

<https://etudier.uqo.ca/programmes/4674>

#### **General objectives**

This program aims to train managers specialized in business technology management (BTM). It opens the door to positions at the interface between the “management” and “technology” perspectives, such as “Digital Advisor”, “Business Process Analyst” and “Digital Project Manager”. Graduates acquire state-of-the-art knowledge and skills in process management, innovation and digital transformation of public or private organizations, business intelligence, systems architecture, as well as the configuration and use of integrated management systems ( Enterprise Resource Planning, or ERP).

#### **Specific objectives**

This program combines the development of business and technology knowledge and skills:

##### Business outlook:

1. Technology strategy and alignment: Analyze business needs to align technology choices with the organization's strategic and operational objectives.
2. Business process management: Apply business process management solutions to IT projects
3. Innovation and digital transformation: Know the theories and practices of creativity and innovation and manage teams of digital transformation projects.

##### Technology perspective:

1. Business intelligence: Implement a business intelligence solution using data analysis technologies for complex decision-making
2. Management Information Systems: Assess the business implications and value of management information systems used to conduct business electronically and to integrate complex processes and operations
3. Cybersecurity: Understand the challenges and issues of cybersecurity and the different approaches to address these challenges

#### **Course mandatory**

1. MNG1663 Creativity and Innovation in Management
2. SIG1003 Information Systems for Managers
3. SIG1023 Integrated management systems
4. SIG1033 Business Process Management (SIG1023 Prerequisites)
5. SIG1043 Business Intelligence (SIG1023 Prerequisites)
6. SIG1063 Simulation of an integrated company (Prerequisites SIG1033 and SIG1043)
7. CYB1003 Introduction to Cyber Security

### **Course optional**

Choose 3 courses (9 credits) from the following list of optional courses:

1. MKT1183 Marketing
2. MKT1263 Electronic Commerce and Marketing (Prerequisites MKT1183)
3. CYB1093 Project Management and Cybersecurity (CYB1003 Prerequisites)
4. CYB1043 Auditing Information Systems in Accounting
5. SIG1053 Information Systems Architecture (Prerequisites SIG1033 and SIG1043)
6. SIG1073 Feasibility study of an information system (Prerequisites SIG1033 and SIG1043)
7. INF1173 Requirements Analysis and Management
8. INN1003 Integrative project in digital innovation (Compulsory course for the baccalaureate by accumulation with designation (BACCAP) in digital innovation)

## **Graduate Diploma in BTM (equivalent to 1 year or 10 of the 15 courses in a Master Degree)**

<https://etudier.uqo.ca/programmes/2037>

### **General objectives**

This program aims to train strategic managers specializing in business technology management (BTM). It aims to train people called upon to lead projects and programs, and teams or units, dedicated to governance, innovation and digital transformation. It opens the door to executive careers: Chief Information Officer, IT resources management, IT project office management, risk management and compliance management, cybersecurity management, operations and shared services management, e-business management, digital innovation management, digital transformation management.

### **Specific objectives**

This program combines the development of business and technology knowledge and skills:

Business outlook:

1. Design digital strategies, ensure their implementation, and manage performance
2. Supervise all strategic IT decisions and risk governance, in particular legal
3. Plan and lead digital transformation and innovation programs and projects

Technology perspective:

1. Understand emerging digital technologies and their business potentials
2. Analyze cybersecurity and digital identity risks, and ensure business continuity
3. Master the platforms and manage the ethical risks of artificial intelligence in management

### **Compulsory courses**

1. GTA6003 Emerging Digital Technologies
2. GTA6023 Technology Governance
3. GTA6033 Cybersecurity and Digital Identity
4. GTA6043 Digital Law
5. GTA6053 Risk Management and Technology Ethics
6. GTA6063 Business Technology Leadership
7. GTA6073 Digital Strategy and Performance
8. GTA6083 Applications of artificial intelligence in management
9. GTA6093 Innovation and digital transformation

### **Optional courses**

Choose 1 course (3 credits) among the 4 “short graduate programs”.

