

IT-Universitetet
i København

**Curriculum for the Master of Science Programme
in Information Technology at the IT University of
Copenhagen, the MSc study programmes
belonging under the Board of Studies ITU:**

- Digital Design and Communication**
- Games**
- Software Development and Technology**
- E-business (Digital Innovation & Management)**

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Background

This curriculum for the Master of Science Programme in Information Technology has been drawn up by the Board of Studies ITU at the IT University of Copenhagen (henceforth referred to as the IT University) and applies to the four MSc study programmes above belonging under the Board of Studies ITU. The curriculum has been drawn up in compliance with the Executive Order on Bachelor's and Master's (Candidatus) Programmes at Universities (the Order on Study Programmes) from the Ministry of Science, Technology and Innovation (executive order no. 814 of 29 June 2010).

Students enrolled in the above MSc study programmes with study start from autumn of 2013 study according to this curriculum.



Chapter 1

The programme, its objectives, duration and titles

Objectives

Section 1. 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, cf. section 2, subsection 1 of Consolidation Act on Universities (the Danish Universities Act) from the Ministry of Science, Technology and Innovation (consolidation act no. 367 of 25 March 2013) and section 3, subsection 3 of the Order on Study Programmes.

Study Programmes

Section 2. The Master of Science programme includes the MSc study programmes below, each of which extends the student's knowledge of specific academic disciplines.

Subsection 2. The following study programmes belong under the Board of Studies ITU:

- Digital Design and Communication (K-DDK)
- Games (K-Games), which comprises two admission areas: Design and Analysis (K-Games-DA), and Technology (K-Games-T)
- Software Development and Technology (K-SDT)
- E-business (Digital Innovation & Management) (K-DIM13)

Subsection 3. The following study programme belongs under the E-business Board of Studies:

- E-Business (K-EBUSS). Students enrolled no later than spring 2013 in the study programme E-Business study according to the applicable curriculum for the MSc study programme in E-Business.



Duration

Section 3. The programme has a standard duration of 120 ECTS points. 60 ECTS points correspond to one year of full-time studies, cf. the Order on Study Programmes section 6, subsection 3. The programme is a full-time programme which entails that students are expected to study full-time.

Subsection 2. The programme must be concluded within five years. Under special circumstances, the IT University is entitled to grant exemptions from this regulation.

Subsection 3. The IT University may without further notice end the enrolment for students who have not been active in their study programme for a period of at least one year, cf. section 19 of the Executive Order on Admission and Enrolment on Master's Programmes at Universities (the Master's Programmes Admission Order) from the Ministry of Science, Innovation and Higher Education (executive order no. 213 of 21 February 2012). Under special circumstances, the IT University is entitled to grant exemptions from this regulation, cf. the Master's Programmes Admission Order section 19, subsection 2.

Subsection 4. A student, who does not pass any examinations corresponding to at least 7.5 ECTS points within a period of one year, is not active in his or her study programme.

Titles

Section 4. A student, who has completed the Master of Science programme in Information Technology, has the right to use the title *candidatus/candidata informationis technologiae (cand.it.)* with the addition of the designation for the appropriate study programme.

Subsection 2. The title in English is Master of Science (MSc) in IT.

Subsection 3. The study programme titles in English are:

- Digital Design and Communication
- Games
- Software Development and Technology
- E-business (Digital Innovation & Management)



Chapter 2

Admission requirements and conditions

Admission requirements

Section 5. Admission to the Master of Science programme is conditional upon the applicant having successfully completed a University or Professional Bachelor's programme.

Subsection 2. The programme-specific rules for each MSc study programmes may contain admission requirements pertaining to the individual study programme.

Subsection 3. The IT University has the authority to grant admission to applicants, who do not meet the requirements in subsections 1 and 2, but who on the basis of a concrete assessment are considered to have academic qualifications comparable to this if the university deems that the applicant will be able to complete the programme. The university may require supplementary tests, cf. the Order on Study Programmes section 9, subsection 3, cf. the Master's Programmes Admission Order section 4.

