Kristiania

Programme description

Master of Science in Information Systems: Digital Business Systems

Part-time/Full-time

On-campus

120 ECTS credits

Valid from 2024

Full time *(two years)* or
Part time *(first 60 credits with 50% progression, last 60 credits with 100% progression)*

The programme is accredited by NOKUT 02.09.2011
The programme is re-accredited by the board 18.10.2022
The programme description is approved by
The Education Committee: 07.10.22 (UU/EIT-case no. 136/22

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1. Introduction

Master of Science in Information Systems is an advanced programme for students who aim for a career in management of business systems. School of Economics, Innovation and Technology at Kristiania University College educates competent and socially responsible IT professionals, who work in many roles, such as CIOs, project managers, business analysts, consultants, systems developers and IT security experts. The programme is research based, and is taught by active researchers. The programme is also developed in close co-operation with business and public organisations.

Information Systems (IS) is both a professional discipline and an academic field, aiming to bridge the technical capabilities of IT with business needs. As an academic discipline, IS investigates a wide range of topics, such as IS strategy and management, business systems, IS development methods, user behavior and usability. It also investigates more theoretical issues, such as the relationship between technology and the social world, and the dynamics of the information society.

Digitial Business Systems (DBS) are the Enterprise Applications that are commonly and widely used by public and private organizations worlwide. DBS support the various business functions on all levels of organisational structures. They support the business processes of the organisation and provide digitised process and transaction sharing, monitoring, and reporting capabilities. DBS also provide innovative digital solutions to organizational, societal, and sustainability challenges. The successful employment of information systems concepts in the development or implementation of digitial business systems depends on the understanding of the various types of systems and technologies, and their potential impact on organisations, people, societies, and sustainability.

The Master of Science in Information Systems specialization in Digital Business Systems will provide students with the necessary knowledge, skills and competence to effectively develop DBS adoption strategies and put them into action. This specialization explores the role of Information Systems research alongside existing Digitial Business Systems state-of-the-art, concepts and theories, and considers how these functions within the wider organizational strategy. The curriculum focuses on the essential aspects of digitial business systems including Introduction to IS research, Customer Journey and Customer Relstionship Management (CRM), Enterprise Resource Planning (ERP) Systems and Supply Chains, Internet of Things (IoT) in Business, and Business Intelligence (BI) and Dashboards, and underpins this by enhancing students' core information systems understanding, including Ethics, Sustainability and Society, Research Methods, Proposal Development, tailoring them to meet the needs of DBS practice and research.

The specialization in Digitial Business Systems is designed to provide students with a critical understanding and specialist knowledge of digitial business systems and enterprise

applications, therefore enhancing their career potential in these ever-expanding fields.

The awarded title is: **Master of Science in Information Systems.**

A non comprehensive list of potential job opportunities may include; Business Analysts, ERP Consultants, CRM Consultants, CIOs, CTOs, Business Process Engineers, IoT Strategists, and Project Managers within private and public organisations. After completing the Master's programme, the candidate is also formally qualified for a PhD study in IT at Kristiania University College, and other institutions with a related area of research.

1.1 Prerequisites

Applicants must meet the following requirements:

- Bachelor's degree in IT, management, economics, e-business or marketing, with an average grade of minimum C, equals minimum 2,7 ECTS. Relevant practices, or other special considerations, may in some cases weigh up for non-compliant grade requirements.
- The applicants must also write an motivational letter of 400-500 words in English.

2. Objective

Learning outcome at the Master of Science in Information Systems programme level

Knowledge

The candidate...

- has an advanced knowledge of information systems as a research field, in terms of theories, knowledge claims, research methods and professional standards.
- can reflect on how information systems contribute to business, decision-making activities and societal aims.

Skills

The candidate...

- has acquire practical skills in analyzing complex IS problems, designing or recommending solutions, and in measuring and evaluating results.
- has strong skills in applying research methods and techniques.

Competence

The candidate...

- can take responsibility for conducting independent research and/or development project at a high standard and in accordance with norms for research ethics.
- can choose the appropriate research approach, to choose or develop a solution that meets the organizational requirements, provide value while considering sustainability goals.
- can handle organizational relationships ethically, professionally, and to evaluate and communicate the results in a systematic way.

Learning outcomes at specialization level in Digital Business Systems

Knowledge

The candidate...

- can apply their advanced knowledge in providing digital solutions to business and organizational problems.

