



## **STUDY GUIDE 2011 – 2012**

**Lahti University of Applied Sciences  
Faculty of Business Studies**

**Degree Programme in Business Information Technology 210 ECTS**

# Degree Programme in Business Information Technology

**Lahti University of Applied Sciences**  
**Faculty of Business Studies**

## Degree

Tradenomi, Bachelor of Business Administration (BBA)

## Duration

210 ECTS, 3.5 years

## Objectives

The studies are focusing to developing experts with generic working life competencies as well as programme based competences, that are needed to manage versatile demanding tasks in the future business life. Generic competences are communication and co-operation skills, abstract, analytical and critical thinking, research and development skills, entrepreneurial thinking, learning skills and self-efficacy as well as ethical responsibility. Programme based competencies are business competence, business application software competence, information system knowledge, ICT-infrastructure competence as well as ICT-project competence and special knowledge in one's own expertise area.

The programme aims at providing the students with the knowledge and skills needed in the modern intranet and internet technologies in business. The programme provides qualifications to design, implement and manage information systems. In the development of information systems, the focus is on systems management and design by using modern application development methods and tools. The programme places a high priority on meeting the needs of software development and information systems management in a networked business environment. Special focus is placed on graphical software and user interface design and also on the use of object and component technologies. The students will also study the role of ICT as a business opportunity and learn how to manage and use it as a driver for organisational change.

The programme provides an excellent opportunity to work as an information systems analyst for the software industry in Finland and abroad. In addition to the theoretical studies of information science, the programme also includes practical training in business. After two years of classroom studies the students work for five months as trainees in industry. The students also complete a software design and implementation project for a local organisation.

## Structure and process of studies

The study program is based on modules of theory and practical contents. The professional skills will be studied in their real business context in co-operation with local business life. As far as the studies progress, the students do advanced ICT design and implementation projects as well as the final thesis as an applied case study for a local organization.

## Basic studies

The programme includes common basic studies (14/16 ECTS), business studies (21 ECTS) and common ICT studies (35 ECTS). The basic studies aim at getting a common base for the further advances studies.

## Professional studies

During the second and third year the student acquires the professional skills required for designing, constructing and using information systems. The student also learns to plan the strategic use of information technology on the whole company level.

## Practical training and thesis

The student learns to use and develop his/her practical professional skills during his practical training period (30 ECTS). After the practical training period, the student attends more challenging ICT project and finally, at the end of the studies, conduct a research study based on real working life cases (15 ECTS).

## DEGREE PROGRAMME IN BUSINESS INFORMATION TECHNOLOGY 210 ECTS

<b>COMMON BASIC STUDIES 14/16 ECTS</b>	Year				
	1	2	3	4	Σ
<b>Common Basic Studies 14/16 ECTS (Finnish/foreign students)</b>					
01SUO Asiantuntijaviestintä 4 ECTS (Basics of Finnish I, foreign students 4 ECTS)	4				4
01RUO Ruotsin kieli 3 op (Basics of Finnish II, foreign students 5 ECTS)	3/5				3/5
01ENG English 3 ECTS (integrated into common ICT and business studies)	3				3
01PENT Introduction to Entrepreneurship 4 ECTS		4			4

<b>COMMON ICT STUDIES 35 ECTS (MONITORI)</b>	Year				
	1	2	3	4	Σ
<b>Computers as a Tool 10 ECTS</b>					
47MYEU01 Use of Computers 3 ECTS	3				3
47MYOSJ01 Hardware and Operating Systems 4 ECTS	4				4
47MYP101 Green ICT Project 1 3 ECTS	3				3
<b>Introduction to Information Systems Development 15 ECTS</b>					
47MYPR01 Introduction to Programming 4 ECTS	4				4
47MYMT01 ICT-Mathematics 4 ECTS	4				4
47MYWW01 WWW Technologies 4 ECTS	4				4
47MYP201 Green ICT Project 2 3 ECTS	3				3
<b>Object-oriented Programming and Databases 10 ECTS</b>					
47MYPR02 Object-oriented Programming 4 ECTS		4			4
47MYDB01 Databases 3 ECTS		3			3
47MYP301 Green ICT Project 3 3 ECTS		3			3