Conditions of admission

Section 6. Students having completed a bachelor programme at the IT University are entitled to admission to an MSc study programme in accordance with the table below immediately after being awarded the bachelor's degree.

Bachelor's degree earned at the IT University	Right to admission to MSc study programme
Bachelor's degree in Software Development	MSc study programme in Software Development and Technology
	MSc study programme in Games (admission area: Technology)
Bachelor's degree in Digital Media and Design	MSc study programme in Digital Design and Communication
	MSc study programme in Games (admission area: Design and Analysis)
	MSc study programme in E-business (Digital Innovation & Management)
Bachelor's degree in Global Business Informatics	MSc study programme in Software Development and Technology
	MSc study programme in Games (admission area: Design and Analysis)
	MSc study programme in E-business (Digital Innovation & Management)

Subsection 2. Subsection 1 does not apply to students who have already finished a Master of Science Programme.

Subsection 3. For students not mentioned in subsection 1, meeting the admission requirements stipulated in section 5 is a necessity but not sufficient for admission on its own.

Subsection 4. The IT University stipulates and publishes the criteria for selection of



applicants if there are more qualified applicants, cf. section 5, than there are places available, cf. the Master's Programmes Admission Order section 11. The IT University publishes the criteria for selection in the IT University's admission rules on the university's website.

Chapter 3

Structure, contents, etc.

Term structure

Section 7. An academic year consists of two terms, the autumn term and the spring term.

Programme structure

Section 8. 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. One term of full-time study consists of study activities worth 30 ECTS points.

Subsection 3. 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 4. There can be more than one track within a study programme. A track consists of one mandatory backbone, one optional specialization and optional modules.

Subsection 5. A module consists of one or more study activities. A study activity consists of a course and a project and examination or of a course or a project and examination.

Subsection 6. A module may form part of the *mandatory backbone* of an MSc study programme, form part of a *specialization* of an MSc study programme or be an *optional module*.

Subsection 7. The student must not complete study activities worth more than the prescribed 120 ECTS points.

Subsection 8. All study activities, including the thesis, are concluded with an examination. When the examination has been passed, the study activity is considered passed.

Subsection 9. If a student fails to sit for an examination in study activities for which the student has been registered, the IT University is entitled to reduce, and in special cases even reallocate, the teaching resources devoted to the student.

Subsection 10. To take part in a study activity, a student must register in advance.

Subsection 11. Students are allowed to do project activities as well as their thesis in collaboration with students from other MSc study programmes at the IT University.



Subsection 12. When choosing study activities, it is the responsibility of the student to make sure that all requirements of his or her study programme can and will be met.

Subsection 13. There is only one Board of Studies responsible for each study activity. Only the Board of Studies responsible for a particular study activity is empowered to organize examinations and assessments.

Courses and projects

Section 9. During a *course*, the student attends organised classes, which may include lectures, assignments, practical and theoretical exercises, home study, field trips, etc.

Subsection 2. A course may form an integrated part of a module or constitute a module in itself, cf. section 8, subsection 5.

Subsection 3. A list of courses including course descriptions is published on the ITU University's website by the Board of Studies ITU in advance of each term.

Section 10. A *project* consists of targeted, independent learning under supervision.

Subsection 2. A project may form an integrated part of a module or constitute a module in itself, cf. section 8, subsection 5.

Subsection 3. A project is normally done in groups of 2-5 students. Dependent on the nature of the project, the Board of Studies may grant permission for other group sizes.

Subsection 4. A project which does not form an integrated part of a module is defined by a *project agreement*.

Subsection 5. The problem statement and frameworks for the project are defined at the start of the project. Each student taking part furthermore states what individual qualifications he or she possesses for participation.

Subsection 6. The project agreement must be approved, before a project may be carried through.

Subsection 7. Only one Study Administration sees to the administration for each project agreement. The main supervisor acts as the contact person with this Study Administration.

Master's thesis

Section 11. Master's theses follow the same rules that apply to other project activities, cf. section 10. The following special conditions also apply to theses.

