _ Lab _x__Tutorial Hybrid (1.5 face to face time, 1.5 Web) Yes_____NO _____ Web Portion: Do you require Adobe Connect? Yes_____ NO_____	

CALENDAR DESCRIPTION

This is a course about the human factor of interactive technology. The course provides an overview of the design process of interactive systems and introduces students' user-centered design (UCD) toolkit. The course discusses novel interaction technologies and user evaluation methods for interactive systems. Interactive systems have become a part of people's lives around the globe. The design and usability of interactive systems is important for the ubiquitous computing that surrounds us to function properly.

Prerequisites	**BUSI3550U Systems Analysis and Design**
Co-requisites	
Credit restrictions	
Credit exemptions	
Grading Scheme	**X Letter Grade pass/fail**

LEARNING OUTCOMES

On the successful completion of the course, students will be able to:
1. Apply User-Centred Design process to develop a prototype
2. Identify, interpret, and explain human-computer interaction best practices
3. Prepare usable interfaces by building prototypes
4. Differentiate between different heuristic evaluation approaches
5. Distinguish various novel interaction hardware, compare their features and match devices to purposes
6. Organize and construct mental models for users
7. Summarize and compare different user research approaches
8. Design, implement, and evaluate effective and usable graphical user interfaces

DELIVERY MODE AND TEACHING METHOD (S):

(check all that may apply)	X face-to-face	X hybrid	online

TEACHING AND ASSESSMENT METHODS

Homework Assignments, Participation, midterm exam, group project including the design and evaluation of a prototype, oral presentation and written project report

CONSULTATION AND FINANCIAL IMPLICATIONS, WHERE APPROPRIATE

New Course Proposal Detail

INSTRUCTION:

PLANNED FREQUENCY OF OFFERING AND NUMBER OF SECTIONS ANTICIPATED (EVERY YEAR, ALTERNATE YEARS ETC.)

This is a core course and should be taught by core gaming faculty each year.

NUMBER OF FACULTY MEMBERS CURRENTLY COMPETENT TO TEACH THE COURSE:

2

INSTRUCTOR (S) LIKELY TO TEACH THE COURSE IN THE COMING YEAR:

Pejman Mirza-Babaei

SAMPLE TEXTBOOK

Rogers, Y., Sharp, H., Preece, J. (2011). Interaction Design: Beyond Human - Computer Interaction (3rd Edition). Wiley. ISBN-10: 0470665769 | ISBN-13: 9780470665763

ANY RESOURCES TO BE PURCHASED/PROVIDED BY STUDENTS:

Digital prototyping software – often free for students

CREATOR :   Pejman Mirza-Babaei

FACULTY QUALIFICATIONS (ACADEMIC AND EXPERIENCE) TO TEACH THE COURSE:

Degree in HCI and user evaluation

Understanding of qualitative and quantitative research methods.

BIBLIOGRAPHY:

List of bibliography will be prepared by the instructor to stay current with the market trend. However, while the Library currently subscribes to some finance journals some additional periodical subscriptions maybe necessary. Shneiderman, D., Plaisant, C. (2009). Designing the User Interface: Strategies for Effective Human-Computer Interaction (5th Edition). Addison-Wesley/Pearson. ISBN-10: 0321537351 | ISBN-13: 9780321537355

Norman, D. A. (2002). The Design of Everyday Things. Basic Books. ISBN-10: 0465067107 | ISBN-13: 978-0465067107

Dix, A., Finlay, J., Abowd, G.D., Beale, R. (2003). Human-Computer Interaction (3rd Edition). Pearson/Prentice Hall. ISBN-10: 0130461091 | ISBN-13: 9780130461094

OTHER RESOURCES:

This course only requires a technology-enhanced classroom with laptop connections, data projector, and internet access. This type of classroom is already existed in our current building. There are no special equipment or lab facilities to support the offering of this course.

COURSE RATIONALE:

Understanding and evaluating user interactions has become an important part of designing and developing of digital products.   It is critical for our students to learn about user interaction design and evaluation to consider when creating solutions utilising digital systems. This is a hands-on course that introduces students to human factor of interactive technology and user evaluation methods. The course provides many activities to encourage more discussion regarding the learning objectives and how best students to utilise them.