Within 1-2 years, a Master's project in BTM will be submitted to the authorities for approval with 3 options: with research thesis; with internships; or with course, adding 1 of the 4 short programs in addition to the DIPLOMA.

A) Short graduate program in change management  
<https://etudier.uqo.ca/programmes/0178>

B) Short graduate program in consultation  
<https://etudier.uqo.ca/programmes/0179>

C) Short graduate program in entrepreneurship  
<https://etudier.uqo.ca/programmes/0778>

D) Short graduate program in project management  
<https://etudier.uqo.ca/programmes/0749>

#### A) Change

1. ADM6006 Organizational Change and Strategic Management of Complexity (3 credits)
2. ADM6008 Contemporary Models in Management (3 credits)
3. ADM6007 Diagnosis, planning and organization of change (3 credits)
4. ADM6009 Implementation of change and management of groups (3 credits)
5. ADM6010 Conflict management in the context of organizational change (3 credits)

#### B) Consulting

1. ADM6001 Consultation: nature, models and process (3 credits)
2. ADM6003 Methodology for gathering information in consultation (3 credits)
3. ADM6002 Creation and management of a consulting company (3 credits)
4. ADM6004 Communication strategies in consultation (3 credits)
5. ADM6005 Interpersonal Relations and Group Dynamics in Consultation (3 credits)

#### C) Entrepreneurship

1. PME6003 The entrepreneur and entrepreneurship (3 credits)
2. PME6033 Start-up and management of SMEs (3 credits)
3. PME6023 Business Intelligence for SMEs (3 credits)
4. PME6043 Strategic management of SME development (3 credits)
5. PME6053 The SME and the public service (3 credits)
6. PME6063 The SME and the health sector (3 credits)
7. PME6073 The SME in the high-tech sector (3 credits)

#### D) Project management

1. MGP7112 Project Design (3 credits)
2. MGP7121 Project Operational Planning and Control (3 credits)
3. MGP7060 Integration Seminar I (3 credits)
4. MGP7131 Standardization and Project Management (3 credits)
5. MGP7133 Project management (3 credits)

## Course descriptions in BTM

### Certificate in BTM

#### Compulsory courses

##### MNG1663 Creativity and Innovation in Management

**Objectives:** Allow the student to know the function and management of creativity and innovation for business start-up, performance management of organizations and development of technology for both operations and products and services offered. Know the theories and practices of creativity and innovation for entrepreneurship and intrapreneurship activities in order to innovate in terms of management practice, organizational management and technology management.

**Contents:** Theoretical and practical aspects related to creativity and innovation; theoretical and practical aspects related to entrepreneurship and innovation; individual factors, profile and skills related to creativity, innovation, entrepreneurship and intrapreneurship ; creativity and innovation in organizational, management and technology management practices; knowledge of its entrepreneurial profile with respect to innovation and creativity; innovation and technology; principles of creativity in innovation management.

##### SIG1003 Information Systems for Managers

**Objectives:** Present information technology (IT) from the point of view of managers responsible for various business functions. The main objective is to introduce IT commonly used in organizations to management students who have no prior training in the subject. After this course, students should be able to: (1) define the various IT concepts and tools used by organizations, such as technological infrastructures, information systems, office automation technologies, and web communication technologies ; (2) analyze the alignment between the needs of the organization and IT; (3) master the various IT tools available to managers and organizations; (4) apply open web communication tools in their managerial functions, especially to ensure collaboration within distributed or virtual work teams; (5) identify the various integrated management systems and their usefulness for integrating the processes of the organization.

**Contents:** Information technology (IT) tools for organizations: equipment, operating systems, software, networks, telecommunications, and services. Manager's IT tools: office automation, spreadsheets, databases, content management, communication. Collaborative web tools: portals, project management, discussions, virtual meetings, simultaneous editing, videoconferences. Typology of information systems integrating the organization's processes. Strategic IT alignment. Data management. Security, standardization, risk analysis and regulatory compliance. Integrated management systems. Knowledge management. Decision support systems. Restructuring of organizations. Analysis of the value of IT. Development of information systems.