Subsection 2. A thesis must be worth 30 ECTS points, corresponding to a workload of half a year.

Subsection 3. The thesis must conclude the Master of Science programme. The university may grant exemption from the rule in special cases, cf. the Order on Study Programmes section 19, subsection 5.

Subsection 4. The thesis is designed to show skills in applying scientific theories and methods when working on a defined subject, cf. the Order on Study Programmes, section 19, subsection 5. Furthermore, the thesis is designed to demonstrate that the



student has achieved the objectives of the Master of Science programme, cf. section 1, and can apply, present or elaborate on specialized knowledge within the area of the appropriate MSc study programme.

Subsection 5. The thesis is defined by a *project agreement* outlining the subject of the thesis and a *thesis plan* describing the work process.

Subsection 6. The project agreement and the thesis plan are prepared in collaboration with one or more supervisors. The thesis is composed individually or in a group of a maximum of 4 students. The thesis is concluded with a written report and an individual, oral defence.

Subsection 7. During the making of the project agreement, a hand-in deadline is laid down. Furthermore the thesis plan should include milestones, i.e. outlines and/or drafts and their deadlines, as agreed upon with the supervisor(s).

Subsection 8. When the project agreement has been made, cancellation is no longer possible, cf. the Order on Study Programmes section 19, subsections 6 and 7.

Subsection 9. If the student does not hand in the thesis report before the laid down hand-in deadline, an examination attempt has been used, cf. section 14, subsection 3 in the Executive Order on Examinations and Grading in University Programmes (the Examination Order) from the Ministry of Science, Technology and Innovation (executive order no. 666 of 28 June 2012). The university will accept a revised problem statement within the same subject area, and lays down a new hand-in deadline, three months after the original deadline. If the student does not hand in the thesis report before the new hand-in deadline, a third examination attempt is offered to the student, according to the same rules as for the second examination attempt.

Subsection 10. The student can only be granted leave during a thesis project period due to maternity or paternity leave. The submission deadline can be postponed if special circumstances occur.

Subsection 11. The thesis report must be composed in Danish or English. The thesis report must include a summary in a foreign language which enters into the total assessment, cf. the Examination Order, section 24, subsection 2. If the thesis is written in Danish, the summary must be written in English. If the thesis is written in English, the summary may be written in Danish or in English.

Subsection 12. The student's spelling and writing skills enter into the basis of the assessment of the thesis no matter in which language the thesis is written, however with the main emphasis being given to the academic contents, cf. the Examination Order section 24, subsection 1.

Subsection 13. See also the IT University's examination regulations.

Study language

Section 12. The MSc study programmes belonging under the Board of Studies ITU are conducted in the following languages of study:

- *Games, Software Development and Technology* and *E-business (Digital Innovation & Management)* are conducted in English. See section 24, 27 and 29, respectively.
- *Digital Design and Communication* is conducted in Danish. However, some teaching and examinations may be conducted in English. See section 20.



Work experience and study trips abroad

Section 13. Study activities based on work experience must be carried out as projects, cf. section 10.

Subsection 2. Credits for study trips abroad may be transferred to the programme. Credits for educational activities during a study trip abroad can be transferred as courses and/or projects, provided they meet the requirements, cf. sections 9 and 10 of this curriculum.

Chapter 4

Examinations

Section 14. The IT University issues diplomas for all of the MSc study programmes included in the Master of Science programme.

Subsection 2. The following rules apply for examinations:

- Executive Order on Examinations and Grading in University Programmes (the Examination Order).
- Executive Order on the Grading Scale and Other Forms of Assessment of University Education (the grading scale order).

Subsection 3. Issues regarding criteria for evaluation of achievement of goals for each study activity are referred to chapter 1 in the grading scale order.