<b>BUSINESS SYSTEMS ENVIRONMENT 21 ECTS</b>	Year				
	1	2	3	4	Σ
04BUS602/2 Human Resources 4 ECTS	4				4
04BUS602/3 Financial Management 4 ECTS	4				4
04BUS602/4 Customer Relations and Marketing 4 ECTS	4				4
04BUS602/5 Logistics 4 ECTS	4				4
04BISD01 Information Systems in Business 5 ECTS	5				5

<b>MAIN SUBJECT 45/43 ECTS</b>	Year				
	1	2	3	4	Σ
<b>Professional Studies 20/18 ECTS</b>					
<b>Business Processes and Information Systems Design 10 ECTS</b>					
04BISM01 Business Processes and Information Systems 3 ECTS		3			3
04BISD02 Information Systems Analysis and Design 5 ECTS		5			5
04BISD06 Project Management 2 ECTS		2			2
<b>Languages 10/8 ECTS (Finnish/foreign students)</b>					
04BIEN01 Communication and Documentation in English 4 ECTS		4			4
04BIEN02 Project Management English 4 ECTS			4		4
04BIFI01 Yrityksen verkkaviestintä 2 ECTS (Finnish students)		2			2

<b>Advanced Studies 25 ECTS</b>					
<b>Management of Business Information Systems 10 ECTS</b>					
04BISM02 Information Systems Management 4 ECTS			4		4
04BISM03 Knowledge Management 3 ECTS			3		3
04IT612/1E Information Systems Acquisition 3 ECTS			3		3
<b>Optional Advanced Studies 15 ECTS</b>				15	15

<b>SECONDARY SUBJECT 25 ECTS</b>	<b>Year</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Σ</b>
<b>Professional Studies 25 ECTS</b>					
<b>Software Development and Structured Data Representation 10 ECTS</b>					
04BIXM01 Structured Data Representation 5 ECTS		5			5
04BIPR03 Graphical Application Programming 5 ECTS		5			5
<b>Information Systems Development Process 15 ECTS</b>					
04BISD04 Practices in Information Systems Development 5 ECTS			5		5
04BISD05 ICT Project 10 ECTS			10		10

<b>ELECTIVE STUDIES 15 ECTS</b>	<b>Year</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Σ</b>
<b>Elective Studies 15 ECTS</b>	5	10			15

<b>PRACTICAL TRAINING 30 ECTS</b>	<b>Year</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Σ</b>
<b>Practical Training 30 ECTS</b>			30		30

<b>RESEARCH, DEVELOPMENT AND INNOVATION SKILLS 25 ECTS</b>	<b>Year</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Σ</b>
<b>Orientation to Research 10 ECTS</b>					
04TUT601E/1 Research Methods 3 ECTS		3			3
04TUT601E/2 Statistical Analysis 2 ECTS		2			2
04TUT602E Quantitative Research Methods and Reporting 3 ECTS					
<b>or</b>					
04TUT603E Qualitative Research Methods and Reporting 3 ECTS				3	3
04TUT602E/2 Academic Writing 2 ECTS				2	2
<b>Thesis 15 ECTS</b>			5	10	15

## COMMON BASIC STUDIES 14/16 ECTS

### Common Basic Studies 14/16 ECTS

The common basic studies form a basis on which all professional and optional studies are constructed. They aim at offering the students a common ground in their studies and at preparing them for working life and self-development.

The common basic studies orientate the students towards other studies which concentrate on specialised professional skills. Common basic studies, 14 ECTS, consist of courses which are compulsory to all native Finnish students. Any course within the common basic studies can be compensated by an equivalent course with entirely or partially same content taken in another university. Before compensation a proof for taking the course elsewhere must be submitted.

#### 01SUO ASIANTUNTIJAVIESTINTÄ (BASICS OF FINNISH I, FOREIGN STUDENTS) 4 ECTS

Toteutetaan Lahden ammattikorkeakoulun yleisen suunnitelman mukaisesti.