##### SIG1023 Integrated management systems

**Objectives:** Introduction to integrated management systems (Enterprise Resource Planning, ERP) used to conduct business mainly electronically and to integrate complex processes and operations. The main objective is to help participants assess the business implications and value of these systems. After this course, students should be able to: (1) describe the architecture and functionality of management information systems; (2) identify the role of these business applications in various business strategies; (3) indicate management and organizational problems in the implementation of ERP implementation projects; (4) define the structure of the technologies supporting these applications; (5) evaluate integrated management systems offered by different service providers and IT infrastructures.

**Content :** Introduction to enterprise computing and its components. Enterprise architecture and business process integration. Integrated management systems: enterprise planning system (Enterprise Resource Planning, ERP),

customer relationship management (Customer Relationship Management, CRM), supply chain management (Supply Chain Management, SCM), business intelligence ( Business Intelligence ), Data Warehousing and Mining, Business Process Management (BPM).

### **SIG1033 Business Process Management**

Prerequisites SIG1023

**Objectives:** Introduction to Business Process Management (BPM), and its implications for the management of IT projects. After this course, students should be able to: (1) identify the added value of BPM practices and technologies; (2) define process life cycle and apply design best practices; (3) employ a process modeling and simulation platform; (4) analyze, model and test complex business processes; (5) implement BPM solutions by deploying process models to execution servers in real time.

**Contents:** Introduction to BPM. Elements and process design. BPM development platforms. Creation of a business process model. Updating a business process model. Advanced process modeling. Process simulation and analysis. Creation and adjustment of forms of visualization, reports and control. Development teams and version control system. Deployment and execution of business processes. Process reuse strategies.

### **SIG1043 Business Intelligence**

Prerequisites SIG1023

**Objectives:** Introduction to business intelligence (Business Intelligence, BI) using data analysis technologies for complex decision-making. We focus particularly on solutions based on integrated management systems (Enterprise Resource Planning, ERP). After this course, students should be able to: (1) assess a company's business intelligence needs; (2) define a technological strategy according to the ERP of a company; (3) configure a decision support system; (4) implement a BI solution integrated with an ERP; (5) define methods of integrated performance management, in particular via an electronic dashboard updated in real time.

**Contents:** Introduction to BI. Integrated performance management and dashboards. Analysis of business intelligence needs. Technological strategy of a BI solution. Integration with ERP. Application of business intelligence for real-time monitoring of business processes. BI technologies: performance management portals, data warehouses, real-time reports, data mining (Data Mining), text mining ( Text Mining), expert systems, and artificial intelligence. Implementation of business intelligence systems.

### **SIG1063 Simulation of an integrated company**

Prerequisites SIG1033 and SIG1043

**Objectives:** This course leads the student to participate in the simulation of an integrated company with the use of an integrated management system (Enterprise Resource Planning, ERP) as a technological tool in order to expose the theoretical concepts and to put in practices student learning within a software package. It aims to synthesize knowledge in information technology management, integrated management systems, business process management, and business intelligence. It also aims to acquire through practice new cross-functional team management skills specific to the complexity of the processes of an integrated company. After this course, students should be able to: (1) use an integrated business solution for managing an organization; (2) understand the important aspects of the technology architecture that supports the use of such software; (3) analyze the links between business strategies and operations in an integrated enterprise; (4) understand the interdependencies and feedbacks between decisions throughout various complex scenarios; (5) formulate winning strategies and decisions to capitalize on events in a rapidly changing global competitive environment; (6) configure information systems to support decision making and process integration; (7) coordinate the actions of a cross-functional team in different reporting roles; (8) create the master data necessary for the operation of several business processes; (9) use the software development environment to customize the application; (10) understand the problems of administration of such a software package.

**Contents:** Introduction to business strategies in the integrated company. Typology of business scenarios integrating different processes via an ERP. ERP simulator. Formation of a cross-functional management team and assignment of reporting roles. Definition of decision fields and business rules. Master data management and integration testing. Business intelligence. Reporting and data analysis for real-time decision making. Coordination of decisions and continuous evaluation of the progress of the company. Analysis of the strengths and weaknesses of various strategies, and identification of the causes at the operational level. Improved processes and configuration of information systems to overcome strategic and operational challenges. Overall evaluation of performance in the integrated company. Strategic and operational reconfiguration. Configuration of an integrated management software package for large companies. Configuration of an integrated management software package for small and medium organizations. Customization of an integrated management software package.