FACULTY APPROVAL FOR CROSS-LISTINGS:

APPROVAL DATES:

Date of submission	January 9, 2017
Curriculum Committee approval	January 10, 2017
Faculty Council approval	January 12, 2017

NEW COURSE TEMPLATE

For changes to existing courses see Course Change Template

Faculty: Faculty of Business and IT		
Course title: Strategic Information Technology Management		
Course number: BUSI 4570U	**Cross-listings:**	**_X___ Core ___ Elective** **If Elective, for which program (s):**
Credit weight: 3 CR	**Face to Face Contact hours: 3 hr__** Lecture ___ Lab ___Tutorial Hybrid (1.5 face to face time, 1.5 Web) Yes ___ NO ___ Web Portion: Do you require Adobe Connect? Yes ___ NO___	

CALENDAR DESCRIPTION

Information technology (IT) has the potential to change the landscape of global competition, increase productivity, change industry structure, make markets more efficient and alter a firm's competitive position. IT can increase the efficiency of every business activity including product design, production, purchasing, marketing, customer-supplier relationships and human resource management. Economists agree that IT has contributed significantly to productivity growth and helped check inflation. Such beliefs and promises have persuaded corporations to spend over a trillion dollars on IT alone over the last decades. However, the dramatic decline in IT investments after 2000–2001 and the difficulty researchers have had in tying IT investments to corporate performance has led sceptics to question the economic contribution of IT. Indeed, the rapid rate of IT innovation, massive investments in the IT infrastructure and applications, the difficulty in showing the competitive impact of IT investments and conflicting viewpoints regarding the value of IT raise a gamut of issues for managers in user organizations, financial institutions, vendor organizations and consulting firms: Do IT and the Internet change basic economic principles and strategies? Does the ability to search, seek and share information regardless of time, space and geographical differences increase market efficiency? Is such efficiency beneficial to all market participants? How and where can IT benefit an organization? Are there any killer applications that can still justify large investments in IT infrastructure? Which types of information technologies hold promise for the future? This course has been designed to provide frameworks and underlying principles to address these and other related issues.

Prerequisites	
Co-requisites	
Credit restrictions	
Credit exemptions	
Grading Scheme	X☐ **Letter Grade** ☐ **pass/fail**

LEARNING OUTCOMES

By the end of the semester students will develop an understanding of and appreciation for:
(i) the impact of IT on economies, industry sectors, and businesses
(ii) emerging technology infrastructure and its role in the modern organization
(iii) approaches to justifying initiatives requiring information technology investments
(iv) governance of information technology decisions in today's firms

DELIVERY MODE AND TEACHING METHOD (S):

(check all that may apply)   X face-to-face   hybrid   online

TEACHING AND ASSESSMENT METHODS

Case discussion based on assigned readings, individual research, lecture and other materials.

CONSULTATION AND FINANCIAL IMPLICATIONS, WHERE APPROPRIATE

New Course Proposal Detail

INSTRUCTION:

PLANNED FREQUENCY OF OFFERING AND NUMBER OF SECTIONS ANTICIPATED (EVERY YEAR, ALTERNATE YEARS ETC.)

Every Year

NUMBER OF FACULTY MEMBERS CURRENTLY COMPETENT TO TEACH THE COURSE:

2

INSTRUCTOR (S) LIKELY TO TEACH THE COURSE IN THE COMING YEAR:

SAMPLE TEXTBOOK

Managing and Using Information Systems: a Strategic Approach

ANY RESOURCES TO BE PURCHASED/PROVIDED BY STUDENTS:

Course text (TBD), cases for discussion (for illustration, published cases such as Offshoring at Global Information Systems, Inc.; Enterprise Systems at ICL; STARS Air Ambulance- An Information Systems Challenge; Google, Inc.; Mercedes-Benz USA: Investing in IT Infrastructure; Cisco Systems, Inc.: Implementing ERP; Cisco Systems: Web-enablement; Cisco Systems Architecture: ERP and Web-enabled IT; Cisco Systems: Building Leading Internet Capabilities)

CREATOR : **_____**

FACULTY QUALIFICATIONS (ACADEMIC AND EXPERIENCE) TO TEACH THE COURSE:

Ph.D. in Information Systems MBA with course work in Information Systems Background in IT and/or Information Strategy

BIBLIOGRAPHY:

OTHER RESOURCES:

Course requires a technology-enhanced case discussion classroom with laptop connections, data projector, and internet access (such classrooms exist in current facilities). No special equipment or lab facilities are required. Additional materials may be requested for addition to the Library holdings or periodical subscriptions.