Subsection 4. The MSc study programmes fall within the remit of the following examiners:

- Digital Design and Communication: The examiners for Information Studies and Interactive Media Studies (IIM)
- Software Development and Technology: The examiners for Computer Science (D)
- Games: The examiners for Information Studies and Interactive Media Studies (IIM) and the examiners for Computer Science (D)
- E-business (Digital Innovation & Management): The examiners for Information Studies and Interactive Media Studies (IIM)

Subsection 5. See also:

- The IT University's examination regulations.
- The IT University's rules and procedures for complaints.

Chapter 5

Programme specific rules

Programme specific objectives

Digital Design and Communication

Section 15. The Digital Design and Communication graduate will develop *knowledge and understanding of:*



- the main principles and theories about digital communication and interaction design practices based on the highest level of international research, including scientific methods applied within digital communication and interaction design
- design processes aligned with digital media and communication
- how our society affects and is affected by digital media.

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

- The graduate can disseminate research-based knowledge about digital design and communication to non-specialists and specialists alike
- The graduate can develop digital design and communication concepts for a variety of digital platforms.
- The graduate can program at a basic level for digital communication platforms.
- The graduate can apply innovation and project management methodologies appropriate to digital design and communication
- The graduate can produce and analyse empirical material appropriate to digital design and communication.

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

- The graduate can design and create innovative digital communication solutions in complex and diverse work contexts, including collaboration with people with a variety of skills and backgrounds in teams situated locally or globally
- The graduate can reflectively consider, apply, and evaluate the central methodologies for the study of digital design and communication from a cross-disciplinary perspective
- The graduate can identify and critically evaluate emerging digital genres and technologies and their likely impact on society
- The graduate can successfully design to changing digital media platforms
- The graduate can communicate strategically in various digital media contexts
- The graduate can identify and critically evaluate digital communication in a local and global perspective with a special focus on social, cultural and institutional contexts.

Games

Section 16. The Games graduate will develop *knowledge and understanding of*:

- significant theories related to the understanding of media and games technologies and their cultural and social impact, based on the highest international research within each subject area
- tools, methods and techniques applicable to the development of innovate and creative media and games technologies
- tools, applications and theories applicable to the development and programming of complex media and games technologies

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

- The graduate can identify and characterize a wide set of theories and technologies for the development of media and games technologies and products
- The graduate can recognize the impact and projection of innovative developments in the field of media and games technologies

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

- The graduate can design and develop innovative technologies and concepts within games based on a scientific analysis
- The graduate can manage the complex and unpredictable processes of game development within local and global production requirements
- The graduate can reconcile the limitlessness of creative ideas with the limitations of system requirements



- The graduate can bring about products, prototypes and theories which make appropriate use and analysis of media and games technologies
- The graduate can collaborate with others in interdisciplinary and varied local and global teams in a game design and development process

Subsection 4. Additional track specific *competences* for graduates from Games are:

- **Design track:** The graduate can design and develop innovative games and media based on scientific research
- **Analysis track:** The graduate can carry out research on the relevance of computer games in our culture, society, politics and economics
- **Technology track:** The graduate can develop innovative technologies applied to the fields of digital leisure.

Software Development and Technology

Section 17. The Software Development and Technology graduate will develop *knowledge and understanding of:*

- general concepts of programming languages
 - analysis of software performance in theory and practice
 - principles of software design, modelling and software architecture
- Each graduate obtains specialized knowledge at international research level in at least one of the above areas, depending on the selected specialization module.

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

- The graduate can use a modern programming platform to implement software
- The graduate can manage, plan and participate in basic processes and practices of software development
- The graduate can follow good practice in quality assurance to create reliable and secure software

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

- The graduate can write well-documented software that meets given requirements
- The graduate can collaborate with others in complex and changing contexts, including in international and industrial projects, using processes and tools that support such collaboration to design and develop high-quality software

Subsection 4. Additional track specific *competences* for graduates from Software Development and Technology are:

- **Development Technology track:** The graduate can combine domain knowledge with software development expertise to design domain specific software
- **Software Engineering track:** The graduate can manage, evaluate, improve, adjust, and implement software development processes and methods in both distributed and local settings.

E-business (Digital Innovation & Management)

Section 18. The E-business (Digital Innovation & Management) 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.