<sup>1)</sup> Foreign students: substitutive course is Basic of Finnish I.

#### 01RUO RUOTSIN KIELI (BASICS OF FINNISH II, FOREIGN STUDENTS 5 ECTS) 3 ECTS

Toteutetaan Lahden ammattikorkeakoulun yleisen suunnitelman mukaisesti.

<sup>1)</sup> Foreign students: substitutive course is Basic of Finnish II.

#### 01ENG ENGLISH 3 ECTS

##### Learning objectives

The student

- develops a strong professional identity through the use of English
- knows how to use electronic tools for language learning
- can manage in written and oral communication situations needed in professional studies and at work
- masters the main grammatical structures in the context of everyday working life functions.

##### Contents

Orientation towards studies in business information technology, jobs and employment, the job application process, writing, speaking and listening skills (integrated into common ICT and business studies).

##### Prerequisites

Advanced level in English.

##### Assessment

Course work and exam, compulsory class attendance.

##### Materials

Indicated by the lecturer.

#### 01PENT INTRODUCTION TO ENTREPRENEURSHIP 4 ECTS

##### Learning objective

The student

- gets acquainted with entrepreneurship as an option to wage work and as a life strategy.
- gets to reflect on his/her personal capabilities for running a business, but also on general conditions and obstacles in business life.

##### Contents

The course gives facilities to plan and evaluate business ideas. Basic concepts of entrepreneurship, business plan and business idea. Visiting lecturers from Incubation Center and example entrepreneurs will give their input to the course also.

##### Assessment

Active participation in lectures. Individual and group exercises, business plan 50 %, written exam 50 %. Both tasks must be passed.

##### Materials

Will be handed during lectures.

## COMMON ICT STUDIES 35 ECTS (MONITORI)

### Computers as a Tool 10 ECTS

#### Learning objectives

The student

- will get an introduction to the software related to his/her studies, office software and operating system. He or she will have basic understanding of computer and information security.

### 47MYEU01 USE OF COMPUTERS 5 ECTS

#### Learning objectives

The student

- learns to use the basic software needed in his/her studies and office work.

#### Contents

The student has the skills to use the software used in the learning environment. He creates documents with word processing, uses spreadsheets in calculation and makes presentation materials, and knows how to share them.

#### Assessment

Course work, individual assignments, group work assignments, exam.

Evaluation 1-5.

#### Materials

Literature and other material provided. Modern office software and software in learning environment.

### 47MYOS01 HARDWARE AND OPERATING SYSTEMS 4 ECTS

#### Learning objectives

The student

- understands the basics of computer operation and learns to use its operating system.

#### Contents

The student knows how to use the operating system. He has the basic understanding elements of computer and peripherals. He also has basic understanding of information security.

#### Assessment

Course work, individual assignments, group work assignments, exam.

#### Materials

Literature and other material provided.

### 47MYP101 GREEN ICT PROJECT 1 3 ECTS

#### Learning objectives

The student

- will get the basic skills in project working
- knows how to act as an active member of a project team
- recognizes the different roles of the project participants
- knows how to independently acquire information and apply it to resolve the problems in the project
- knows how to design and implement a solution that meets the given simple project work requirements
- knows how to work both independently and in a team to achieve the given objectives
- understands the significance of the use of ICT in the ecological sustainable development

#### Contents

The students learn to know how to independently and as a team member to acquire information for solving problems

#### Assessment

Project work, project presentation and project reports

#### Materials

Literature and other material provided

### Introduction to Information Systems Development 15 ECTS

#### Learning objectives

In this module the student will get an introduction to the basic methods and tools of a programmer. The module will develop analytical and logical skills required from a professional in information and communication technologies.

#### **47MYPR01 INTRODUCTION TO PROGRAMMING 4 ECTS**

##### **Learning objectives**

The student

- will get basic skills to write computer programs

##### **Contents**

The student understands general concepts of programming and scripting. He is able to make small computer applications.