COURSE RATIONAL:

Required core course for Technology Management Major

FACULTY APPROVAL FOR CROSS-LISTINGS:

APPROVAL DATES:

Date of submission	*January 9, 2017*
Curriculum Committee approval	*January 10, 2017*
Faculty Council approval	*January 12, 2017*

COURSE CHANGE TEMPLATE

For new courses see New Course Template

Faculty: Faculty of Business and IT
Program: Bachelor of Commerce and IT

Course number: BUSI 4590U	**Current course title: Special Project in E-Business and E-Commerce**
__ __ Core _x___ Elective	

COURSE CHANGES (check all that apply)

X	Course title			Credit weighting
X	Course description			Contact hours
	Course number			Prerequisites
	Course design			Co-requisites
	Learning outcomes			Cross-listings
	Mode of delivery			Credit restrictions
	Teaching and assessment methods			Credit exclusions

REASON FOR CHANGE AND WAYS IN WHICH IT MAINTAINS/ENHANCES COURSE OBJECTIVES

This is now a core course for the Technology Management major in the IT Program.

CHANGE TO CALENDAR ENTRY

Current	Proposed
This course is an exploration of current issues and topics in e-business and e-commerce. Specific topics and any additional prerequisites will be announced in the schedule each time this course is offered. This course may be retaken with a change in topic to a maximum of 9 credits.	**New title: Topics in Informatics** This course will cover topics in informatics including process modeling, IT governance, and change management. Students will learn the techniques and tools used to design, model, and analyze business processes. They will explore both micro and macro elements of change management will be considered including the importance of management support, the use of communication models to support change, and change within the broader context of organizational growth and adaptation. This course will also introduce students to various IT governance models including ITIL, COBIT, and SOA. Students will learn how IT governance decision affect organizational productivity.

	Pre-Req: Year 3 standing in Business and Information Technology Program

CONSULTATION AND FINANCIAL IMPLICATIONS, WHERE APPROPRIATE

APPROVAL DATES

Date of submission	**January 9, 2017**
Curriculum Committee approval	**January 10, 2017**
Faculty Council approval	**January 12, 2017**

Appendix D

Faculty members, current

Faculty Name	M/F	Rank	Possible Courses
Aamir, Asifa	F	Teaching Focus	• INFR 1016U Introductory Calculus • BUSI 1915U Business Math I • BUSI 1916U Business Math II
Akalu, Rajen	M	Assistant Professor	• INFR 1550U – Law and Ethics of IT
Akbari, Amir	M	Assistant Professor	• BUSI 2410U – Managerial Finance
Akbari, Hamid	M	Assistant Professor	• BUSI 3700U – Strategic Management for Professionals
Rubel, Ashfakuddin	M	Teaching Focus	• BUSI 2050U – Managerial Economics
Bowen, Jane	F	Teaching Focus	• BUSI 2120U – Accounting for IT
Chang, Bin	F	Assistant Professor	• BUSI 2410U – Managerial Finance
Chen, Cuiping	F	Assistant Professor	• BUSI 1600U – Management of the Enterprise
El-Khatib, Khalil	M	Associate Professor	• INFR 1100U – Introduction to Programming • INFR 2600U – Introduction to Computer Security
Friedlan, John	M	Associate Professor	• BUSI 2120U – Accounting for IT
Goodman, Bill	M	Professor	• BUSI 1450U – Statistics • BUSI 2603U – Intro to Operations Management • BUSI 3670U – Risk Management Frameworks • BUSI 2610U – Quality Improvement • BUSI 3730U - Forecasting
Hall, Athina	F	Teaching Focus	• BUSI 2120U – Accounting for IT
Hayes, Garrett	M	Teaching Focus	• INFR 2600U Introduction to Computer Security • INFR 2670U Introduction to Cloud Services • INFR 4680U IT Security, Policy and Procedures
Heydari, Shahram	M	Associate Professor	• BUSI 3580U – Network Systems
Hossein, Mehdi	M	Teaching Focus	• BUSI 4570U – Strategic Information in Technology Management
Krystyniak, Karolina	F	Assistant Professor	• BUSI 2410U Managerial Finance
Hung, Patrick	M	Associate Professor	• INFR 2600U – Introduction to Computer Security • BUSI 3502U – e-Commerce • BUSI 3530U – Website Design and Management • BUSI 3730U – Multimedia Systems
Ibrahim, Amin	M	Teaching Focus	• BUSI 1520 Business Computer Applications • INFR 1040U – Mathematics I • INFR 1041U – Mathematics II • INFR 1100U – Introduction to Programming • INFR 2140U – Object Oriented Programming
Jain, Chinmay	M	Assistant Professor	• BUSI 2410U – Managerial Finance