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.

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 law, ethics, and culture in a given IT project.

Programme content

Digital Design and Communication

Section 19. The mandatory backbone of the MSc study programme Digital Design and Communication consists of modules corresponding to 52.5 ECTS points within the first three terms. For students having earned a bachelor's degree in Digital Media and Design or an equivalent degree, up to 15 ECTS points of the mandatory backbone have been determined in subsection 5.

Subsection 2. The specialization 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 Digital Media and Design or an equivalent degree.

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

1. Introduction to fields of study (15 ECTS points)

The module provides students with an introduction to the academic platform of the programme: Interaction Design and Media and Communication. The module's focus on interaction design includes application of key theories of interaction design, data collection methods, data analysis and development of ideas for the design of interactive products and planning and implementation of design research projects.

The module's focus on media and communication includes theories of communication and media, theories of digital-media communication and identification and analysis of topical phenomena and issues from a digital perspective.

Students having earned a bachelor's degree in Digital Media and Design or an equivalent degree will be excused from any parts of this module included in their qualifying degree. See subsection 5.

2. Scientific methods and IT understanding (5 ECTS points)

The module focuses on basic theoretical understanding and practical application of scientific methods and tools for working with digital solutions.

3. Digital Media in Theory and Practice (10 ECTS points)

The theoretical focus of the module is theories on digital-media communication and historical as well as present-day conceptions of digital units and the communicative potential of platforms. The practical focus of the module is the design of communication and programming for digital communication platforms.

4. IT and Innovation (7.5 ECTS points)

The theoretical and practical focus of the module is the innovation process from idea to execution within advanced-level IT.

5. Communication Theories within IT (7.5 ECTS points)

The module focuses on the theoretical understanding of the special characteristics and conditions of digital media and the application of communication strategies on an advanced level.

6. Global IT (7.5 ECTS points)

The module focuses on interaction, culture and societal change processes from a global digital perspective in theory and practice.

Subsection 5. Students having earned a bachelor's degree in Digital Media and Design or an equivalent degree, who are excused from parts of or the entire module Introduction to fields of study, must take one or both of the following modules (depending on the proportion of the module Introduction to fields of study from which the relevant student is excused):

1. Project (7.5 ECTS points) The module focuses on targeted, independent learning under supervision, e.g. in relation to existing research projects at the IT University. See



section 10.

2. *Optional module (7.5 ECTS points)*: The study activities of this module consist of activities offered at Master of Science level at the IT University or at other educational institutions. See section 33.

Section 20. Admission to the study programme K-DDK requires proficiency in written and oral Danish, cf. the Master's Programmes Admission Order section 5 and this curriculum section 12. However, some programme activities may be conducted in English, meaning that students must be willing and able to participate in teaching, guidance and examinations in English.

Games

Section 21. The mandatory backbone of the MSc study programme Games, the *Design track*, consists of modules corresponding to 45 ECTS points within the first three terms.

Subsection 2. The specialization of the MSc study programme consists of modules corresponding to 30 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.

Subsection 4. The mandatory backbone of the Design track consists of the following three modules:

1. <i>Game Theory (15 ECTS points)</i>

The module focuses on the analysis of games and their culture on the basis of research-based studies.

2. <i>Game Design (15 ECTS points)</i>

The module focuses on the application of design research to computer game design as well as the design and development of prototypes.

3. <i>Game Development (15 ECTS points)</i>
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The module focuses on the development of innovative products expanding game technologies, based on a structured and scientific perspective.

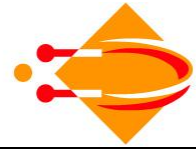
Section 22. The mandatory backbone of the MSc study programme Games, the *Analysis track*, consists of modules corresponding to 45 ECTS points within the first three terms.

Subsection 2. The specialization of the MSc study programme consists of modules corresponding to 30 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.

Subsection 4. The mandatory backbone of the Analysis track consists of the following three modules:

1. <i>Game Theory (15 ECTS points)</i>



The module focuses on the analysis of games and their culture on the basis of research-based studies.

