

MASTER OF DIGITAL TRANSFORMATION AND INNOVATION CONCENTRATION UX DESIGN

Overview Summary

- Degree offered: Master of Digital Transformation and Innovation (MDTI)
- Registration status options: Full-time; Part-time
- Language of instruction: English
- Program option (expected duration of the program):
 - within two years of full-time study
- For immigration purposes, the summer term (May to August) for this program is considered a regularly scheduled break approved by the University. Students should resume full-time studies in September.
- Academic units: Telfer School of Management (<https://telfer.uottawa.ca/en/>), Faculty of Arts (<https://arts.uottawa.ca/en/>), Faculty of Engineering (<http://engineering.uottawa.ca/>), School of Electrical and Computer Science (<http://engineering.uottawa.ca/eecs/>)

Program Description

The Digital Transformation and Innovation program is a multi-faculty collaboration between the Telfer School of Management, the Faculty of Arts, and the Faculty of Engineering to train highly qualified professionals to create, manage and research the profound change to our world that is happening as a result of electronic digital technology. At its heart, the technology enables the collection and communication of huge amounts of data that transforms how business and society works. It also creates a new online environment where the experience of business and social interactions by individuals is being reinvented. Innovation is an important aspect of the program to emphasize the re-invention and creative design of user experiences in business and social interactions.

The concentration in User Experience Design (UX Design) is a multidisciplinary graduate program with a strong commitment to industry relevance and the creative arts. In the program, students will:

1. Develop and demonstrate the ability to communicate with and integrate multi-disciplinary expertise related to UX.
2. Develop and demonstrate the ability to lead, design and create UX-based transformation and innovation using current and emerging tools, techniques and technology.
3. Develop skills in visual literacy, narratives, cognitive psychology, interaction design, information architecture and gender / cultural awareness and demonstrate the ability to apply them in practice.
4. Develop and demonstrate the ability to assess, test and research innovations in UX Design with sensitivity and awareness around ethics, equity, diversity, business impact and social impact.

For more information please see the DTI Student Association (<https://dtiottawa.ca/>) webpage.

Other Programs Offered Within the Same Discipline or in a Related Area

- Doctorate in Philosophy Digital Transformation and Innovation
- Master of Science Digital Transformation and Innovation
- Master of Digital Transformation and Innovation
- Master of Digital Transformation and Innovation with Concentration in Applied Data Science

Fees and Funding

- Program fees

The estimated amount for university fees (<https://www.uottawa.ca/university-fees/>) associated with this program are available under the section Finance your studies (<http://www.uottawa.ca/graduate-studies/programs-admission/finance-studies/>).

International students enrolled in a French-language program of study may be eligible for a differential tuition fee exemption (<https://www.uottawa.ca/university-fees/differential-tuition-fee-exemption/>).

- To learn about possibilities for financing your graduate studies, consult the Awards and financial support (<https://www.uottawa.ca/graduate-studies/students/awards/>) section.

Notes

- Programs are governed by the general regulations (<http://www.uottawa.ca/graduate-studies/students/general-regulations/>) in effect for graduate studies at the University of Ottawa.
- In accordance with the University of Ottawa regulation, students have the right to complete their assignments, examinations, research papers, and theses in French or in English.

Program Contact Information

Graduate Studies Office, Faculty of Engineering (<https://engineering.uottawa.ca/graduate-studies-office/>)
STE 1024
800 King Edward Ave.
Ottawa ON Canada
K1N 6N5

Tel.: 613-562-5347
Fax.: 613-562-5129
Email: engineering.grad@uottawa.ca

Twitter | Faculty of Engineering (<https://twitter.com/uOttawaGenie/?lang=en>)
Facebook | Faculty of Engineer (<https://www.facebook.com/uottawa.engineering/>)

Admissions requirements

For the most accurate and up to date information on application deadlines, language tests and other admission requirements, please visit the specific requirements (<https://www.uottawa.ca/graduate-studies/programs-admission/apply/specific-requirements/>) webpage.

To be eligible, candidates must:

- Have a Bachelor’s degree with a specialization or a major (or equivalent) in a relevant discipline with a minimum admission average of 75% (B+).
- Note: International candidates must check the admission equivalencies (<https://www.uottawa.ca/graduate-studies/international/study-uottawa/admission-equivalencies/>) for the diploma they received in their country of origin.
- Have completed a course in statistics; a course in management information systems or computing; and two advanced courses showing specialization in one of three disciplines: creative arts and humanities (online multi-media or communications); management (digital transformation management or strategy); technology (online application development or data science).

