Curriculum Autumn 2017*

Bachelor in IT – E-Business
Faculty of Technology

All information revised as of October 2016. Note that all curricula may be updated*
1 Introduction

Westerdals Oslo ACT is the only institution of higher education in Norway offering a bachelor’s programme specialising in E-Business, creating bridges between technology and business. E-Business focuses on IT-based business systems and how they can create added value for individuals, organisations and societies.

1.1 Curriculum overview

The structure of the programme is shown below. Individual courses for exchange students are described in Part 2.

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Yellow boxes denote that the course is taught jointly with one or more other study programmes. Green boxes show where optional course (electives) are placed in the curriculum. In the 2nd semester students choose an elective from a pool of optional courses across faculties and programmes, in addition to the electives offered by the Faculty of Technology.

The first year of study is taught jointly for all the programmes that lead to a Bachelor in IT, teaching basic IT, programming and project work.

The two subsequent years have their emphasis on the specialisations and on practical project work, often performed for external employers. 15 ECTS credits out of the total 180 ECTS are awarded from optional courses. The programme finishes with a bachelor’s thesis of 22.5 ECTS.
E-business is suited for students who like to work with technology and people. The programme teaches the construction of customer management systems, business administration systems and web stores, and also how to evaluate and further develop e-business solutions. Students gain practical and theoretical experience with a number of solutions from leading suppliers. On a more detailed level they will also learn to map the processes and needs of a business, in order to be able to configure and implement the correct business system. They also learn programming with the purpose of creating a website, and digital marketing to be able to show the content of the website in the best possible way. Organising training for the end users and adapting for further operation of the business system is also something students will learn in this course.

The tools the students use in their study work are identical to the tools used by the businesses themselves. Students get to experiment with realistic datasets, and to participate in role-play and presentations when studying the following topics:

- Introduction to business administration
- Development of websites
- Digital marketing
- Configuration of business systems
- Managing data warehouses
- Decision support
- Visualisation of data
- Creative thinking

1.2 About the programme

The bachelor’s programme in IT with specialisation in E-business aims to educate candidates who can be bridge builders between technology and business with qualifications in a field that focuses on the way IT-based business systems can create added value for individuals, organisations and societies. The close contact with the industry with students working in cross-disciplinary teams gives important experience in working with complex issues, as well as a broad basis to succeed in their further careers in electronic business systems and e-commerce.

The programme’s first year of study is jointly taught for all programmes that lead to a Westerdals Oslo ACT Bachelor in IT. The two subsequent years are concentrated around the specialisation and practical project work, often in cooperation with external employers. 15 of the total 180 ECTS credits are optional courses; the other 65 ECTS credits are awarded from mandatory courses. The programme finishes with a bachelor’s thesis of 15 ECTS credits.

At successful completion of the 3-year programme in IT – E-Business candidates are characterised by a learning outcome defined by the following knowledge, skills and general competence:

Knowledge – candidates

- have wide knowledge of central topics (ERP, data warehouse and architecture, data analyse and reporting, innovation), theories (the value chain, critical success factors), issues (how technology can support business processes, what organisational changes will lead to new technology), tools (systems for ERP, CRM, data warehouses, Business Intelligence) and methods for modelling (BPMN, UML) in E-business
• know research and development work in E-business (the value chain, cloud technology and innovation
• know the origin of E-business and its role in society
Skills – candidates are able to
• use knowledge and results from existing research and apply this to practical and theoretical questions, giving reasons for their choices; this includes analysing, modelling, configuring and implementing an IT system for a company
• master relevant tools (such as SAP, Microsoft, SAS Visual Analytics), techniques (ETL, reporting) and expressions (BPMN, UML)
General competence – candidates
• can plan, evaluate critically, and implement long-term IT projects, individually and in teams and complying with ethical demands and guidelines (laws and rules)
• are able to present theories, questions and solutions in writing, orally and using other relevant means of expression, and to contribute to the development of sound practice; they are also able to distinguish between their own contributions and those of others
• are acquainted with new thinking and are able to use this learning as active participants in an organisational innovation process.

1.3 Central themes
The main theme of the programme is the integration of technology and business processes in an organisation. The study programme is based on existing research and theory from course books and articles dealing with the research field of E-business.