### **CYB1003 Introduction to Cyber Security**

**Objectives:** At the end of this course, the student will be able to understand the challenges and issues of cybersecurity and different approaches to meet these challenges.

**Contents:** Definitions and basic concepts of cybersecurity: CID triad (balance between confidentiality, integrity and availability). Evolutions of cyberspace (interconnectedness of systems, assets in cyberspace, physical aspects and associated risks). Software vulnerabilities and exploitation. Cybersecurity reference frameworks (CIS, NIST-CSF, etc.). Means of protection (secure cyberspace design, analysis, monitoring, control, testing, etc.). Backup and data protection. Encoding and cryptography. Cyber threats, cyber attacks, incident management, governance and ethics in cyber security. Addressing real-world cybersecurity issues to mitigate cyber threats.

### **Optional courses**

#### **MKT1183 Marketing**

**Objectives:** To enable the student to become familiar with the basic techniques of marketing and to practice posing and analyzing problems. Allow him to formulate coherent and logical recommendations, as he would within an organization.

**Contents:** Marketing concept, market, market segmentation, consumer behavior; dimensions and measurement of markets. Marketing: product, pricing, distribution channels. Market knowledge: personal selling, promotion, marketing management and control. Public affairs, international marketing. Marketing strategy and plan.

#### **MKT1263 Electronic Commerce and Marketing**

Prerequisites MKT1183

**Objectives:** After this course, students should be able to know e-commerce technologies, understand e-business strategies and models, formulate an e-marketing strategy and design a platform implementation project. of e-commerce consistent with a relational marketing approach.

**Content :** Electronic commerce and electronic marketing: distinction and complementarity. E-commerce internet technologies. Technology platforms. Software environment: commercial portals, integrated management systems, free software. Elements of e-commerce law. Web transactions. IT security; payment systems. Business-to-business (B2B) and retail (B2C), Web 2.0 and Web 3.0 marketing business models. Consumer behavior on the web. Market measurement. Dynamics of competition and prices. Online marketing communications. Strategic watch. Business plan for e-commerce.

#### **CYB1093 Project Management and Cybersecurity**

Prerequisites CYB1003

**Objectives:** At the end of this course, the student will be able to use processes, tools and techniques to integrate cybersecurity into the entire project lifecycle.

**Contents:** Management frameworks and models: DevSecOps approach, Agile, etc. Security and privacy by design. Technology readiness and maturity models. Risk and opportunity management. Threat modeling and contingency plan. Supply chain integrity. Management of security teams and procedures. Strategies and best practices in IT security project management. Designing and implementing projects to solve real-world cybersecurity problems. This course includes mandatory practical work sessions (TP).

### **CYB1043 Auditing Information Systems in Accounting**

**Objectives:** At the end of this course, the student will be familiar with the concepts associated with secure auditing and the control of information systems from an accounting point of view.

**Contents:** Introduction to Accounting Information Systems (SIC). Data modeling. Documentation of CIS. Business process. Internal control of CIS. Digital fraud and accounting computer crimes. Ethical and privacy issues affecting accounting audit. The integrated audit. Effective development and implementation of CIS. management software. Online auditing and accounting. CIS audit project.

### **SIG1053 Information Systems Architecture**

Prerequisites SIG1033 and SIG1043

**Objectives:** This course provides an overview of information systems architecture, also called enterprise architecture (EA), as a method of strategic management of all of an organization's informational and technological resources. It focuses on the principles, methods, and standards that provide structure to information systems development projects, as well as risk management and regulatory compliance. It also explores emerging technologies that are radically changing EA practices, such as model-driven, event-driven, service-oriented, process-oriented, and cloud-based architectures. It helps prepare information systems professionals for IT management roles, such as IT consultants, enterprise architects, systems integrators, and IT project managers. After this course, students should be able to: (1) define the main principles, methods, and standards of EA; (2) adapt standard development methods for managing IT projects, risk and regulatory compliance; (3) analyze the strengths and weaknesses of an enterprise architecture; (4) identify emerging technologies to develop an innovative architecture; (5) formulate strategies and architectures with a view to developing the dynamic skills of the company.