##### **Assessment**

Course work, individual and group work assignments, exams.

##### **Materials**

Literature and other material provided. A software development tool.

#### **47MYMT01 ICT-MATHEMATICS 4 ECTS**

##### **Learning objectives**

The student

- will get the basic knowledge needed in computer science.

##### **Contents**

Mathematical fundamentals of computing and programming.

##### **Assessment**

Course work, individual and group work assignments, exams.

##### **Materials**

Literature and other material provided.

#### **47MYWW01 WWW TECHNOLOGIES 4 ECTS**

##### **Learning objectives**

The student

- will get the basic skills to use the web as a tool to publish on the internet
- creates content and small interactive web-pages on the internet.

##### **Contents**

The student knows principles and usage of www-technology. He/She is also able to create content on the internet.

##### **Assessment**

Course work, individual and group work assignments, exams.

##### **Materials**

Literature and other material provided. Modern software development tools.

#### **47MYP201 GREEN ICT PROJECT 2 3 ECTS**

##### **Learning objectives**

The student

- understands how to independently acquire information and apply it to resolve the problems in the project
- understands how to design and implement a solution that meets the given simple project work requirements
- understands how to work both independently and in a team to achieve the given objectives
- is able to take into account the ecological sustainable development in the project solution

##### **Contents**

The students learn to understand how to independently and as a team member to acquire information for solving problems

##### **Assessment**

Project work, project presentation and project reports

##### **Materials**

Literature and other material provided

#### **Object-oriented Programming and Databases 10 ECTS**

##### **Learning objectives**

The student

- learn the fundamentals of object-oriented programming and how to use object-oriented approach to software development in business applications
- is also able to use relational databases as data storage of the applications.

## **47MYPR02 OBJECT-ORIENTED PROGRAMMING 4 ECTS**

### **Learning objectives**

The student

- learns the theory and principles of object-oriented programming
- is able to implement application by using an object-oriented programming language.

### **Contents**

The student understands the concepts and fundamentals of object-oriented approach. He is able to design and implement by using object oriented techniques. He also knows the syntax and semantics of an object-oriented programming language.

### **Prerequisites**

47MYEU01 Use of Computers

47MYPR01 Introduction to Programming

### **Assessment**

Course work, individual assignments, group work assignments, exam

### **Materials**

An integrated development tool, code examples and reading material

A high level graphical application development tool, code examples and reading material

## **47MYDB01 DATABASES 3 ECTS**

### **Learning objectives**

The student

- will get the basic skills to design, create and use databases.

### **Contents**

The student is able to use Entity-Relationship (ER)-modelling technique in designing relational data bases.

He knows the basics of SQL and is able to create queries using it. He is able to administrate a data base by using a data base management system and understands its most essential efficiency aspects.

### **Prerequisites**

47MYMT01 ICT-Mathematics

### **Assessment**

Course work, individual and group work assignments, exams.

### **Materials**

Literature and other material provided. Modern software development tools.

A data base management system software and reading materials.

## **47MYP301 GREEN ICT PROJECT 3 3 ECTS**

### **Learning objectives**

The student

- is able to independently acquire information and apply it to resolve the problems in the project
- is able to design and implement a solution that meets the given simple project work requirements
- is able to work both independently and in a team to achieve the given objectives
- is able to take into account the ecological sustainable development in the project solution

### **Contents**

The students learn how to independently and as a team member to acquire information for solving problems

### **Assessment**

Project work, project presentation and project reports

### **Materials**

Literature and other material provided

## **Business Systems Environment 21 ECTS**

### **Learning objectives**

The student

- will get an introduction to business environment, it's operating and area functions
- learns how information technology is embedded and used in these systems

## **04BUS602/2 HUMAN RESOURCES 4 ECTS**

### **Learning objectives**

The student

- is capable of managing and maintaining performance based human resources in contemporary multicultural and multinational organizations.

