

BITE Degree Programme in Business Information Technology
Bachelor of Business Administration, 210 ECTS
Bachelor of Business Administration

Programme

Name and level of education

Bachelor of Business Administration (BBA) and the Finnish title of tradenomi

Admission requirements and applications

Universities of Applied Sciences Act 932/2014, Section 25

Before applying see the admission criteria at [Studyinfo](#).

Scope and duration

Scope of the degree is 210 ECTS credits.

The duration of the degree is 3.5 years.

Recognition of learning

[Read more about the principles of recognition of learning at Haaga-Helia.](#)

Mode of study

Day-time studies

Language of tuition

The degree programme is conducted in English.

Requirements and decrees

Completion of the courses specified in the curriculum, compulsory work placement, a thesis and maturity test.

The Government Decree on Universities of Applied Sciences 1129/2014.

Study attainments and assessment

[Find out more about the degree regulations and assessment process of Haaga-Helia.](#)

Targets and structure

Study profiles:

Digital Services

- Digital service professionals operate in the middle ground between business operations and software development.
- They have the ability to understand the needs of both the business organisation and the end users.
- A holistic understanding of the customer value creation process is one of the key skills.
- In addition, they have the ability to formulate and communicate requirements in a way that

facilitates communication between software developers and business professionals.

- Their task is to ensure that the digital solution developed is the most suitable and cost-effective solution available and that it responds to a real need.

Software Development

- Software development experts can specify, design and implement applications according to customer requirements, including traditional business software, online services based on an application, packaged retail software products sold online and offline, multimedia products and games, to mention a few.
- They have the ability to identify the most suitable software development methods and tools for each project.
- They also understand the role of testing, quality assurance and project management in a successful software project.

ICT Infrastructures

- ICT infrastructure and security professionals work in various organisations that use IT systems and network services.
- They are involved in the development, deployment and maintenance of business IT solutions.
- They are also able to lead expert projects and teams.
- They utilise and produce IT services that serve the business environment and are responsible for system solutions and for the reliable, cost-effective and secure operation of the associated networks.

Business and ICT

- Business ICT experts develop enterprises' business processes and service processes by utilising information technologies.
- They source IT solutions for business use; evaluate the suitability, usability and security of solutions; and participate in their integration and deployment in the organisation.
- Business ICT experts often act as change agents in the introduction of new software and ICT services.
- They have knowledge of different information management models and frameworks of reference.

Internationalisation

English-language courses are also open to students from partner institutions, which supports students' internationalisation. For Business Information Technology students there are various student exchange opportunities available in our international partner institutions. We also offer a double degree option for our students in co-operation with HES-SO University of Applied Sciences and Arts Western Switzerland.

Work placement and cooperation with the business community

Studies in Business Information Technology include a compulsory work placement in an IT job. It is possible to complete the work placement abroad.

Each year, the students and lecturers of Haaga-Helia have a number of joint projects and seminars with businesses, NGOs and industry representatives. We also invite various ICT professionals to give lectures and training sessions to our students and staff members. Read more about business cooperation opportunities at [Softala.fi](https://softala.fi).

In addition, Haaga-Helia works in close cooperation with NGOs such as TTL ry, Systeemityöyhdistys, Hetky, SFS, FISMA.

Career opportunities

The role of ICT in business is increasing, and it is a strategic focus area of organisations across all industries. In addition to providing infrastructures and tools that facilitate traditional business operations, ICT is becoming an integral part of products, services and sales.

Digitisation of operations and diversifying uses of ICT offer excellent career opportunities for ICT business graduates in both ICT companies as well as a range of organisations that utilise the technologies. Graduates in this industry typically have a good employment rate. Another option is self-employment with the help of [Haaga-Helia StartUp School](#) services.

The competencies gained during the programme and the resulting higher education degree ensure continuous career development, since the degree offers a good range of postgraduate options through specialisation and Master's degree programmes.

Postgraduate studies

[Master's Degree Programme in Business Technologies \(English\), Pasila](#)

[Master's Degree Programme in Business Technologies \(Finnish\), Pasila](#)

University studies

Contact information

Haaga-Helia University of Applied Sciences

Degree Programme in Business Information Technology (day-time)

Pasila campus

Ratapihantie 13

00520 Helsinki, Finland

Tel. +358 (0)9 229 611

[Study Services](#)

Academic Advisor

Enrolled students seeking for academic advice should contact their Personal Study Advisors.