The study is in contact with a number of software suppliers and consulting companies in Norway and other countries. It also has connections with the University of Gothenburg in Sweden.

2 Individual courses offered to exchange students Autumn 2017

2.1 IS5200 Business Intelligence
Norwegian name: Business Intelligence
ECTS credits: 7.5
Area of study: Technology/IT
Language of instruction: English
Programme: Mandatory course in Bachelor in IT - E-Business, optional course in Bachelor in Digital Marketing
Required prerequisites: None
Recommended prerequisites: Databases
Semester: The course is taught in the 5th semester (autumn)
Course outline
Business Intelligence (BI) gives a thorough introduction to the way data can be interpreted so as to lead to improved decisions, and how this can create added value for businesses. The course comprises theory as well as the use of end user tools for reporting and dashboards.

Learning outcome
Knowledge: At completion of the course candidates will
• know central BI concepts (process, tools, product)
• be able to describe the development of BI
• be able to describe how BI can lead to better decisions in businesses

Skills: At completion of the course candidates will
• be able to assess various types of end user tools
• have gained experience with reporting, analysis and visualisation

Competence: At completion of the course candidates will be able to
• understand how BI can create value in an innovative way
• critically assess a company’s use of BI end user tools
• recognise ethical issues

Teaching and learning methods
The course is taught over one semester with lectures and exercises.

Recommended workload
Participation in lectures and tutorials – 44 hours
Self-study – 90 hours
Independent work and practical work individually or in groups – 63 hours
Examination and preparing for the examination – 3 hours
Total recommended workload – 200 hours

Technology and tools
One tool to produce end user Business Intelligence products

Learning material/Syllabus
Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information is also available on our website.

In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus.
Coursework requirements
None

Assessment
Assessment is based on an individual written examination lasting 3 hours. No aids permitted.

Grading scale: A – F with A as the best grade and E as the lowest pass grade. F means failed.

Assessment criteria
See Learning outcome

2.2 IS6100 IT and Innovation

Norwegian name: IT og innovasjon
ECTS credits: 7.5
Area of study: Technology/IT
Language of instruction: English
Programme: Mandatory course in Bachelor in IT – E-Business
Required prerequisites: None
Recommended prerequisites: Basic knowledge of business systems is expected
Semester: The course is taught in the 5th semester (autumn)
Course leader: Hrafnhildur Jonasdottir

Course outline
The aim of the course is to give the students practical and logical understanding of IT-based innovation processes, through analysing and introducing well-known innovation businesses, for instance Norwegian and Apple. The course gives a basic introduction to innovation theory. Case analysis, presentation and discussion are important methods in the course.

Learning outcome
Knowledge: At completion of the course candidates will
• know a number of theories and models of IT-based innovation
• be aware of the social importance of innovation

Skills: At completion of the course candidates will be able to
• apply the learned theories to analyse a number of larger case descriptions
• master a number of techniques for case analysis

General competence: At completion of the course candidates will be able to
• contribute to an innovation process
• plan and carry out a professional oral presentation of an innovation analysis with additional written documentation
• handle an open discussion of a case

Teaching and learning methods
Various models for IT- and service-based innovation are presented. The students analyse and discuss the innovation case in groups.

Recommended workload
Participation in teaching – 48 hours
Self-study – 60 hours
Independent exercises and practical work individually or in groups – 32 hours
Examination and preparing for the examination – 60 hours
**Total recommended workload – 200 hours**

Technology and tools
None

Learning material/Syllabus
Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information is also available on our website.

In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus

Coursework requirements
None

Assessment
Assessment is based on an individual written examination lasting 3 hours. No aids permitted. Grading scale: A – F with A as the best grade and E as the lowest pass grade. F means failed.

Assessment criteria
See Learning outcome.
2.3 IS5100 Data Warehouse and Architecture

Norwegian name: Datavarehus og -arkitektur

ECTS credits: 7.5

Area of study: Technology/IT

Language of instruction: English

Programme: Mandatory course in Bachelor in IT – E-business

Required prerequisites: None

Recommended prerequisites: Databases and basic SQL

Semester: The course is taught in the 5th semester (autumn)

Course leader: Wanda Presthus

Course outline
The course gives a basic introduction to how integrated data can make sophisticated methods for data analysis possible. The students learn various types of architecture for collecting, structuring and visualising data. By use of modern tools large amounts of data are processed for relevant information for a business.