Jiang, Annie	F	Associate Professor	• BUSI 2205U – Principles of Marketing
Jones, Ferdinand	M	Teaching Faculty	• BUSI 2120U Accounting for IT
Kapralos, Bill	M	Associate Professor	• INFR 1100U – Introduction to Programming • INFR 2140U – Object Oriented Programming • INFR 2810U – Computer Architecture
Karray, Salma	F	Associate Professor	• BUSI 2205U – Principles of Marketing
Konopaski, Michael	M	Teaching Faculty	•
Kotlyar, Igor	M	Associate Professor	• BUSI 3330U – Management of Change
Krasman, Joseph	M	Associate Professor	• BUSI 2311U – Organizational Behaviour • BUSI 3330U – Management of Change
Krystyniak, Karolina	F	Assistant Professor	• BUSI 2410U – Managerial Finance
Lin, Xiaodong	M	Associate Professor	• INFR 4680U – IT Security Policies and Procedures • INFR 4681U –Policies and Procedures in healthcare and IT
Lowe, Josh	M	Teaching Focus	• BUSI 3580UB – Network Systems
Lu, Fletcher	M	Associate Professor	• INFR 1040U – Mathematics I • INFR 1041U – Mathematics II • BUSI 3504U – Databases and Business Intelligence
Marsh, Steve	M	Assistant Professor	• BUSI 3040U – Information Systems • BUSI 4590U – Topics in Informatics • BUSI 4610U – Simulation Modeling • BUSI 4510U – Knowledge Management and Enterprise Systems • BUSI 4599U – Directed Studies in Informatics • BUSI 4590U – Special Projects in Informatics
McRae, Brent	M	Teaching Focus	• BUSI 3580U Network Systems
McGregor, Carolyn	F	Professor	• BUSI 3504U – Databases and Business Intelligence • BUSI 4510U – Knowledge Management and Enterprise Systems • BUSI 2610U – Quality Improvement • BUSI 4504U – Knowledge Discovery and Data Mining • BUSI 4599U – Directed Studies in Informatics • BUSI 4590U – Special Projects in Informatics
Mirza-Babaei, Pejman	M	Assistant Professor	• INFR 4352U – Human Computer Interface and Design
Pazzi, Richard	M	Assistant Professor	• INFR 4680U – IT Security Policies and Procedures
Percival, Jennifer	F	Associate Professor	• BUSI 2311U – Organizational Behaviour • BUSI 3040U – Information Systems • BUSI 4590U – Topics in Informatics • BUSI 4610U – Simulation Modeling • BUSI 3650U – Innovation Management • BUSI 2610U – Quality Improvement • BUSI 4599U – Directed Studies in Informatics • BUSI 459XU – Special Topics in Informatics

Rose, Steve	M	Teaching Focus	• BUSI 1600U – Management of the Enterprise • BUSI 2311U – Organizational Behaviour • BUSI 3700U – Strategic Management for Professionals
Sankaranarayanan, Karthik	M	Assistant Professor	• INFR 1040U – Mathematics I • INFR 1041U – Mathematics II • BUSI 4591U – Topics in Informatics • BUSI 4510U – Knowledge Management and Enterprise Systems • BUSI 3650U – Innovation Management • BUSI 2610U – Quality Improvement • BUSI 4599U – Directed Studies in Informatics • BUSI 4590U – Special Topics in Informatics
Shapiro, Morden	M	Teaching Focus	• BUSI 1600U – Management of the Enterprise
Smimou, Kamal	M	Associate Professor	• BUSI 2410U – Managerial Finance
Sohrab, Serna	F	Assistant Professor	• BUSI 3330U – Management of Change
Thorpe, Julie	F	Associate Professor	• INFR 1100U – Introduction to Programming • INFR 4680U – IT Security Policies and Procedures • INFR 4681U –Policies and Procedures in Healthcare and IT
Thurber, Will	M	Teaching Focus	• BUSI 1010U – Critical Thinking & Ethics • BUSI 1025U - Communications
Vargas Martin, Miguel	M	Associate Professor	• INFR 1040U – Mathematics I • INFR 1041U – Mathematics II • INFR 1100U – Introduction to Programming • INFR 2140U – Object Oriented Programming
Wu, Terry	M	Professor	• BUSI 2205U – Principles of Marketing
Zhu, Ying	F	Associate Professor	• INFR 1100U – Introduction to Programming • INFR 2140U – Object Oriented Programming • BUSI 2810U – Computer Architecture • BUSI 3504U – Databases and Business Intelligence

Faculty members, to be hired

We are in the process of hiring two tenure track positions in operations management who will have expertise in analytics as well as a replacement tenure track position in game development and entrepreneurship. The faculty is also in the process of hiring a teaching focus faculty member in the area of mathematics and another in game design which will increase our capacity to offer courses in fundamental numeracy and human computer interface design.