- can reflect on how information systems and technology infrastructures can contribute to business, societal, and sustainability aims.
- can describe and discuss key theories on the role of information systems and technologies for individuals, groups, organizations, and society.
- can understand the role of information systems and technologies in organizational innovation processes.

Skills

The candidate...

- can analyse various business cases and assess alternative technological solutions.
- can critically evaluate information systems in relation to organizational strategies and requirements.
- can manage large digital business systems' implementations.

Competence

The candidate…

- can take the responsibility to contribute to an IT strategy or system innovation process in organizations.
- can conduct diligent and ethical information systems research and contribute to the body of knowledge.
- can communicate research and professional findings in a professional business and ethical manner.

3. Structure

For full-time students first year offers eight courses. For part-time students these eight courses are taken over two years. The second year (third year for part-time students) offers a semester with possibility for student exchange or electives (30ECTS), and a final semester with Master Thesis.

Semester	Master of Science in Information Systems: Digital Business Systems Full time			
1. semester	Introduction to IS Research 7,5 ECTS	Customer Journey and CRM 7,5 ECTS	Internet of Things in Business 7,5 ECTS	Ethics, Sustainability, and Society 7,5 ECTS
2. semester	ERP and Supply Chain 7,5 ECTS	Business Intelligence and Dashboards 7,5 ECTS	Research Methods 7,5 ECTS	Proposal Development 7,5 ECTS
3. semester	Elective 30 ECTS			
	Exchange 30 ECTS			
4. semester	Master Thesis 30 ECTS			

Table 1. Program structure – full-time
There may be changes in which electives/elective program course are offered.
The courses are taught as moduels, meaning that the students usually will complete one module before starting the next.

Compulsory courses	Elective courses

Semester	Master of Science in Information Systems: Digital Business Systems Part-time			
1. semester	Introduction to IS Research 7,5 ECTS	Internet of Things in Business 7,5 ECTS		
2. semester	ERP and Supply Chain 7,5 ECTS	Research Methods 7,5 ECTS		
3. semester	Customer Journey and CRM 7,5 ECTS	Ethics, Sustainability, and Society 7,5 ECTS		
4. semester	Business Intelligence and Dashboards 7,5 ECTS	Proposal Development 7,5 ECTS		
5. semester	Elective 30 ECTS			
	Exchange 30 ECTS			
6. semester	Master Thesis 30 ECTS			

Table 2. Program structure – part-time
There may be changes in which electives/elective program course are offered.
The courses are taught as moduels, meaning that the students usually will complete one module before starting the next.

Compulsory courses	Elective courses

3.1 Academic progression

The academic progression presents the overall model for the Master of Science in Information Systems specialization in Digital Business Systems. The first year provides the students with knowledge and skills in IS research, Customer Journey and CRM, ERP and Supply Chain, the Internet of Things in Business, Ethics, Sustainability, and Society, and Business Intelligence and Dashboards.

The second year gives students the opportunity to deepen within elective subjects and/or exchange to one of the international institutions that this programme has agreement with. The last semester has a stronger focus on competence, aiming at synthesizing knowledge and skills into the ability to conduct a Master Thesis. During the work with the Master Thesis the student has the opportunity to demonstrate expertise in their chosen research area. Student will acquire specialized problem-solving skills, being able to plan and conduct the steps in the research and/or development process at a high methodological standard. When working with the Master Thesis, a close relationship with a company is recommended.

The academic progression is described according to the full-time programme. Part-time students spend two years completing the first 60 credits (50% progression), while the last 60 credits are completed within one year (100% progression). See tables above for an overview of progress of study for full- and part time progression.

3.2 Courses

Course name	Credits	Description
Introduction to IS Research	7,5	The course provides an introduction to the IS research field. Students will gain advanced knowledge of the key concepts and theories of IS research. They will acquire specialised problem-solving skills, being able to analyse and synthesize a research case. They shall take responsibility to a literature review of a specific IS topic. Central topics includes Information Systems as a research field, IS development, IS innovation, IS as sociotechnical and complex systems, Introduction to research methods in IS, Basic concepts and theories in IS, Literature reviews and writing style.
Customer Journey and CRM	7,5	Customers are omnichannel-oriented. They increasingly expect to interact with organizations in a seamless way, combining aspects across different channels at different stages of their decision journey. This course provides the forefront of knowledge on how to support the omnichannel customer experience, what the customer expects, how organizations can use CRM to leverage their presence, and what organizations need to support an omnichannel strategy. Students will gain advanced knowledge of key theories and concepts

