

# **Curriculum for the Master of Science Programme in Information Technology at the IT University of Copenhagen, Digital Innovation and Management**

Curriculum of 1 September 2017

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## **Background**

This curriculum for the Master of Science Programme in Information Technology, Digital Innovation Management, has been drawn up by the Board of Studies ITU at the IT University of Copenhagen (henceforth referred to as the IT University). The curriculum has been drawn up in compliance with the current legislation governing bachelor's and master's (Candidatus) programmes at the universities.

Students enrolled in the above MSc study programmes with study start from autumn of 2017 study according to this curriculum.

## **Chapter 1**

### **Programme Title and Objectives**

*Title*

**Section 1.** A student, who has completed the programme, has the right to use the title *candidatus/candidate informationis technologiae (cand.it.)* i Digital Innovation og Management.

*Subsection 2.* The title in English is Master of Science (MSc) in Information Technology, Digital Innovation and Management.

### *Programme Objectives*

**Section 2.** The purpose of the Master of Science Programme in Information Technology is to provide students with the scientific qualifications to identify, formulate, solve and reflect on complex problems relating to information technology.

*Subsection 2.* The programme prioritises the student's ability to assess, apply and develop the underlying technology as well as the scientific theories, methods and tools upon which it is based.

*Subsection 3.* The student must have the ability to independently initiate and carry out collaborative work in professional and multidisciplinary settings. Furthermore, the student must have the ability to engage in global and distributed interaction, drawing on research-based perspectives.

*Subsection 4.* On the background of the student's preceding bachelor's programme, the programme provides the student with the qualifications to define his or her own academic profile within the field of information technology and to take independent responsibility for his or her own professional development and specialisation.

*Subsection 5.* Within the framework of the programme, the student can acquire the requisite individual qualifications for specialised posts in business and industry as well as for research training programmes (PhD programme) in information technology.

### *Objectives for Learning Output*

**Section 3.** The graduate will develop *knowledge and understanding of*:

- Significant research-based theories of innovation, development of IT, implementation and governance based on the highest level of international research on innovation and its application to IT.
- Significant research-based theories dealing with practical, political, societal challenges, possibilities and complexities in creating value with IT in various settings from small businesses, to NGOs and large public IT-projects.
- Research-based knowledge on how work and business processes in public and private organizations and in inter-organizational and global settings interact with information technologies.
- Research grounded tools, methods and techniques applicable to IT-innovation and implementation in both innovative open projects and within specific requirements, constraints and current governmental frames.

Subsection 2. The graduate will develop the following *skills*:

- The graduate can, using research-based tools and methods, identify and critically reflect on complex relations between IT and organizational processes, and between IT and society.
- The graduate can, using research based tools and methods, identify issues; such as risks, relevant to a given development process and identify, modulate, and deploy the best strategies, tools, methods and techniques available in the given situation of innovation and management.
- The graduate can facilitate, manage, and communicate key aspects of IT-innovation processes, from pre-investigation of work process and organizational needs to the evaluation of projects.

- The graduate can facilitate experience and knowledge sharing, negotiate issues and mitigate between different complex and/or expert knowledge fields related to IT-innovation processes and convey such knowledge to decision-makers, specialists, and non-specialists alike.
- The graduate can, using research-based tools and methods, critically reflect on, consider and apply central methods for research and development in IT and assess the ramifications, advantages and disadvantages of IT-solutions and their implementation.

*Subsection 3.* The graduate will develop the following *competences*:

- The graduate can enable collaboration in multi-disciplinary, inter-organizational, cross-cultural, global, complex, and changing work environments within fields of digital innovation and management.
- The graduate can facilitate and make decisions in complex IT-innovation processes.
- The graduate can organize and manage innovative, fast moving and multi-faceted IT-innovation processes and specify requirements and constraints in a given situation.
- The graduate can take actions based on knowledge of the complex relations between IT development and the specific constraints defined by e.g. law, ethics, and culture in a given IT project.

## Chapter 2

### Programme Structure, Content and Programme Language

#### *Programme Structure*

**Section 4.** The Master of Science programme requires passes in study activities corresponding to 120 ECTS points consisting of a mandatory backbone, a specialization, optional modules and a master's thesis.

*Subsection 2.* The study activities of the programme are composed of modules corresponding to 90 ECTS points and a concluding master's thesis corresponding to 30 ECTS points.