**Contents:** Introduction to EA and its role in strategic IT management. Architecture layers: strategy, process, information, software, infrastructure. IT governance. Risk management, standards and regulatory compliance. Principles of systems architecture and integration. Analysis and reuse of architectural components of the organization. Standards for developing, importing, and/or implementing an architecture (eg, TOGAF). Development methods: proprietary, open, and/or agile approaches. IT infrastructure components and architecture design. Proprietary technology platforms vs. free code. Model Driven Architecture (MDA). Service Oriented Architecture (SOA). Cloud architecture (Cloud Computing). Event Driven Architecture (EDA). Intelligent systems. AE and IT strategy: technology procurement, supplier relationship management, service agreement, ITIL standard.

### **SIG1073 Feasibility study of an information system**

Prerequisites SIG1033 and SIG1043

**Objectives:** This course offers students a first opportunity to participate in the field in the realization of an IT consulting service project, relating to a feasibility study for the development of new information systems. It aims to synthesize the concepts of the prerequisite and concurrent courses, and provides an integrated framework of best practices to contribute to the success of an IT project. After this course, students should be able to: (1) understand the structure of a feasibility study project and the integration of roles within the team; (2) analyze the context and define the needs of a client organization; (3) evaluate the information system architecture options to

be developed; (4) identify the most appropriate technologies to implement the proposed architecture; (5) produce an industry-standard specification, given to a team of employees from the partner organization to develop the system.

**Contents:** Management of IT consulting service projects. Critical success factors, strategic issues and legal aspects. Structure and planning of a feasibility study project. Integration of team roles: needs analysis and documentation, process modeling and optimization, information integration and interface design, project management, and organizational change planning. Communication with the client organization. Documentation of a feasibility study. Collection and analysis of information. Evaluation of architectural options. Choice of appropriate technologies. Proposal of the solution. Closing of a feasibility study project. Knowledge management and transfer to implementation team. The teacher will have previously established a partnership with organizations in the area, in order to identify feasibility study projects that can be carried out within the time frame of the course. He will assume the role of main architect of the project and the students will assume the tasks of analysis, modeling and documentation. Each team will have to produce a feasibility study for the development of a new information system of limited scope, either for the integration of the processes of a single department, the integration of a single interdepartmental process, or the adding a single feature to an existing system.

### **INF1173 Requirements Analysis and Management**

**Objectives:** Allow students to familiarize themselves with all stages of the software life cycle. Allow them to master the phase of analysis and specification of requirements. Allow them to discover the requirements of a system, analyze them, specify them, validate them and manage their evolution throughout the development cycle.

**Contents:** Software life cycle. Categories of requirements. Techniques used to understand stakeholder needs: interview, questionnaire, brainstorming, group workshop, use case, prototyping. Management of the scope of the system: prioritization of requirements, effort required, estimation of risks. Documentation and specification of requirements. Management of changes to requirements. Tools used for requirements management. Introduction to object-oriented analysis. This course includes mandatory tutorial sessions (TD) of two hours per week.

### **INN1003 Integrative project in digital innovation**

(Compulsory course for the baccalaureate by accumulation with designation (BACCAP) in digital innovation)

**Objectives:** At the end of this activity, the student will be able to: learn about all the stages of planning and carrying out a professional project, integrate the knowledge acquired on an interdisciplinary subject, highlight a problem related to this subject and to put into practice the theoretical notions seen in class through an integrative project specific to digital innovation.

**Content :** This course allows the student an immersion in the realization of a large-scale integrative project. The student must demonstrate a high level of autonomy, technical know-how and professionalism when carrying out the mandate. The student will notably deepen his professional portfolio by developing partnerships with the actors of the environment. This integrative project will make it possible to anchor the training in practice. Students will be able to get involved in various initiatives such as the organization of events, the development of projects, the creation of an innovative company, the realization of a case study, etc.