**Contents**

Main attention will be paid to the following issues: Strategic HR planning, recruitment, selection, orientation, training & development, career planning, job design, motivation, wage administration, rewards & benefits, employee relationship, collective bargaining, dispute resolution, disciplinary measures, building performance based HR, international issues in HRM.

**Assessment**

Active participation in the course, course paper and course exam

**Materials**

De Cenzo & Robbins 2002. Human Resource Management. John Wiley & Sons, Inc, New York.

**04BUS602/3 FINANCIAL MANAGEMENT 4 ECTS**

**Learning objectives**

The student

- understands financial information and financial management as part of corporate operations
- knows the different areas of accounting
- is able to examine the profitability of companies using marginal costing technique
- learns how to set prices on products and to produce budgets
- acquires the skills to use calculations in decision making.

**Contents**

Financial management as part of corporate operations, cost concepts, cost-volume-profit analysis, marginal costing, financial ratios, pricing decisions, budgeting.

**Assessment**

Individual assignment, written exam.

**Materials**

Materials provided/announced by the lecturer.

**04BUS602/4 CUSTOMER RELATIONS AND MARKETING 4 ECTS**

**Learning objectives**

The student

- understands the value of customer oriented thinking in corporations
- knows the basic concepts and tools of marketing
- is able to pursue them in a business context.

**Contents**

Customer oriented approach in business, marketing environments, customer relationship marketing, consumer behaviour and purchasing process, marketing mix: product, price, place, promotion.

**Assessment**

Contact lectures, exam, course work.

**Materials**

Kotler, P, Armstrong, G. 2004. Principles of Marketing.

**04BUS602/5 LOGISTICS 4 ECTS**

**Learning objectives**

The student

- knows the role of the logistics operations in a company
- understands the importance and opportunities of logistics from the operational and financial returns perspective of the company
- knows how to use the most common tools of logistics planning and management: forecasting, inventory turn-over, ABC-analysis, optimising the size of delivery
- knows the stages of the purchasing process
- understands the terms of delivery as an important part of the purchasing contract

**Contents**

Basic terms of logistics – integrated logistics, logistics costs and the meaning of logistics to the profitability of a company, demand forecasting, purchasing, warehousing.

**Assessment**

Virtual course, home tests, open book final exam.

**Materials**

Materials provided/announced by the lecturer

**04BISD01 INFORMATION SYSTEMS IN BUSINESS 5 ECTS****Learning objectives**

The student

- gets a general overview and understanding about the use of information systems in business
- knows the common application areas of information systems as well as the common problems and challenges of information technology.

**Contents**

Information Technologies, Business Applications, Strategic Issues of IS.

**Assessment**

Participation to contact lessons and learning assignments, information skills test.

**Materials**

James A. O'Brien, Introduction to Information Systems, McGraw-Hill.

**MAIN SUBJECT 45/43 ECTS****– Information Systems Management****Professional Studies 20/18 ECTS****Business Processes and Information Systems Design 10 ECTS****04BISM01 BUSINESS PROCESSES AND INFORMATION SYSTEMS 3 ECTS****Learning objectives**

The student

- knows the main business processes in companies
- knows how information systems is applied in business processes
- understands the purpose of different types of information systems and their key functions and general applications
- understands how different types of systems are linked to each other and how their integration is implemented for effective use of data
- is able to define business processes using UML

**Contents**

The students will get lectures about information systems applied in business processes from both teachers and visiting lecturers. They will get acquainted to information systems used in real companies and make reports and/or presentations of them.

**Prerequisites**

47MYPR01 Introduction to Programming

47MYWW01 WWW Technologies

47MYMT01 ICT-Mathematics

04BISD02 Information Systems Analysis and Design

04BISD03 Information Systems Architecture and Software Design

**Assessment**

Individual and group work assignments, exams

**Materials**

Literature and other material provided.

**04BISD02 INFORMATION SYSTEMS ANALYSIS AND DESIGN 5 ECTS****Learning objectives**

The students familiarize to information system and software architectures and use them in IS design.

The students work in mixed inter-cultural groups.