Learning outcome
Knowledge: At completion of the course candidates will be able to
• describe central concepts of data warehouse and architecture
• distinguish between “top-down” and “bottom-up” architecture

Skills: At completion of the course candidates will be able to
• model data for a data warehouse
• build a data cube and upload data
• carry out an ETL process

Competence: At completion of the course candidates will be able to
• reflect on the way data warehouses can create value for a business
• critically assess the use of data warehouse and architecture in a business

Teaching and learning methods
The course is taught over one semester with lectures and exercises.

Recommended workload
Participation in lectures and tutorials – 44 hours
Self-study – 60 hours
Independent exercises and practical work individually or in groups – 63 hours
Examination and preparing for the examination – 33 hours
Total recommended workload – 200 hours
Technology and tools
One tool to be used for Data Warehouse

Learning material/Syllabus
Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information is also available on our website.

In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus

Coursework requirements
None

Assessment
Assessment is based on an individual presentation portfolio, to be made on the basis of assignments the candidate has completed in the course. The portfolio is to be submitted in accordance with specifications handed out by the course leader. The portfolio should comprise three assignments.

The assignments are handed out at the beginning, in the middle, and at the end of the course, the last assignment about 4 weeks before the submission of the portfolio.

Grading scale: A – F with A as the best grade and E as the lowest pass grade. F means failed.

Assessment criteria
See Learning outcome.
2.4 INS300 Data Science

Norwegian name: Data Science

ECTS credits: 7.5

Area of study: Technology/IT

Language of instruction: English

Programme: Mandatory course in Bachelor in IT – Intelligent Systems; Optional course in Bachelor in IT – E-Business

Required prerequisites: None

Recommended prerequisites: Databases

Semester: The course is taught in the 5th semester (autumn)

Course leader: Wanda Presthus

Course outline

Data Science introduces the way different types of data can be collected, analysed and visualised. This includes statistic knowledge and data mining techniques. Visualisation means to decide how data should best be presented, and an evaluation of how information should be communicated to the various recipients. The students learn theory and gain practical experience with leading tools for analysis and visualisation.

Learning outcome

Knowledge: At completion of the course candidates will
- be able to define data science as a concept
- know various data sources such as database, social media and sensors
- be able to describe basic principles of visualisation
- know principles for presenting information

Skills: At completion of the course candidates will be able to
- master tools for predictive or advanced analysis
- master tools for visual presentation of information and organise it for an end user
- deal with selected techniques in statistics and analysis, such as correlation, regression analysis, clustering, and what-if scenarios

General competence: At completion of the course candidates will be able to
- understand how the entire process from collection of raw data to data visualisation creates value
- critically adapt different presentation formats to message and recipient
- judge ethical issues

Teaching and learning methods

The course is taught over one semester with lectures and exercises.
Recommended workload
Participation in lectures and tutorials – 44 hours
Self-study – 90 hours
Independent exercises and practical work individually or in groups – 63 hours
Examination and preparing for the examination – 3 hours
Total recommended workload – 200 hours

Technology and tools
One state-of-the-art tool for exploring data sets

Learning material/Syllabus
Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information is also available on our website.

In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus

Coursework requirements
None

Assessment
Assessment is based on an individual written examination lasting 3 hours. No aids permitted.

Grading scale: A – F with A as the best grade and E as the lowest pass grade. F means failed.

Assessment criteria
See Learning outcome
2.5 BU5300 IT – Project Management

Norwegian name: IT prosjektledelse
ECTS credits: 7.5
Area of study: Management; Technology/IT
Language of instruction: English
Programme: Optional course in Bachelor in IT and in Bachelor in Digital Marketing
Required prerequisites: General Higher Education Entrance Qualifications, or equivalent previous knowledge
Recommended prerequisites: None
Semester: The course is taught in the 5th semester (autumn)
Course leader: Knut Rolland

Course outline
The course gives students the necessary experience in managing IT-based projects in small and medium sized organisations. The students learn about various methods in IT project management. Additionally, they gain practical experience through a case study that includes planning, budgeting, tender, and using a state-of-the-art project management tool. The course will also enable the students to critically evaluate various IT project management methods.