### Compulsory courses

#### GTA6003 Emerging Digital Technologies

**Objectives:** Understand the emerging digital technologies that are transforming organizations, society, and the economy, to be able to grasp their potential for business applications. After this course, students should be able to: (1) Understand the impacts of these technologies on an organization. (2) Assess their potential applications based on their business sector.

**Contents:** Between ten and fifteen types of emerging digital technologies will be studied. Case studies of applications will be presented drawn from different sectors of the economy, covering both successes and failures. Demonstrations of technological solutions will also be possible for certain typical application technologies.

#### GTA6023 Technology Governance

**Objectives:** Structure business technology governance mechanisms and ensure digital performance. After this course, students should be able to: (1) Design digital architectures responding to innovative organizational strategies. (2) Leverage open technologies and manage intellectual property in an open innovation network, while managing the risk inherent in this type of strategy and licensing. (3) Plan technology acquisitions and ensure the performance of digital project portfolios.

**Contents:** Part 1: Architecture of the digital organization: Enterprise Architecture. Agile design methods. Alignment of digital strategies and projects. Architecture standards. Design languages. Part 2: Open Technologies and Intellectual Property: Software Engineering. Open-source licenses. Digital Intellectual Property. DevOps methods. Quality and inherent risk management. Part 3: Technology Governance and Acquisition: Technology Budgeting. Acquisition sources: internal, external, cloud, open. Implementation governance.

#### GTA6033 Cybersecurity and Digital Identity

**Objectives:** Ensure the sustainability and resilience of the organization through agile planning and innovative mechanisms for security and digital identity management. After this course, students should be able to: (1) Strengthen digital processes against vulnerabilities that involve computer and information security. (2) Protect the confidentiality and privacy of individuals through innovative digital identity policies. (3) Defend the organization against cybersecurity attacks and ensure digital business continuity, while ensuring resilience against subsequent attacks, and communicating agilely with stakeholders to protect business value.

**Contents:** Part 1: Cybersecurity Management: Cybersecurity Competency Frameworks. Digital vulnerabilities: hardware, software, network. Surveillance, detection, and situational awareness in cybersecurity. Part 2: Digital Identity Management: Digital Identity Laws and Standards. Access controls and regulatory compliance. Digital identity technologies. Encryptions and blockchains. Electronic payments. Part 3: Digital Business Continuity: Agile Planning and Cybersecurity Incident Management Standards. Deception, minimization, and mitigation of threats. Protection of key assets. Digital business continuity and communications with stakeholders. Digital business insurance policies.

#### GTA6043 Digital Law

**Objectives:** Know how to identify and monitor laws and regulations affecting digital business to ensure compliance and ensure risk management. After this course, students should be able to: (1) Align digital business models with trade and tax laws nationally and internationally. (2) Secure the organization's stakeholders through innovative

management of digital identity and privacy. (3) Prepare the organization for the legal risks of cybersecurity incidents and help prevent cybercrime.

**Contents:** Part 1: E-commerce and tax law: Incorporation of companies. Taxes and sales taxes. Consumer Protection. Intellectual property. Recourse to Arbitration and the Courts. Part 2: Privacy and Digital Identity Law: Digital Identity. Electronic signature. Private life. Protection of Information. Management of complaints and access to information. Part 3: Cybersecurity and Cybercrime Law: Civil Liability. Interruption of Services and Damage to Third Parties. Fraud internal to the organization. Financial crime and audits. Defense against lawsuits.

### **GTA6053 Risk Management and Technology Ethics**

**Objectives:** Control risks and ensure regulatory compliance of the organization's processes and systems. After this course, students should be able to: (1) Prevent digital organization risk factors through rigorous processes and innovative systems. (2) Implement organizational control policies at all levels and aligned with a standardized governance framework. (3) Assemble artificial intelligence components around reliable, explainable, and fair decision models.