**Contents**

The student

- is able to analyse user needs and requirements
- is able to develop models based on the requirements analysis.
- is able to plan the acquisition process

**Prerequisites**

Sufficient knowledge of business (10 ects) and information systems (15 ects)

**Assessment**

Course work, individual assignments, group work assignments, exam.

**Materials**

Literature and other material provided.

**04BISD06 PROJECT MANAGEMENT 2 ECTS**

**Learning objectives**

The student knows the tasks and principles of project management and is able to use a project management tool to manage a project.

**Contents**

The student

- understands the tasks involved in project management
- is able to plan and track the project life cycle, resources and schedule using a project management tool

**Assessment**

Assignments and exam

**Materials**

Literature and other material provided

**Languages 10 ECTS**

**04BIEN01 COMMUNICATION AND DOCUMENTATION IN ENGLISH 4 ECTS**

**Learning objectives**

The student

- understands the importance of communication and documentation in information systems analysis and design.
- can communicate clearly and interactively and is able to read a professional textbook efficiently.
- is able to describe information systems and development processes orally and write clearly and analytically in English.

**Contents**

Writing, speaking and listening skills (integrated into module studies).

**Prerequisites**

01ENG English

**Assessment**

Course work and individual assignments, compulsory class attendance.

**04BIEN02 PROJECT MANAGEMENT ENGLISH 4 ECTS**

**Learning objectives**

The student

- understands the importance of communication and documentation in work-related projects.
- is able to communicate effectively in a business environment
- is able to manage a project in English.

**Contents**

Writing, speaking and listening skills (integrated into professional studies).

**Prerequisites**

04BIEN01 Communication and documentation in English.

**Assessment**

Course work and individual assignments.

**Advanced Studies 25 ECTS**

**Management of Business Information Systems 10 ECTS**

**Learning objectives**

The student

- understands the information systems of an organization as a whole
- is able to see the role of each system for business.

**04BISM02 INFORMATION SYSTEMS MANAGEMENT 4 ECTS**

**Learning objectives**

The student

- is able to manage information systems as a competitive asset.
- understands the relation between strategies of information technology and business
- is able to implement an acquisition and adoption project

**Contents**

The students learn to manage the ICT resources as competitive business assets. They study the ITC function both from the management point of view as well as from the administrative point of view. The students familiarize with IT business cases and analyze their business values. They design and implement IT projects plans.

**Assessment**

Individual and group work assignments, exams

**Materials**

Literature and other material provided

**04BISM03 KNOWLEDGE MANAGEMENT 3 ECTS**

**Learning objectives**

The student

- is able manage people and intellectual capital in international business contexts and present his/her ideas and information in clear and fluent English.

**Contents**

Data, information and knowledge, forms of knowledge, organizational learning, intellectual capital, management issues, social networks.

**Assessment**

Individual and group work assignments, exams

**Materials**

Literature and other material provided

**04BISM03 INFORMATION SYSTEMS ACQUISITION 3 ECTS**

**Learning objectives**

The aim of the course is to familiarize the students with the ICT-investments as an acquisition process in theory, how to remain competitive in the turbulent business environment and give the students basics understanding of how to manage an ICT investment as an organizational change process.

**Contents**

The student

- knows the cost structure of an ICT-investment
- is able to analyze the user requirements and choose an information system meeting the requirements

**Assessment**

Essays, assignments individually and in teams. All contact lessons must be participated, absent lessons must be compensated with extra assignments.

**Materials**

Allen Eskelin: Technology Acquisition: Buying the Future of Your Business, 2001, Addison-Wesley Professional.  
Literature and other material provided.

**Optional Advanced Studies 15 ECTS**

The student can specialize and get support for his/her topic or project, thesis or other related topic of his studies. The actual course(s) is chosen by the student.

**SECONDARY SUBJECT 25 ECTS**

**– Information Systems Development**

**Professional Studies 25 ECTS**

**Software Development and Structured Data Representation 10 ECTS**

**Learning objectives**

The student

- will learn how to create applications using an advanced software development tool and ready-made components
- will learn how to model data and its structure in an application domain.