Learning outcome
Knowledge: At completion of the course the candidate
  • can describe various types of project management methods
  • knows classical IT projects
  • knows success criteria and pitfalls
Skills: At completion of the course the candidate is able to
  • prepare a tender and make a budget
  • analyse and prevent risks
  • use a leading project management tool
  • recognise the various participation roles and phases in a project
General competence: At completion of the course the candidate is able to
  • contribute actively in leading an IT project in small and medium sized businesses
  • critically evaluate various IT project management methods

Methods of teaching and learning
Lectures, presentations in class, and using tools

Recommended workload
Participation in classes and tutorials – 48 hours
Self-study – 60 hours
Independent preparation for presentation/discussion in class – 49 hours
Exercises – 40 hours
Assessment – 3 hours
Total recommended workload – 200 hours

Technology and tools
One project management tool from a leading supplier

Learning material/Syllabus
Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information can also be found on our website.
In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus.

Coursework requirements
The course is being revised and there is yet no final decision on coursework. The decision is expected in the 4th quarter of 2016.

Assessment
The course is being revised and the form of assessment is not yet decided. The decision is expected in the 4th quarter of 2016.

Assessment criteria
See Learning outcome

Notes
Westerdals Oslo ACT is undertaking an extensive revision of all study programmes. The course BU5300 IT Project Management will be revised in the 3rd quarter of 2016, in particular the form of assessment and the relationship between content, progression and assessment. Adjustments to the course descriptions are to be expected, also regarding assessment. The revised plan will be finished and made known in autumn 2016, in good time before the start of the Spring 2017 semester.
2.6 PRG300 Web Development 3

**Norwegian name:** Webutvikling 3  
**ECTS credits:** 7.5  
**Area of study:** Technology/IT  
**Language of instruction:** English  
**Programme:** Optional course in Bachelor in IT – E-Business

**Required prerequisites:** None  
**Recommended prerequisites:** Basic HTML, CSS, JavaScript and Object-oriented programming

**Semester:** The course is taught in the 5th semester (autumn)

**Course leader:** Rolando Gonzalez  
**External examiner:** Christoph Schmitz  
**Approved:** 29 March 2016

**Course outline**

The course will give students experience and skills in central technologies in web development with Ajax, CSS framework, JavaScript framework and Web API (back-end development with C#/ .NET).

**Learning outcome**

Knowledge: At completion of the course candidates will
- be able to explain how Ajax functions and the benefits of using Ajax  
- be able to explain the benefits of using a CSS framework  
- be able to explain the benefits of using a JavaScript framework or library  
- understand patterns in a JavaScript framework or library  
- know various CSS/JS frameworks or libraries

Skills: At completion of the course candidates will be able to
- use jQuery Ajax functions to local files, external web services, and self-made web services (JSON and XML)  
- use Bootstrap as a CSS framework for a website  
- use a JavaScript framework or library  
- use .NET/C# Web API to make a solution that returns the results of a server adapted to asynchronous calls for return of JSON/XML

General competence: At completion of the course candidates will be able to
- use established CSS and JavaScript frameworks to develop web applications (.NET/C#) that are based on asynchronous calls.

**Teaching and learning methods**

The course is taught over one semester with lectures and exercises.
**Recommended workload**

- Participation in lectures and tutorials – 48 hours
- Self-study – 50 hours
- Independent exercises and practical work individually or in groups – 50 hours
- Examination and preparing for the examination – 52 hours

**Total recommended workload – 200 hours**

**Technology and tools**

- HTML and CSS, jQuery/JavaScript: Any HTML editor, for instance Brackets
- .NET/C#: Visual Studio 2013 or later edition, Express for Web/Professional/Community

**Learning material/Syllabus**

- Updated information on required reading and other learning material is posted per programme on our electronic learning platform before the semester starts. The information can also be found on our website.
- In addition to literature and other learning material, scheduled teaching and other scheduled learning activities are part of the syllabus.

**Assessment**

- Assessment is based on an individual presentation portfolio (100%). The presentation portfolio is composed of assignments the candidates have worked on in the course, and is to be submitted in accordance with specifications handed out by the course leader. The presentation portfolio should contain two contributions.

- The specifications for the presentation portfolio are handed out approx. one and a half weeks before submission.

- Grading scale: A – F with A as the best grade and E as the lowest pass grade. F means failed.

**Assessment criteria**

- See Learning outcome