Language Requirements

Most courses are delivered in English as the international language for advanced information technology. However, the program will provide an appropriately supportive environment for francophone students to develop professional competence in technical English at their own pace. Students have the right, as stipulated in the University’s bilingualism regulations (Academic Regulations I-2), to complete all their work, including their thesis, in the official language of their choice (French or English). There are fully bilingual professors and advisors who can support students in French.

Applicants whose first language is neither French nor English must provide proof of proficiency in the language of instruction through one of the following two requirements or one of the language tests below.

- Proof of completion within the last five years, of a previous degree program in an English language university.
- Proof of recent prolonged residence and exercise of a profession in an English speaking country (normally at least four years over the last six years).

Language tests recognized by the University of Ottawa:

- TOEFL minimum score of 600 (paper-based) with a minimum score of 50 on the written and 50 on the spoken or a minimum score of 100 (internet-based).
- IELTS minimum score of 7 for 3 of the 4 tests (Reading, Listening, Writing, Speaking) and a minimum score of 6 in the fourth test.
- A score of at least 14 on the CANTEST, with no individual test score below 4.0, along with a minimum score of 4.5 on the oral component of the test.

Note:

- Candidates are responsible for any fees associated with the language tests.
- Test scores cannot be more than two-years-old as of September 1 of the year of potential entry into the program.

Notes

- The admission requirements listed above are minimum requirements and do not guarantee admission to the program.

- Admissions are governed by the general regulations (<http://www.uottawa.ca/graduate-studies/students/general-regulations/>) in effect for graduate studies.

Applying to the COOP Option

In order to apply to the co-op option, you must first be admitted to a program that offers co-op.

Your application must be submitted by the end of the first month of enrollment in your primary program, i.e., by the end of September.

Admission to the co-op option occurs on a competitive basis and is managed by the Co-op office. Enquiries should be directed to that office.

To be admitted to the co-op option, you must:

- Be enrolled as a full-time student in the Master of Digital Transformation and Innovation.
- Have and maintain a minimum CGPA of 7.0 (B+ or 75%) in course taken at the University of Ottawa.
- Be a Canadian citizen, a permanent resident or an international student (authorization or diplomat)
- Pay the required co-op fees.

Program Requirements

Requirements for this program have been modified. Please consult the 2023-2024 calendars (<http://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

Master’s with Project

To receive this Master’s degree, a student enrolled in the program must successfully complete 30 course units.

Students must meet the following requirements:

Compulsory Courses:

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| DTI 7101 | Research Workshop in Digital Transf. and Innovation | 1.5 Units |
| DTI 7103 | Visual Literacy and User Experience Design Principles | 3 Units |
| 3 optional course units from: | | 3 Units |
| CSI 5122 | Software Usability | |
| DTI 6102 | User Experience Principles and Practices | |
| DTI 6103 | User Research | |
| DTI 6104 | Interaction Design | |
| 3 optional course units from: | | 3 Units |
| DTI 5115 | Communication Ethics | |
| DTI 5310 | Ethics for Design, AI, and Robotics | |
| ISI 5310 | Ethics, Values and Information Dilemmas | |
| 4.5 optional course units from the list of Foundation courses | | 4.5 Units |
| 6 optional course units from the list of UX Design courses | | 6 Units |
| 3 optional course units from the list of Foundation, UX Design, or Optional courses | | 3 Units |
| Research Project: | | |
| 6 course units from: | | 6 Units |

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| DTI 5902 | Industry Internship Project | |
| DTI 6997 | Research project | |

Foundation Courses

Management Orientation

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|----------|---|-----------|
| DTI 5124 | Internet Technologies and Mobile Commerce | 3 Units |
| DTI 6130 | Web Services | 1.5 Units |
| DTI 6160 | Cyber Security Systems and Strategies | 3 Units |
| MGT 6160 | Systems of Innovation | 3 Units |

Technology Orientation

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| DTI 5175 | Mobile Commerce Technologies | 3 Units |
| DTI 5389 | Electronic Commerce Technologies | 3 Units |