		of omnichannel and CRM. They will acquire specialized problem-solving skills, being able to plan omnichannel activities, and to configure CRM solutions. They shall take responsibility to conduct the planning and implementation of CRM activities and evaluate the business value taking into account meeting ethical and sustainability goals.
ERP and Supply Chain	7,5	Enterprise resource planning (ERP) integrates internal and external information across an entire organization, embracing finance/accounting, manufacturing, sales and service, etc. Students will gain advanced knowledge of key theories and concepts of ERP systems and supply chains. They will acquire specialised problem-solving skills, being able to use, analyse and configure an ERP system. They shall take responsibility to conduct an assessment and implementation of an ERP system and evaluate the business value.
Ethics, Sustainability and Society	7,5	The main aim of this course is to provide students with the fundamental knowledge of ethics and sustainabilty necessary for responsible innovation and the development of new information technologies (IT) in the modern society. The central topics include the role of ethics in responsible innovation and IT development; social, economic, and environmental impacts of innovations and new ITs; and how IT development and innovation can contribute to achieving the UN Sustainable Development Goals. In covering ethical and sustainability issues, the course addresses the perspectives of various stakeholders at the individual level (IT developers, innovators, consumers, investors), the organizational level (commercial, public, and non-governmental organizations), and the societal level (local and regional communities, nations, international society). Group work on possible solutions to real-life ethical and sustainability challenges constitutes an essential part of the course.
Proposal Development	7,5	The overall objective of this course is to help students conceptualize and prepare a timely and relevant research proposal, and to nurture a sense of inquisitiveness and active participation in research. The course aims at offering insight into the process behind a successful research project. It has an applied approach that involves collaborative and reciprocal partnerships between the university (faculty, staff, and/or students) and external communities for the mutually beneficial exchange of knowledge and resources. The research proposal forms the basis for the master thesis and the allocation of supervisor(s).
Internet of Things in Business	7,5	The aim of the course is to introduce the Internet of Things (IoT) in relation to Digital Business Systems and organisations. The overarching objective of IoT in business is to broaden the student's perspective on future and contemporary IT phenomena and state- of-the-art technologies. Emphasis is invested in relating the contemporary IoT theme to general and selected contexts within Digital Business Systems, such as ERP and supply chain, Digital marketing and Business intelligence.
Business Intelligence and Dashboards	7,5	Business Intelligence (BI) is highly important for making good decisions in organisations. Students will gain advanced knowledge of the art and process of decision-making, as well as the BI process and the end- user tools such as reports, visualizations and dashboards. They will acquire specialised problem-solving skills and hands-on experience with a leading BI tool. They shall take responsibility to conduct a complete BI process and evaluate its business value.

Research Methods	7,5	This course is intended as an introduction to research methodology and the research process. This introduction gives the students an overview of the basic concept, methods, and practice of research. Research is a cyclical process where new and carefully planned investigations build and extend on established work. The aim is to provide students with a fundamental understanding of research as a conceptual, empirical, and practical approach to gathering new insight and knowledge. The content provides a broad overview of how researchers work within the fields of economy, innovation, and technology. It presents students with relevant methods from these domains, along with their possibilities and limitations. Students will learn a systematic approach to empirical investigation, including literature search, research design and methodology, qualitative and quantitative analyses, and the presentation and evaluation of results. At completion of the course, students will be able to study and interpret existing research on a topic and suggest approaches to broaden or deepen knowledge within a given topic.

3.3 Elective subjects

Within the students' 3rd semester (5th for the part-time students), they will have to choose from electable course in the program, which will give them the opportunity to further engage in in-depth knowledge of a topic of interest, or to broaden their scope and area of knowledge by selecting a related module that expands their horizon. What topics that can be chosen may vary from year to year. The concrete topics are presented and published therefore early in the spring, in the students' 2nd semester (4th for the part-time students), together with the deadline for enrolment in individual electable subjects. The proposed elective subjects are presented below (all 7,5 ECTS).