2. Game Design (15 ECTS points)

The module focuses on the application of design research to computer game design as well as the design and development of prototypes.

3. Digital Game Theory (15 ECTS points)

The module focuses on the advanced analysis of computer games from a highly academic perspective.

Section 23. The mandatory backbone of the MSc study programme Games, the *Technology track*, consists of modules corresponding to 45 ECTS points within the first three terms.

Subsection 2. The specialization of the MSc study programme consists of modules corresponding to 30 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.

Subsection 4. The mandatory backbone of the Technology track consists of the following three modules:

1. Programming (15 ECTS points)

The module focuses on programming techniques applicable to computer games, centred on research-based studies.

2. Game Design (15 ECTS points)

The module focuses on the application of design research to computer game design as well as the design and development of prototypes.

3. Game Development (15 ECTS points)

The module focuses on the development of innovative products expanding media and game technologies, based on a structured and scientific perspective.

Section 24. Admission to the study programme K-Games requires proficiency in written and oral English at B Level, cf. the Master's Programmes Admission Order section 6.

Subsection 2. Applicants for the admission area Technology must have a computer science bachelor's degree or equivalent training.

Software Development and Technology

Section 25. The mandatory backbone of the MSc study programme Software Development and Technology, the *Development Technology track*, consists of modules corresponding to 45 ECTS points within the first three terms.

Subsection 2. The specialization of the MSc study programme consists of modules corresponding to a minimum of 22.5 ECTS points within the first 3 terms.

Subsection 3. The optional modules of the MSc study programme correspond to a



minimum of 15 ECTS points within the first 3 terms.

Subsection 4. The mandatory backbone of the Development Technology track consists of the following three modules:

1. Programming (22.5 ECTS points)

The module focuses on introductory programming concepts and practical experience, including imperative object-oriented programming and introductory database design.

2. Foundations (15 ECTS points)

The module focuses on the foundations of software development, such as algorithms, data structures and discrete mathematics.

3. Quality Assurance (7.5 ECTS points)

The module focuses on testing techniques and quality assurance processes.

Section 26. The mandatory backbone of the MSc study programme Software Development and Technology, the *Software Engineering track*, consists of modules corresponding to 37.5 ECTS points within in the first three terms.

Subsection 2. The specialization of the MSc study programme consists of modules corresponding to a minimum of 22.5 ECTS points within the first 3 terms.

Subsection 3. The optional modules of the MSc study programme correspond to a minimum of 22.5 ECTS points within the first three terms.

Subsection 4. The mandatory backbone of the Software Engineering track consists of the following three modules:

1. Software Engineering (15 ECTS points)

The module focuses on automatic techniques for software development and on software engineering processes (knowledge management, project management, etc.).

2. Design of algorithms (7.5 ECTS points)

The module focuses on algorithm design techniques for solving calculation problems and the efficiency of such algorithms.

3. Software Development Project (15 ECTS points)

The module aims to provide students with experience of working on medium-to-large scale projects in realistic conditions and within a distributed framework.

Section 27. Admission to the study programme K-SDT requires proficiency in written and oral English at B Level, cf. the Master's Programmes Admission Order section 6.

Subsection 2. In addition, applicants for the Software Engineering track must have a qualifying bachelor's degree in computer science, software development or web development, or a degree in engineering including a significant programming element or an equivalent degree. This provision will come into force as from 1 February 2014.

E-business (Digital Innovation & Management)



Section 28. The mandatory backbone of the MSc study programme E-business (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 specialization 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 points)

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 5.

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

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 offers the possibility to choose one of at least two subjects offered:

- a) The module equips the students with techniques and tools for open innovation, focusing on design of services and processes.
- b) 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 points)

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 address the role of science in innovation, analysis and design of information-infrastructures, technology transfer, and vision-process.

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 both of the following modules (depending on the proportion of the Foundations module from which the relevant student is excused):

1. Project (7.5 ECTS points). The module focuses on targeted, independent learning under supervision, e.g. in relation to existing research projects at the IT University. See section 10.