Creative Arts and Humanities Orientation

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| ISI 6342 | Web Architecture and Technologies | 3 Units |
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UX Design Courses

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| ADM 6279 | Socio-Technical Change | 1.5 Units |
| ADM 6420 | Digital Marketing | 1.5 Units |
| AHL 5300 | Creativity and Innovation | 3 Units |
| CMN 5110 | Social History of Communication Technologies | 3 Units |
| CMN 5140 | Communication, Globalization and Change | 3 Units |
| DTI 6102 | User Experience Principles and Practices | 1.5 Units |
| DTI 6103 | User Research | 1.5 Units |
| DTI 6104 | Interaction Design | 1.5 Units |
| DTI 6304 | Topics in User Experience Design | 3 Units |
| DTI 6305 | Topics in User Experience Design | 1.5 Units |
| DTI 6402 | Affective and Persuasive Computing | 3 Units |
| GNG 5141 | Creativity and Innovation | 3 Units |
| ISI 6351 | Social Media | 3 Units |
| ISI 6353 | Access and Services to Diverse Populations | 3 Units |

Optional Courses

Management Orientation

| | | |
|----------|---|-----------|
| ADM 6260 | Project Management I | 1.5 Units |
| ADM 6261 | Project Management II | 1.5 Units |
| ADM 6276 | Enterprise Resource Planning Systems Management | 1.5 Units |
| ADM 6277 | E-Business Energy Management | 1.5 Units |
| ADM 6279 | Socio-Technical Change | 1.5 Units |
| ADM 6286 | International E-Business Strategies for DTI | 1.5 Units |
| ADM 6420 | Digital Marketing | 1.5 Units |
| DTI 5124 | Internet Technologies and Mobile Commerce | 3 Units |
| DTI 5125 | Data Science Applications | 3 Units |
| DTI 5126 | Fundamentals for Applied Data Science | 3 Units |
| DTI 5990 | Directed Readings I | 1.5 Units |
| DTI 5991 | Directed Readings II | 1.5 Units |
| DTI 6105 | Design Thinking | 1.5 Units |
| DTI 6130 | Web Services | 1.5 Units |
| DTI 6160 | Cyber Security Systems and Strategies | 3 Units |
| DTI 6180 | Strategic Knowledge Management | 1.5 Units |
| DTI 6220 | Data Analytics and Business Intelligence | 1.5 Units |

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| DTI 6230 | Business Process Management and Performance Measurement | 3 Units |
| DTI 6240 | Mobile Commerce | 1.5 Units |
| DTI 6260 | Integrated Networks for the Enterprise | 1.5 Units |
| DTI 6300 | Topics in Digital Transformation and Innovation | 3 Units |
| DTI 6301 | Topics in Digital Transformation and Innovation | 1.5 Units |
| DTI 6302 | Topics in Applied Data Science | 3 Units |
| DTI 6303 | Topics in Applied Data Science | 1.5 Units |
| DTI 6304 | Topics in User Experience Design | 3 Units |
| DTI 6305 | Topics in User Experience Design | 1.5 Units |
| MBA 5270 | Knowledge and Information Management | 1.5 Units |
| MBA 6220 | Sales Development Strategies for Products Services | 1.5 Units |
| MGT 6111 | Venture Capital and Private Equity | 3 Units |
| MGT 6160 | Systems of Innovation | 3 Units |
| MHA 6271 | Application of Information Technology in Health Care | 1.5 Units |
| POP 8950 | Special Topics in Population Health | 3 Units |
| Technology Orientation | | |
| CSI 5105 | Network Security and Cryptography | 3 Units |
| CSI 5111 | Software Quality Engineering | 3 Units |
| CSI 5112 | Software Engineering | 3 Units |
| CSI 5115 | Database Analysis and Design | 3 Units |
| CSI 5118 | Automated Verification and Validation of Software | 3 Units |
| CSI 5122 | Software Usability | 3 Units |
| CSI 5180 | Topics in Artificial Intelligence | 3 Units |
| CSI 5311 | Distributed Databases and Transaction Processing | 3 Units |
| CSI 5386 | Natural Language Processing | 3 Units |
| DTI 5175 | Mobile Commerce Technologies | 3 Units |
| DTI 5380 | Systems and Architectures for Electronic Commerce | 3 Units |
| DTI 5389 | Electronic Commerce Technologies | 3 Units |
| DTI 6287 | Business Intelligence Technologies Big Data Analytics | 1.5 Units |
| DTI 6402 | Affective and Persuasive Computing | 3 Units |
| ELG 5121 | Multimedia Communications | 3 Units |
| ELG 5142 | Ubiquitous Sensing for Smart Cities | 3 Units |
| ELG 5373 | Data Encryption | 3 Units |
| GNG 5100 | Introduction to Engineering Management | 3 Units |
| GNG 5120 | Technology entrepreneurship for Engineers and Computer Scientists | 3 Units |
| GNG 5121 | Taguchi methods for efficient Engineering RD | 3 Units |
| GNG 5122 | Operational Excellence and Lean Six Sigma | 3 Units |
| GNG 5123 | Enterprise Architecture | 3 Units |
| GNG 5130 | Communication and Influence for Engineers | 3 Units |
| GNG 5131 | Sales and Influence for Engineers | 3 Units |
| GNG 5231 | Sales Engineer Internship Project | 6 Units |
| GNG 5300 | Topics in Engineering | 3 Units |
| GNG 5301 | Professional Skills and Responsibility | 3 Units |
| GNG 5310 | Topics in Industry Practice | 3 Units |