*Subsection 3.* Graphic overview of the programme structure is found at the IT University's online Study Guide.

*Subsection 4.* For students with a bachelor degree in Global Business Informatics or similar, a graphics overview of the programme structure is also found on the IT University's online Study Guide.

#### *Programme Content*

**Section 5.** The mandatory backbone of the MSc study programme Digital Innovation & Management consists of modules corresponding to 52.5 ECTS points within the first three terms. For students having earned a bachelor's degree in Global Business Informatics or an equivalent degree, up to 15 ECTS points of the mandatory backbone have been determined in subsection 5.

*Subsection 2.* The specialisation of the MSc study programme consists of modules corresponding to 22.5 ECTS points within the first three terms.

*Subsection 3.* The optional modules of the MSc study programme correspond to 15 ECTS points within the first three terms, however, up to 30 ECTS points for students having earned a bachelor's degree in Global Information Informatics or an equivalent degree.

*Subsection 4.* The mandatory backbone of the MSc study programme consists of the following modules:

**1. Foundations module (15 ECTS)**

The aim of the module is to enable students to understand and participate in IT development cycles and to provide the student with key-concepts for understanding business and management. The module will equip students with a fundamental understanding of important aspects in the construction of IT systems. The students will gain knowledge about and work with databases, requirements specifications, and user-interfaces. The module will furthermore introduce students to important aspects of it-infrastructure. Several perspectives on business, including new and classic management theories will be presented and discussed in relation to both the public and private sector. Furthermore central management/leadership concepts in an IT context will be discussed such as situated, crisis, project, team, public, and innovation management. Students having earned a bachelor's degree in Global Business Informatics or an equivalent degree will be excused from any parts of this module included in their qualifying degree. See subsection 6.

**2. Digital Innovation & Management module 1 (15 ECTS)**

The module will equip students with a set of analytical and practical tools to visualize and analyze complex knowledge fields and present proposals for decision-making based on concerns and experienced problems in these fields. The aim of the module is thus to make the students capable of dealing with, communicate and act constructively in situations faced by complex challenges and without obvious or straightforward solutions presenting themselves.

**3. Digital Innovation & Management module 2 (7.5 ECTS)**

In the course of this module students will learn how to identify, handle, understand, and act within political, ethical, cultural, and legal frames around information technology. Management, leadership and organizational issues related to accountability in a digital context and public-private differences and relations, will be addressed.

**4. Digital Innovation & Management module 3 (7.5 ECTS)**

The module will introduce to both standard and critical management approaches to management. The student will learn to analyze and synthesize concrete problems related to IT within strategic change management.

**5. Digital Innovation & Management module 4 (7.5 ECTS)**

The module will provide the students with theoretical perspectives and conceptual tools to analyse the relations between it-innovation and society. The core perspectives taught are sociological, historical, and socio-technical. The module will also equip students with techniques for participating in innovation processes such as the analysis and design of information-infrastructures, technology transfer, idea-generation, or open innovation.

*Subsection 5.* Students having earned a bachelor's degree in Global Business Informatics or an equivalent degree, who are excused from parts of or the entire Foundations module, must take one or two of the following modules (depending on the proportion of the Foundations module from which the relevant student is excused):

1. *Project (7.5 ECTS).* The module focuses on targeted, independent learning under supervision, e.g. in relation to existing research projects at the IT University.
2. *Optional module (7.5 ECTS):* The study activities of this module consist of activities offered at Master of Science level at the IT University or at other educational

institutions.

*Programme Language*

**Section 6.** The MSc Digital innovation and Management study programme are conducted in English.

### **Chapter 3**

#### **General Rules and Miscellaneous Regulation**

**Section 7.** Furthermore, please refer to the IT University's rules and regulation, appendix to this curriculum.

### **Chapter 4**

#### **Date of Commencement and Transitional Regulations**

**Section 8.** This curriculum comes into force 1 September 2017 and applies to all students admitted to the programme from autumn 2017.

*Subsection 2.* Students, who are enrolled under previous curriculums, may apply to the Board of Studies ITU to complete the programme under the present curriculum if this can be done within a maximum of 120 ECTS point.

*Subsection 3.* When a new curriculum is published, or in the event of significant changes to this curriculum, transitional regulations will be set out in the curriculum as appendix.

Approved by the Board of Studies ITU 21 December 2016

Approved by Vice Chancellor Mads Tofte 10 January 2017