Course	ECTS	Description
IT Strategy and Architecture*	7.5	This course highlights the importance of Information systems (IS) Strategy and architecture in contemporary organizations. Students will gain advanced knowledge of key theories and concepts of strategic use of IS. They will acquire specialized problem-solving skills, being able to conduct a strategic analysis based on accepted frameworks, and to analyze the implications for a company's IT architecture. They shall take responsibility to plan and accomplish an IS strategy process for a case organization, with a proposed architecture.
Consulting and Leadership*	7.5	This course focuses on the soft skills in management of information systems. Students will gain advanced knowledge of theories on leadership, change agents, ethics and required skills within IT-consultancy. They will acquire specialized problem-solving skills, being able to master the personal and organizational techniques required to participate in a change process, practicing leadership and developing professional skills within consulting. They shall take responsibility to conduct a minor consulting project thru an agreement, plan

		and evaluation.
Agile Project Management*	7.5	Organizations need to develop project managers who can complete projects on time and within budget and this course addresses challenges such as the ability to manage projects and stakeholders, risk assessment and agile planning. Students will gain advanced knowledge of the key theories of project management and agile development. They will acquire specialised problem-solving skills, being able to plan and run a time-boxed iteration, and to use a project management tool. Students will take conduct plan, organise and control an agile IS project.
Advanced Visual Analytics*	7.5	Data and visual analytics are an evolving field concerned with analyzing, modeling, and visualizing complex high-dimensional data. This course will introduce students to the data visualization domain by covering state-of-the-art modeling, analysis and advanced visualization techniques. It will emphasize practical challenges involving complex real-world data and include real-world case studies and hands-on work with several leading visual analytics tools and programming languages. Students will gain advanced knowledge of the art of decision-making, as well as acquire specialized problem-solving skills and deliver value to organizations through the development of advanced visualizations.
Investment Analysis & Portfolio Management†	7.5	The course will provide students with the advanced knowledge necessary to understand how investment professionals analyze and manage financial assets. Central topics will cover; Understanding securities & estimating expected returns, understanding & measuring risk for individual securities & portfolios, value investing, and applying diversification & optimizations techniques. The student knowledge & skills will be practically applied using state-of-the-art financial markets' simulators. The course will also cover topics such as alternative investments Technology & Investment decisions, and Investment management role in sustainability. Entrepreneurial Finance and Money & Applied Technologies are prerequisites.
Digital Service Innovation†	7,5	Although digitalization creates endless opportunities for innovation, incumbent firms find it increasingly more difficult to compete with new, purely digital market entrants. Traditional strategies, organizational structures, processes, and business models seem to be inefficient for growing in the digital age and may even be detrimental for long-term survival. As a result, a financial company' capability for digital service innovation becomes a key success factor for meeting market demands and gaining market share. This course's main objective is to develop a broad understanding of digital service innovation in the FinTech industry. Combining recent research advances with practical perspectives on innovation, the course will focus on the following topics: value creation in the digital service economy, managing the development of new digital services, marketing of digital service innovations, and digital business models and digital transformation.

Integrated Business Planning*	7.5	Integrated Business Planning (IBP), also known as Sales and Operations Planning (S&OP), is an effective decision-making process designed to ensure that supply and demand are in balance while meeting the overall strategic intent of the company. The approach focuses on the vertical and horizontal alignment of the company. The former is concerned with intracompany alignment, ensuring that sales, marketing, manufacturing, sourcing, R&D, and finance share a common view of where the business is heading. The latter, horizontal alignment, expands the view to incorporate also supply chain partners, such as suppliers and outsourcing partners. The focus is on creating business value with a societal impact, reducing waste and environmental impact while providing the best possible customer service. While IBP can be seen as an essential process in any company, the primary focus of this course is on manufacturing companies. Students will get up-to-date information on the implementation of IBP, including benefits, implementation steps, possible pitfalls, technologies to support the implementation, and links to corporate strategy. The information systems and technology aspects are covered, starting from basic principles to more advanced deployments using commercial software, tying the need for technology to the maturity of the process.
Business Process Management and Innovation†	7.5	Business Process Management (BPM) is core area for organizations and specialists that seek business optimization and innovation. BPM is a continuous effort for business process improvement. It is also applied to improve the efficiency of the collective workflows that make up any given business process. BPM has several underlying operations, including BP modeling and re-engineering, which could enable organizations to align business functions with customer needs, help top management to determine how to deploy, monitor and measure company resources, and to make sure that the re-engineered processes fit the aimed technologies. When appropriately achieved, BPM has the ability to enhance efficiency and productivity, reduce costs, enable innovation, and minimize errors and risk – thereby optimizing results.