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| GNG 5140 | Engineering Design | 3 Units |
| GNG 5141 | Creativity and Innovation | 3 Units |
| Creative Arts and Humanities Orientation | | |
| AHL 5300 | Creativity and Innovation | 3 Units |
| CMN 5110 | Social History of Communication Technologies | 3 Units |
| CMN 5140 | Communication, Globalization and Change | 3 Units |
| CMN 5150 | Knowledge Management | 3 Units |
| CMN 5900 | Directed Studies in Communication | 3 Units |
| DTI 6102 | User Experience Principles and Practices | 1.5 Units |
| DTI 6103 | User Research | 1.5 Units |
| DTI 6104 | Interaction Design | 1.5 Units |
| DTI 7103 | Visual Literacy and User Experience Design Principles | 3 Units |
| ISI 6300 | Special Topics in Information Studies | 3 Units |
| ISI 6312 | Global Information and Communications Policy | 3 Units |
| ISI 6322 | Digital Preservation | 3 Units |
| ISI 6332 | Metadata and Taxonomies | 3 Units |
| ISI 6342 | Web Architecture and Technologies | 3 Units |
| ISI 6343 | Digital Asset Management Technologies | 3 Units |
| ISI 6351 | Social Media | 3 Units |
| ISI 6353 | Access and Services to Diverse Populations | 3 Units |
| ISI 6381 | Knowledge in Organizations | 3 Units |

Co-op Option

Co-op students must enroll full-time and complete two work terms: CGI 6001 and CGI 6002.

Each work term is graded P/F (Pass/Fail), based on the employer's report and on the written report completed by the student (the student report should be 30 pages long, including annexes). The report is evaluated by the professor in charge of the graduate co-op option in Digital Transformation and Innovation. The units awarded for co-op terms may not be used to obtain equivalences for other courses. In other words, the co-op units are additional to the minimum requirements of the degree.

To remain enrolled in the co-op option, students must:

- Maintain full-time status.
- Maintain a 7.0 grade point average.
- Obtain a satisfactory grade (P) for each co-op work term.

Research

Located in the heart of Canada's capital, a few steps away from Parliament Hill, the University of Ottawa is among Canada's top 10 research universities.

uOttawa focuses research strengths and efforts in four Strategic Areas of Development in Research (SADRs):

- Canada and the World
- Health
- e-Society
- Molecular and Environmental Sciences

With cutting-edge research, our graduate students, researchers and educators strongly influence national and international priorities.

Courses

DTI 5100 Introductory Seminar (1.5 unit)

Course Component: Seminar

DTI 5115 Communication Ethics (3 units)

Emphasis on the significance of ethical principles and responsibilities of public communicators, as well as sanctions faced when communicators fail to uphold these principles. Critique of self-regulation of the media. Analysis of argumentation. Study of legal precedents with respect to defamation.