## **04BIXM01 STRUCTURED DATA REPRESENTATION 5 ECTS**

### **Learning objectives**

The student

- understands the use of XML technology as basics of information transfer and presentation

### **Contents**

The student is able to implement documents in structured form by using XML technology.

He is able to design and implement XML structures using DTD and XML Schema. He knows how to style XML document using CSS. He is also able to implement XSL Transformations using XPath in order to present the document content in other forms. He knows how XML technology can be utilized in designing and implementing internet-based software.

### **Prerequisites**

47MYWW01 WWW Technologies

### **Assessment**

Course work, individual and group work assignments, exams.

### **Materials**

Literature and other material provided. Modern software development tools.

An XML editor and reading materials.

## **04BIPR03 GRAPHICAL APPLICATION PROGRAMMING 5 ECTS**

### **Learning objectives**

The student

- will get the skills needed to implement applications by using a high level application development tool.

### **Contents**

The student understands the basics of internet-based GUI programming and is able to use GUI object classes effectively. He is also able to implement database processing in software applications.

### **Prerequisites**

47MYPR02 Object-oriented Programming

47MYDB01 Databases

### **Assessment**

Course work, individual assignments, group work assignments, exam

### **Materials**

An integrated development tool, code examples and reading material.

A high level graphical application development tool, code examples and reading material.

## **Information Systems Development Process 15 ECTS**

### **Learning objectives**

The student

- is able to design new information systems and redesign present systems in groups and projects.

## **04BISD04 PRACTICES IN INFORMATION SYSTEMS DEVELOPMENT 5 ECTS**

### **Learning objectives**

The students

- familiarize to ICT project work and methods.

### **Contents**

The student knows the tasks and processes of the ICT project. He is able to apply information system development methods in practice. He knows the security issues and is able to design secure applications. He knows the importance of testing and has the skills to use software testing methods.

### **Prerequisites**

Sufficient knowledge of business (10 ECTS) and information systems (15 ECTS).

### **Assessment**

Development project work, course work, individual and group work assignments, exams.

### **Materials**

Literature and other material provided. Modern software development, project management and other appropriate tools.

## **04BISD05 ICT PROJECT 10 ECTS**

### **Learning objectives**

The student

- is able to act as a project member and manager in an ICT project
- is able to implement a solution for an ICT related problem in real business environment

### **Contents**

The course is implemented in co-operation with the local industry as a project in a real business context. The students will design and implement a project in real business environment.

### **Prerequisites**

#### **Prerequisites**

Business studies (10 ECTS) and ICT studies (20 ECTS).

### **Assessment**

Project process, project work, seminar presentations

### **Materials**

Literature and other material, appropriate tools for project management and software development

## **RESEARCH, DEVELOPMENT AND INNOVATION SKILLS 25 ECTS**

### **Orientation to Research 10 ECTS**

#### **04TUT601E RESEARCH METHODS 3 ECTS**

### **Learning objectives**

The student

- knows the principles of the scientific research, approach and the most commonly used research methods in social science
- knows the operational plan of the research work
- learns to estimate the applicability of the research method
- learns to estimate the reliability of the information
- knows how to deal with the most commonly used statistical methods
- is capable of writing a research report.

### **Contents**

Quantitative and qualitative methods in general, the research problem and the applicability of the research methods, overall reliability, data analysis, interpretation and generalisation.

### **Prerequisites**

Texts, spreadsheets and presentation graphics.

### **Assessment**

Participation in contact teaching, individual and group works, assignments and/or exam.

Scale 1–5

### **Materials**

Research Methods for Business Students, Mark Saunders, Philip Lewis and Adrian Thornhill, Prentice Hall.

#### **04TUT601E STATISTICAL ANALYSIS 2 ECTS**

### **Learning objectives**

The student knows how to deal with the most commonly used statistical methods

### **Contents**

- sampling
- description of statistical data
- statistical numbers
- significance tests of proportions

### **Prerequisites**

Texts, spreadsheets and presentation graphics.