**Contents:** Part 1: Risk management and technologies: Decisional behavior in the face of risk. Risk management principles and standards. Identification, definition, and quantification of risks. Risk control and mitigation strategies. Risk monitoring systems. Part 2: Digital Compliance Assurance: Compliance Management. Governance standards and frameworks. Management control and accounting information. Integrated software packages. Supply chain control. Part 3: Ethics of technologies and artificial intelligence: Principles of ethics and responsible management. Ethics of digital technologies. Explainability of artificial intelligence algorithms. Decision reliability measures. Control and audit of the ethics of decisions.

### **GTA6063 Business Technology Leadership**

**Objectives:** Master the decision-making environment of business technology leadership and integrate the digital organization. After this course, students should be able to: (1) Acquire an overview of information technology and digital business technology and their alignment with the organization's objectives and priorities. (2) Develop digital organizational skills within a scalable leadership framework. (3) Integrate strategic decisions and digital projects into an agile and profitable portfolio.

**Contents:** Part 1: Digital fields in management sciences: Distinctions between the governance of information technologies and business technologies. Decision-making cycle framing digital strategies: steer, explore, align, implement, optimize. Part 2: Digital Organizational Competencies: Digital Practices. Three components: organization, people, and results. Integration of practices. Part 3: Strategic Leadership of Digital Projects: Digital Project Portfolios. Roles of digital leaders. Impact and digital performance of organizations.

### **GTA6073 Digital Strategy and Performance**

**Objectives:** Navigate and anticipate the complexity of the strategic environment of the digital organization. After this course, students should be able to: (1) Analyze the dynamics of digital markets and integrate business indicators and economic principles. (2) Position the organization in its digital evolution cycle and design plans that adapt to complexity. (3) Fund innovative digital projects while managing risk and balanced growth of the organization.

**Contents:** Part 1: Economics of digital markets: Microeconomics of digital markets. Price dynamics and market power. Numerical behavior. Digital assets. Performance indicators. Part 2: Digital strategy and positioning: Digital business strategy. Business models. Design of strategies: opportunity, positioning, reinforcement. Part 3: Financing digital projects: Financing strategies. Prioritization of digital projects. Realization of benefits: growth cycles, partner networks, performance measures.

## **GTA6083 Applications of artificial intelligence in management**

**Objectives:** Model decisions and business rules by leveraging analytics and artificial intelligence. After this course, students should be able to: (1) Select the best performing artificial intelligence algorithms while ensuring the quality of decisions. (2) Configure data and text mining processes according to business intelligence requirements. (3) Extract business rules through big data analytics for automating decision-making processes.

**Contents:** Part 1: Artificial Intelligence Algorithms: Artificial Intelligence Technologies. Machine learning algorithms. Deep learning. Complex systems. Knowledge and semantic graphs. Part 2: Analytics and Business Intelligence: Dashboards. Database technologies. Data and text mining technologies. Extraction, transformation, and integration of data. Markup and Exchange Standards. Part 3: Business Rules and Process Automation: Information Architecture. Business rules and decision-making processes. Distributed big data. Robotic process automation. Data governance and rules.

## **GTA6093 Innovation and digital transformation**

**Objectives:** Create resilient and efficient organizations, services, products and digital technologies. After this course, students should be able to: (1) Innovate digital products and services and integrate them into the organization at various stages of evolutionary maturity. (2) Digitally transform strategies, architecture, processes, behaviors and culture. (3) Undertake internal and/or external to the organization the development and launch of digital innovations.

**Contents:** Part 1: Digital Innovation: Managing Digital Innovation. Innovation process: services, products, technologies. Implementation, markets, and dissemination. Part 2: Digital transformation: Organizational transformation process. Digital impacts: organization, people, results. Change management. Part 3: Digital entrepreneurship: Entrepreneurship skills and intrapreneurship. Digital innovation teams. Entrepreneurial management: organization, people, results.

## **Optional courses**

Course descriptions on the web pages of the “short graduate programs”:

- Short graduate program in change management: <https://etudier.uqo.ca/programmes/0178>
- Short graduate program in consultation: <https://etudier.uqo.ca/programmes/0179>
- Short graduate program in entrepreneurship: <https://etudier.uqo.ca/programmes/0778>
- Short graduate program in project management: <https://etudier.uqo.ca/programmes/0749>