Course Component: Seminar

DTI 5124 Internet Technologies and Mobile Commerce (3 units)

An examination of current Internet technologies, protocols and wired and wireless infrastructures. Analysis of current Internet-based businesses and consumer applications and services. Discussion of mobile commerce business models and strategies and their relevant technologies. Hands-on experience with discussed technologies and applications. Students will complete a project demonstrating and analyzing how an Internet-based application or service could be applied in their field of graduate study.

Course Component: Lecture

The courses DTI 5124, GNG 5124 cannot be combined for units.

DTI 5125 Data Science Applications (3 units)

Analysis and design of various data cleaning, wrangling, blending, and visualization, statistical inference, classification, clustering, regression, and content analysis methods. Use of machine learning algorithms to extract meaningful information from data to make decisions. Formulating analytics problems for business and developing, evaluating, and maintaining machine learning models. Analyzing, generating, and communicating insights on the models. Hands-on experience with an integrated set of current data analytics, data mining, and machine learning tools.

Course Component: Lecture

Courses CSI 5155, CSI 5387, DTI 5125, DTI 5126, DTO 5120, GNG 5125, MIA 5126, SYS 5170 cannot be combined for units

DTI 5126 Fundamentals for Applied Data Science (3 units)

Essential data science concepts relevant to practical applications are covered including: problem formulation; data acquisition; data pre-processing, modeling and statistical analysis. Hands on experience with data science tools and techniques including: supervised and unsupervised machine learning; presentation of results; applications in areas such as accounting, finance, marketing and supply chain management.

Course Component: Lecture

Courses DTI 5126, DTI 5125, DTO 5120, IAI 5120, MIA 5126, SYS 5170 cannot be combined for units.

DTI 5175 Mobile Commerce Technologies (3 units)

Wireless and mobile electronic commerce architecture and applications. Electronic banking, digital cash. Wireless exchanges, business models. Fixed and mobile wireless networks. Routing techniques. Content presentation. Security issues and solutions. Satellite networks for electronic commerce. Overview of relevant standards, protocols and technologies. Case studies.

Course Component: Lecture

DTI 5310 Ethics for Design, AI, and Robotics (3 units)

Artificial Intelligence technologies are becoming ever more present in applications like: automated vehicles and mobility-as-a-service (e.g. driving and system-level control algorithms); business intelligence (e.g. predictive resource allocation); consumer electronics (e.g. social robots and smart speakers); healthcare (e.g. image classification in medical imaging); the justice system (e.g. recidivism prediction and sentencing); and weapons systems (e.g. targeting and kill decision-making). Many of these applications are raising significant ethical concerns. A range of topics in applied technology ethics are examined through the lens of contemporary philosophy and applied ethics texts and popular media articles. Practical frameworks, methodologies and tools for anticipating, and addressing, ethical issues are introduced through hands-on, group-based design thinking workshops and projects.

Course Component: Lecture

Courses CSI 5195, DTI 5310, DTO 5310, SYS 5170, SYS 5295 cannot be combined for units.

DTI 5380 Systems and Architectures for Electronic Commerce (3 units)

Content and transactions in e-commerce systems. System architecture with a focus on frameworks, tools and development process. Application frameworks. Information management. Security, standards, and regulatory compliance. Current research issues. Hands-on experience with an integrated set of current e-commerce tools. E-commerce development project.

Course Component: Lecture

DTI 5389 Electronic Commerce Technologies (3 units)

Introduction to business models and technologies. Search engines. Cryptography. Web services and agents. Secure electronic transactions. Value added e-commerce technologies. Advanced research questions.

Course Component: Lecture

The courses DTI 5389, DTO 5389 cannot be combined for units.

DTI 5501 Fondements de gestion pour les affaires électroniques (3 crédits)

Théorie des organisations et modèles d'affaires. Cadres d'analyse de gestion. Modèles de l'avantage compétitif. Introduction aux modèles de marketing. Chaînes de valeur. La gestion par les processus. Gestion de la chaîne d'approvisionnement. Gestion de la qualité. Gestion des ressources humaines.

Volet : Cours magistral

DTI 5502 Fondements des technologies de l'information pour les affaires électroniques (3 crédits)

Technologies d'Internet. Développement d'applications Web. Fondements des réseaux. Gestion des données et résolution de problèmes. Gestion de bases de données et d'entrepôts de données. Outils logiciels.