2. Optional module (7.5 ECTS points): The study activities of this module consist of activities offered at Master of Science level at the IT University or at other educational institutions. See section 33.

Section 29. Admission to the study programme K-DIM13 requires proficiency in written and oral Danish, cf. the Master's Programmes Admission Order section 5 and this curriculum section 12. However, all programme activities will be conducted in English, meaning that students must be willing and able to participate in teaching, guidance and examinations in English.

Subsection 2. From 1 February 2015, the above requirements will no longer apply and admission to the study programme K-DIM13 will require proficiency in written and oral English at B Level, cf. the Master's Programmes Admission Order section 6.

General rules

Section 30. A list of the specializations of each MSc study programme is published on the IT University's website by the Board of Studies ITU in advance of each term.

Subsection 2. The student can apply to carry out an individual specialization. The application must be submitted in writing and include the academic reasons for applying.

Section 31. A list of the study activities constituting the mandatory modules of each MSc study programme is published on the IT University's website by the board of studies in advance of each term.

Chapter 6

Miscellaneous regulations

Transferring to another degree or study programme or track

Section 32. A student wishing to transfer from another degree programme at the IT University to the Master of Science programme, or from one study programme within the Master of Science programme to another, must apply for admission to the programme under the same rules that apply to everybody else who applies for admission to the programme, cf. the IT University's admission rules.

Subsection 2. Transfer from one track to another within the same study programme requires approval by the Board of Studies.



Subsection 3. When assessing transfer applications, the IT University is entitled to consider all registered information about the student's course of studies at the IT University to date.

Subsection 4. When transferring from one track to another within the study programme, all passed study activities are automatically transferred to the new track. Hence, permission to transfer from one track to another will only be granted if passed study activities can be transferred to the new track.

Subsection 5. When transferring from another degree programme or MSc study programme at the IT University to the Master of Science programme, the student may apply to have passed study activities transferred to the Master of Science programme.

Credit transfer

Section 33. Credits can be awarded for parts of the degree by credit transfer from other institutions, but only up to a maximum of 60 ECTS points.

Subsection 2. Credit transfers for study activities from other institutions require approval by the Board of Studies.

Subsection 3. The content of the activity for which the credit is transferred must correspond to the objectives, academic content and academic level of the study programme. At the same time documentation must be presented of academic content, academic level and the amount of ECTS points.

Subsection 4. Students, who during their bachelor's programme have covered areas which form part of the mandatory backbone of their MSc study programme, may apply to the Board of Studies to replace one or more modules. Students, who replace 22.5 ECTS points or more, must follow study activities within one additional specialization.

Subsection 5. Credits for a master's thesis forming the basis of a master's degree designation cannot be transferred to the Master of Science programme of the IT University. See the Order on Study Programmes, section 28, subsection 2.

Exemptions

Section 34. When justified by special circumstances, the IT University is entitled to grant exemptions from the rules in the curriculum that have been laid down by the university and the university alone, cf. the Order on Study Programmes section 24, subsection 7.

Subsection 2. The authority to grant exemptions stipulated in subsection 1 is administered by the Board of Studies ITU within its area of responsibility, cf. the Act on Universities section 18.

Complaints

Section 35. As regards complaints, please refer to the IT University's rules and procedures for complaints.



Chapter 7

Date of commencement and transitional regulations

Section 36. This curriculum comes into force 1 September 2013 and applies to all students admitted to the MSc study programmes belonging under the Board of Studies ITU, cf. section 2, subsection 2, from autumn 2013.

Subsection 2. Students who are enrolled under any previous curriculum have the right to complete their programmes according to the curriculum under which they were enrolled, but may take part in study activities offered under the new curriculum. Examinations under the curriculum from 2012 will be held for the last time in June 2017.

Subsection 3. 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 points.

Subsection 4. 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.

Approved by the Board of Studies ITU 23 April 2013

Approved by Vice Chancellor Mads Tofte _____ July 10, _____ 2013.