3.4 Master Thesis (30 credits)

The aim of this course is to provide the student with an opportunity to develop systematic understanding and critical awareness on the solution of a relevant problem in the student's focal area. Students will gain advanced knowledge of the research process at master level in information systems, including a deep knowledge of selected theories. They will acquire specialized problem-solving skills, being able to plan and conduct the steps in the research or development process at a high methodological standard. They shall take responsibility to conduct a well planned and executed project at master level.

On a more detailed level, the student will, based on observations of the industry and the existing body of knowledge, develop a research question. Students will also be able to connect their Master Thesis work to one of the ongoing research projects at School of Economics, Innovation

and Technology. Furthermore, the student will conduct an extensive literature review in order to map what is already known about the chosen research question. Building on this, the student will carry out the research. This usually includes collecting his or her own data, which can be done by means of surveys, interviews, experiments, observations, and more. The data are to be analyzed in a thorough manner before conclusions can be made. Lastly, the student has to reflect on ethical issues, limitations, future research and the value of the contributions of the conducted master thesis.

Course	ECTS	Description
Master Thesis	30	The master thesis is a research project in which students will apply the knowledge acquired during their studies. It is a crafted scholarly document presenting research questions and original arguments based on scientific methods under the guidance of an advisor. The thesis gives the student the opportunity to demonstrate expertise in their chosen research area. Students will acquire specialized problem-solving skills, being able to plan and conduct the steps in the research and/or development process at a high methodological standard. They shall take responsibility to conduct a well planned and executed project.

Table 5: Master Thesis overview.

4. Teaching methods and assessment

4.1 Pedagogical platform and teaching methods

The programme uses a number of varied forms of teaching in order to encourage learning:

- Lectures, to introduce theoretical issues and domain knowledge.
- Seminars and group work, to give the students the opportunity to discuss different perspectives, integrate with previous knowledge, and practice analytical assessments with provided case materials.
- Practical assignments, simulations and group work
- Directed and student-selected readings, to initiate an interest in a domain of
- knowledge and to develop solid knowledge base.
- Oral presentations, to develop personal communication skills and promote.
- team-work environments
- Essay and thesis writing, in order to synthesize knowledge and present analyses and communicate results.
- Supervision, to provide detailed feedback and discussion of students' projects in close interaction with Kristiania University College researchers.

4.2 Forms of assessment

Regarding assessment forms, the students usually have written home exam during the modules. The objective of these assessment forms is to prepare and train the student for writing the Master's Thesis. In addition, some oral presentations, multiple choice exam, individual written exams are examples of other assessment forms. There is one assessment in each module. Some modules do also have individual or group compulsory assignments. For the Master's Thesis, the assessment consists of: one written essay (The Master's Thesis report) and an oral defense.

5.Internationalization and student exchange

With reference to *Studietilsynsforskriften* of February 2017 (§2-2, sections 7 and 8), the study has arrangements for internationalization and international student exchange.

5.1 Internationalization

In this context internationalization is understood as placing the study programme in an international context and that the students are exposed to a multitude of perspectives.

All of the reading materials and lectures are given in english, and the study uses both norwegian and international cases. The studends who wish to do so can write their Master Thesis in english as well as choose an international case for their reseach. The program uses international lectures and guest lecturers. Our lectures also conduct reseach with international coauthors and play an active role in both national and international confrences.

For specific internationalization schemes, see the subject description of the study.

5.2 International student exchange

As regards to arrangements for international student exchange, Kristiania University College has the following mobility program;

- Nordplus in the Nordic region or the Baltic States
- ERASMUS + in Europe
- "Study Abroad", for students in and outside Europe

Kristiania Univeristy College has agreements on student exchanges and academic relevance secured by the academic field of study. Exchange courses from partners are approved by academic supervisors, for admission to the program, with an equivalent of 30 credits.

For nominations for student exchange, requirements are set for grades and motivation applications. For some study programmes there are requirements for documentation of creative work / portfolios.

For students at Master of IS: Digital Business Systemstudent exchange is possible during the third semester (5th semester for part-time students). While on exchange the student will be able to start preparing for their master thesis with an advisor from Kristiania University College. For outgoing students, Kristiania University College, has established student exchange agreements with the following institutions:

- Kingston University, UK: Master Programme
- Arcada, Finland: International Business Management
- Seoul, South-Korea: Seoul National University of Science and Technology
- England: University of Hertfordshire, UK
- New Zealand: Otago Polytechnic New Zealand (1 student only)

Changes to approved universities may occur. Information about possible exchange stays for the relevant year is therefore published online and on the learning platform.