Volet : Cours magistral

DTI 5503 Fondements des statistiques pour les affaires électroniques (3 crédits)

Théorie élémentaire des probabilités. Statistiques descriptives. Corrélations. Tables de fréquences. Tableaux croisés. Tests statistiques. Analyse multivariée.

Volet : Cours magistral

DTI 5902 Projet de stage en entreprise / Industry Internship Project (6 crédits / 6 units)

Projet encadré par un expert de l'industrie et un professeur qui supervise le projet. Les projets internationaux (emplacement ou expert du secteur) sont autorisés. / Project mentored by an industry expert and a professor who co-supervise the project. International projects (location or industry expert) are permitted.

Volet / Course Component: Recherche / Research

Préalable : GNG 5301. Les cours DTI 5902, GNG 5902 ne peuvent être combinés pour l'obtention de crédits. / Prerequisite: GNG 5301. Courses DTI 5902, GNG 5902 cannot be combined for units.

DTI 5990 Études dirigées / Directed Readings I (1.5 crédit / 1.5 unit)

Volet / Course Component: Recherche / Research

DTI 5991 Études dirigées / Directed Readings II (1.5 crédit / 1.5 unit)

Volet / Course Component: Recherche / Research

DTI 6102 User Experience Principles and Practices (1.5 unit)

User experience (UX) facets including functionality, usability and desirability as key success factors for technology adoption and acceptance; Human-computer interaction (HCI) theories; UX frameworks and patterns for interaction design, information design, and visual design; UX management best practices; UX design methods and tools; UX evaluation and usability engineering.

Course Component: Lecture

The courses DTI 6102, DTI 6103, DTO 6106 cannot be combined for units.

DTI 6103 User Research (1.5 unit)

Understanding users' behaviours, needs, motivations and challenges in user experience (UX); Common user research methods including interviews, surveys, focus groups, contextual inquiries; Principles and guidelines for generative & evaluative research; methods in qualitative and quantitative user research; Tools and techniques for in-person and remote research, and moderated vs automated approaches; heuristic evaluations and usability testing.

Course Component: Lecture

The courses DTI 6103, DTI 6102, DTO 6106 cannot be combined for units.

DTI 6104 Interaction Design (1.5 unit)

Principles of interaction design (IxD); Usability heuristics for user interface (UI) design; IxD tools and techniques including sketching, wireframing, and prototyping; UI design patterns for navigation, landing pages, search, and e-commerce; IxD best practices for mobile application design.

Course Component: Lecture

The courses DTI 6104, DTI 6105, DTO 6107 cannot be combined for units.

DTI 6105 Design Thinking (1.5 unit)

Design thinking as a collaborative creative process for problem-solving and designing human-centered solutions. Design thinking for driving business innovation, new product development, and customer experience. Best practices for design inspiration, ideation and implementation; essential design research skills for empathy, listening, collaboration, observation, critical analysis, and experimentation. Design Thinking tools and techniques including visualization, mapping, storytelling, rapid prototyping, and testing.

Course Component: Lecture

The courses DTI 6105, DTI 6104, DTO 6107 cannot be combined for units.

DTI 6130 Web Services (1.5 unit)

Web services business models and strategies. Enterprise Application Integration and Service Oriented Architectures. Web services technology standards. Consumer and enterprise adoption of web service technologies and platforms such as Mashups and Cloud Computing.

Course Component: Lecture

DTI 6160 Cyber Security Systems and Strategies (3 units)

User, data and network security principles. Information systems security standards. Security risk analysis frameworks. Overview of cyber security mechanisms including authentication, access control, data encryption and integrity, and Public Key Infrastructure. Cyber security including security in the wireless, cloud and IoT environments. Payment card industry security standards and compliance.

Course Component: Lecture

The courses DTI 6160, MIA 6160 cannot be combined for units.

DTI 6180 Strategic Knowledge Management (1.5 unit)

Leveraging a firm's intellectual capital to enhance organizational performance. Business analysis frameworks, strategy roadmaps and enterprise architectures relevant to the planning and execution of knowledge management initiatives in organizations. Using the web to maximize knowledge acquisition and sharing among employees.

Course Component: Lecture

The courses DTI 6180, MIA 6180 cannot be combined for units.

DTI 6210 Electronic Commerce Architecture (1.5 unit)

Three-tier Architecture. Building an e-Commerce Site. Client and Server side Scripting. Interactivity. E-Commerce Data bases. E-CRM. Wireless Internet and m-Business. Intermediaries and Software Agents. XML applications.