### **Assessment**

Participation in contact teaching, individual and group works, assignments and/or exam.

Scale 1–5

### **Materials**

Quantitative Methods and Reporting 04TUT602E and Qualitative Methods and Reporting 04TUT603E are elective modules and they take place during the third academic year. The student has to choose one of the following modules.

### **04TUT602E QUANTITATIVE METHODS AND REPORTING 3 ECTS**

#### **Learning objectives**

The student

- knows how to process and report the quantitative data definitively
- knows how to use SPSS software as an analysis tool
- knows both descriptive and inferential statistics and is able to use multivariate methods as well
- understand the research problem and is able to choose the right methods to analyse data
- is able to conduct a demanding quantitative research
- has the basic skills in academic writing
- knows how to write an abstract for a study.

#### **Contents**

SPSS software as an analysis tool. Creating a database in SPSS. Frequency distributions, descriptive statistics and graphical presentations. Relationships between two variables. Hypothesis testing. Multivariate methods. Academic writing skills.

#### **Prerequisites**

04TUT601E Analysis Methods.

#### **Assessment**

Participation in contact teaching, individual and group works, projects and reporting  
Scale 1 - 5.

#### **Materials**

Lectures and literature indicated by the lecturer.

### **04TUT603E QUALITATIVE METHODS AND REPORTING 3 ECTS**

#### **Learning objectives**

The student

- understands paradigm and the methodology behind qualitative research methods
- knows how to use qualitative methods for data collection
- analysis
- is able to produce a research plan
- is able to evaluate reliability and validity of qualitative research
- has basic skills in academic writing and knows how to write abstract for a study.

#### **Contents**

Qualitative research and the paradigm behind it. Different methods to conduct a qualitative research. Research plan for a qualitative study. Methods for data collection and analysis. Academic writing skills. Lectures and research project.

#### **Prerequisites**

04TUT601E Analysis Methods.

#### **Assessment**

Research project and exam.

#### **Materials**

Lectures

Gummesson Evert, Qualitative methods in Management Research, 2000, Sage Publications, Inc.

### **04TUT603E ACADEMIC WRITING 2 ECTS**

#### **Objectives**

The student will learn the importance of professional writing skills in reporting and communication and is able to use proper vocabulary and style according to media and academic standards.

#### **Contents**

Writing in research process, different media options, writing as analytical tool and ultimately the student's thesis.

#### **Assessment**

Learning assignments

#### **Materials**

Lecturer's material.

## **ELECTIVE STUDIES 15 ECTS**

The student can select his/her elective studies from his/her own degree programme or from the other degree programmes within Lahti Polytechnic. Studies from other polytechnics and universities can also be chosen. In that case he/she must have the selected courses approved to the personal study plan in advance.

## **PRACTICAL TRAINING 30 ECTS**

A continuous 30 ECTS practical training period is carried out during the studies (if the student wants to do the practical training before the polytechnic studies, he/she has to submit a separate application). The work must be development work in IT. There will be two seminars about practical training; in the first one the student introduces the place of employment, and in the second one a problem concerning the organization's information system or data processing. Practical training is supervised, and a written contract about the traineeship will be made with the organization. Practical training may take place after the first year at the earliest, but it is recommended to carry it out after two years of studies in the first two periods of the third year (from the beginning of June till the end of December). International students will get assistance in finding placements.

## **THESIS 15 ECTS**

### **Objectives and contents**

The aim of the thesis is to develop and demonstrate the student's abilities to use his/her knowledge and skills in research and development. The subject of the thesis must be working-life oriented and correspond to the student's field of studies. The thesis is a process that includes acquiring the knowledge and necessary skills, choosing the subject, planning and carrying out the research work, reporting and presenting the work. The work will be assessed.

### **Prerequisites**

Orientation to Research 10 ECTS. The courses Qualitative Research Methods and Reporting 3 ECTS and Quantitative Research Methods and Reporting 3 ECTS are designed to support the writing of the thesis. Before the students can start the thesis, it is required they have accomplished most of the professional studies of the Degree Programme.

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