Course Component: Lecture

DTI 6220 Data Analytics and Business Intelligence (1.5 unit)

Introduction to business data collection, data pre-processing, data warehouses, data marts, and online analytical processing. Data mining tasks including classification, clustering and association rules. Data mining model building, tools and techniques including decision trees, neural networks, and regression analysis. Application of these techniques in business including CRM, target marketing, credit scoring, churn, survival analysis, and fraud detection.

Course Component: Lecture

DTI 6230 Business Process Management and Performance Measurement (3 units)

Hands on introduction to Business Process Management Technologies. Review of the latest concepts for using technology to improve performance of business processes. Analysis of advances in Internet-enabled B2B and enterprise business models with emphasis on service-oriented and event-driven architecture. Introduction to current performance measurement tools and the role of data science in business process management. Example applications such as supply chain management, order processing, and health care process management will be studied.

Course Component: Laboratory, Lecture

DTI 6240 Mobile Commerce (1.5 unit)

M-Commerce business models and strategies, Wireless technology standards and evolution. Industry analysis and value creation frameworks. Diffusion and adoption of M-Commerce technologies. Demand-side and supply-side enterprise applications of M-Commerce.

Course Component: Lecture

DTI 6250 Document Engineering for Digital Transf. and Innovation (1.5 unit)

Digital Transf. and Innovation from a Document Engineering Perspective. E-documents as the basis for DTI relationships. Modelling DTI documents and Processes. XML as a vehicle to defining a formal structural and semantic definition for electronic documents. XML syntax, styles and transformations, Document Type Definitions, and schema languages. XML Vocabularies for DTI. XML standards, specifications, and software architectures for DTI. E-documents within the enterprise. E-document exchanges for multi-company business activities.

Course Component: Lecture

DTI 6260 Integrated Networks for the Enterprise (1.5 unit)

OSI reference model. LAN characteristics. Interconnecting LAN. Interconnecting with TCP/IP. Routing protocols. IPv6. WAN options. Security protocols. VPN. Enterprise-Wide Solutions.

Course Component: Lecture

DTI 6287 Business Intelligence Technologies & Big Data Analytics (1.5 unit)

Business Intelligence (BI) as a concept; review of major BI tools and methods; identification of the right types of BI for different types of decision making environments; introduction to Big Data; business applications of Big Data; review of the supporting technologies such as data bases and data warehouses and Big Data Platforms for integrating structured and unstructured data including Hadoop, sandbox analytics; Streaming Analytics, and advances in data warehousing appliances that accelerate analytics.

Course Component: Lecture

Courses DTI 6287, ADM 6287 and ADM 6275 cannot be combined for units.

DTI 6300 Topics in Digital Transformation and Innovation (3 units)

Recent and advanced topics in the field of Digital Transformation and Innovation and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6301 Topics in Digital Transformation and Innovation (1.5 unit)

Recent and advanced topics in the field of Digital Transformation and Innovation and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6302 Topics in Applied Data Science (3 units)

Recent and advanced topics in the field of Applied Data Science and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6303 Topics in Applied Data Science (1.5 unit)

Recent and advanced topics in the field of Applied Data Science and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6304 Topics in User Experience Design (3 units)

Recent and advanced topics in the field of User Experience Design and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6305 Topics in User Experience Design (1.5 unit)

Recent and advanced topics in the field of User Experience Design and its related areas. Topics vary from year to year.

Course Component: Lecture

DTI 6402 Affective and Persuasive Computing (3 units)

Overview of human affective models and affect modalities. Design and development of affect estimation algorithms using artificial intelligence. Modality fusion and multimodal affect estimation. Persuasive technology and its applications. Persuasion design and persuasive strategies. Application of persuasive strategies in serious gaming. Current challenges in the fields of affective computing and persuasive technology.

Course Component: Lecture

DTI 6700 Thèmes choisis en affaires électroniques (3 crédits)

Sujets actuels et avancés en affaires électroniques et disciplines connexes. Les sujets varient d'une année à l'autre.

Volet : Cours magistral

DTI 6701 Thèmes choisis en affaires électroniques (3 crédits)

Sujets actuels et avancés en affaires électroniques et disciplines connexes. Les sujets varient d'une année à l'autre.

Volet : Cours magistral

DTI 6900 Stage international / International Work Term (3 crédits / 3 units)

Expérience pratique dans un milieu de travail international. Noté S (satisfaisant) / NS (non satisfaisant) selon les résultats de rapport écrit et l'évaluation de l'employeur. / Practical international experience.

Volet / Course Component: Cours magistral / Lecture

DTI 6950 Lectures dirigées / Directed Readings (1.5 crédit / 1.5 unit)

Volet / Course Component: Cours magistral / Lecture

DTI 6997 Projet de recherche / Research project (6 crédits / 6 units)

Le sujet de recherche, ainsi que le professeur qui va le diriger, doivent être approuvés par la direction du programme avant l'inscription à la troisième session. Le sujet peut être de nature théorique (par exemple, une évaluation de la documentation ou une étude de la littérature scientifique) ou appliquée (par exemple, des études de cas). Un mémoire, d'une cinquantaine de pages, doit être rédigé et approuvé par le professeur qui le dirige ainsi qu'un autre professeur. / The research topic and the professor who will direct it must be approved by the program director prior to registration in the third session. The topic can be theoretical (for instance, based on a documentation assessment or a review of the scientific literature) or applied (based on case studies). A research paper, about 50 pages long, must be written and approved by the project director and another professor.

Volet / Course Component: Recherche / Research

DTI 7100 Research Methods in Digital Transf. and Innovation (3 units)

Philosophy of Science. Research problem definition. Research Designs. Experimental Research. Modeling principles: analytical modeling and simulation. Measurement and scaling. Sampling. Hypotheses testing and statistical significance. Multivariate Analysis. Mathematical properties of computational problems: decidability and computability. Qualitative methods. Writing a Research Manuscript. Presentation of research results.

Course Component: Lecture

DTI 7101 Research Workshop in Digital Transf. and Innovation (1.5 unit)

Writing a Research Project proposal including problem formulation and work plan. Essentials of graduate report writing, information management, literature search techniques and reference management. Research ethics including academic integrity and avoiding academic fraud.

Course Component: Lecture

DTI 7102 Interdisciplinary Research Methods in Digital Transf. and Innovation (1.5 unit)

Writing a Thesis Proposal. Research design. Introduction to positivist and interpretive approaches, behavioral and design science research, qualitative and quantitative research methods, and sampling strategies and techniques.

Course Component: Lecture

DTI 7103 Visual Literacy and User Experience Design Principles (3 units)

Fundamentals of visual, interaction and motion design theories and principles as they relate to User Experience Design (UXD). A series of hands-on workshops and assignments focus on building visual literacy through guided observations, visual design critiques, and visual redesigns of existing screen-based digital products (i.e. website, interactive kiosk interface, mobile app etc.). Students will complete a design project. Students will conduct research and scholarship in visual literacy, and UXD and justify their design decisions in writing.

Course Component: Lecture

The courses DTI 7103, DTO 7103 cannot be combined for units.

DTI 7990 Proposition de thèse / Thesis Proposal

Volet / Course Component: Recherche / Research

DTI 8101 Interdisciplinary Doctoral Seminar in Digital Transformation and Innovation I (3 units)

Recent developments in Digital Transformation and Innovation research. Critical analysis of theories, models, and methods. Critical synthesis of the field literature from different perspectives. Students will write a systematic survey paper of the literature relevant to their research in one of the three fields of the program. The paper must be in a different field from that selected for the paper in DTI 8102. Course reserved for students in the Digital Transformation and Innovation PhD program.

Course Component: Seminar

DTI 8102 Interdisciplinary Doctoral Seminar in Digital Transformation and Innovation II (3 units)

Recent developments in Digital Transformation and Innovation research. Critical analysis of theories, models, and methods. Critical synthesis of the field literature from different perspectives. Students will write a systematic survey paper of the literature relevant to their research in one of the three fields of the program. The paper must be in a different field from that selected for the paper in DTI 8101. Course reserved for students in the Digital Transformation and Innovation PhD program.

Course Component: Seminar

DTI 9997 Projet de thèse doctoral / Doctorate Thesis Proposal

Volet / Course Component: Recherche / Research

DTI 9998 Examen général de doctorat / Comprehensive Exam

Volet / Course Component: Recherche / Research