Degree Director

Antonius Camara, tel. 040 832 5655

Email addresses are in the following format: `firstname.lastname@haaga-helia.fi`

Business Information Technology

Code	Name	Sum
DIGI19-E	Business Information Technology	205-225
DIGIECORE-1001	COMPULSORY STUDIES	85-95
DIGIECOM-1001	Communication Studies	20-30
ENG1TF100	English Level Test	0
ENG1TF010	ICT and Business English	5
COM1TF012	Communication in Multicultural Environments	5
THE7TF910	Research Process	5
COM1TF010-1001	Study and Working Skills	5
COM1TF010A	Study and Working Skills 1	3
COM1TF010B	Study and Working Skills 2	2
COM1TF011-1001	Finnish and Swedish	5
COM1TF011A	Finnish and Swedish - Svenska skriftlig del	2
COM1TF011B	Finnish and Swedish - Svenska muntlig del	1
COM1TF011C	Finnish and Swedish - Finnish	2
FIN4TF-1001	Finnish	15
FIN4TF010	Beginners' Finnish	5
FIN4TF011	Beginners' Finnish 2	5
FIN4TF012	Finnish 3	5
DIGIESAL-1001	Sales and Service Skills	10
SAL1TF001	Office Tools in Sales and Services	5
SAL1TF002	Selling ICT solutions	5
DIGIEBUS-1001	Business Skills	10
MAT1TF010	Business Mathematics	5
BUS1TF011	Business Operations	5
DIGIEPROJ-1001	Project Skills	15
PRO1TF001-1001	Innovation and Project Work	10
PRO1TF001A	Innovation and Project Work A	4
PRO1TF001B	Innovation and Project Work B	3
PRO1TF001C	Innovation and Project Work C	3
BUS1TF107	Project Management	5
DIGIEORIENTATION-1001	Orientation Studies	20
SWD1TF001	Orientation to Software Engineering	5
BIG1TF001	Orientation to Business and ICT	5
ICT1TF010	Orientation to ICT Infrastructures	5
DIG1TF001	Orientation to Digital Services	5
DIGIEPRO-1001	PROFILE STUDIES	60
DIGIEDIG-1001	Digital Services	0-44
DIG4TF002	User Experience	5

DIG4TF003	Prototyping of Digital Services	5
DIG4TF021	Digital Service Design	5
DIG8TF801	Digital Economy and E-commerce	5
PRO4TF030	Digital Service Project	10
MUM8TA001	Basic 3D Design with Blender	3
MUM8TA003	3D Printing	3
MUM8TA002	3D Extended Course	3
MUM8TA004	3D + Robotics	3
<i>DIGIESWD-1001</i>	<i>Software Engineering</i>	<i>0-65</i>
SWD4TF032	Programming 1	5
SWD4TF033	Programming 2	5
SWD4TF003	Data Management and Databases	5
SWD4TF020	Mobile Programming	5
SWD4TF021	Server Programming	5
SWD4TF022	Front End Development	5
SWD4TF023	Software Development Technologies	5
SWD4TF024	Software Project	10
SWD8TF040	Database Developer	5
PRO4TF024	Multidisciplinary Software Project	10-15
<i>DIGIEICT-1001</i>	<i>ICT Infrastructures</i>	<i>0-25</i>
PRO4TF023	ICT Infrastructure project	10
ICT4TF021	Server Technologies	5
ICT4TF022	Data Security	5
ICT4TF024	Cloud Service Technologies	5
ICT8TF001	IoT Experimental Project	5
<i>DIGIEBIG-1001</i>	<i>Business and ICT</i>	<i>0-63</i>
BIG4TF002	SAP ERP 1	5
BIG4TF003	Business Process Management	5
BIG4TF004	Managing CRM Processes	5
BIG4TF021	SAP ERP 2	5
BIG8TF005	Requirements Analysis	5
BIG8TF008	Financial Accounting, Processes and Systems	5
PRO4TF022	Business IT Project	10
BIG4TF022	Business Intelligence	5
BIG4TF023	Business Intelligence Development Project	5
TOO8TF006	Excel in Business	3
BIG8TN001	Basics of AI	5
BUS8TF711	SAP TERP10 Certification exam	3
BUS8TF712	Project Management Championship	3-5
BUS8TF713	TS410 - Integrated Business Processes in SAP S/4HANA	5

BUS8TF714	SAP TS410 Certification Exam	3
DIGIEWPL-1001	WORK PLACEMENT	30
PLA6TF001	Work Placement	30
PLA6TF005	Basic Work Placement	15
PLA6TF002	Specialisation Work Placement	15
DIGIEFREE-1001	FREE CHOICE STUDIES	15-25
DIGIETHE-1001	BACHELOR'S THESIS	15
THE7TF900	Thesis Seminar and Workshop	0
THE7HH801	Thesis Phase 1	0-5
THE7HH802	Thesis Phase 2	0-5
THE7HH803	Thesis Phase 3	0-5
THE7HH804	Maturity Test	0

DIGI19-E Business Information Technology: 225 op

DIGIECORE-1001 COMPULSORY STUDIES: 95 op

DIGIECOM-1001 Communication Studies: 30 op

ENG1TF100 English Level Test: 0 op

ENG1TF010 ICT and Business English: 5 op

Contents

- producing coherent ICT/Business-related texts and a longer Media Survey Report
- enhancing students' overall oral competence acquiring information on the latest concepts in ICT/Business using various literal and online sources

Starting level and linkage with other courses

English Level Test

Further information

Working life connections:

Current trends in the field of ICT/Business are closely monitored. An ICT professional's presentation.

Internationality:

The course is inherently international.

Assessment criteria

Grade 1

Grade 1 (A2.2-B1.2)

The student has a limited knowledge of basic English vocabulary used in ICT contexts and is able to produce written documents at a passable level.. The student performs oral tasks at a basic level with clear difficulties at conveying the intended message due to e.g.a very strong accent, grammatical mistakes and lack of words.

Grade 3

Grade 3 (B2.1-B2.2)

The student has an intermediate knowledge of ICT vocabulary. He/she is able to explain the meaning of ICT concepts using standard vocabulary. He/she is able to complete the written course assignments following, for the most part, the correct formats and academic traditions. As for the student's oral skills, there is still some hesitation, but that only occasionally impedes communication.

Grade 5

Grade 5 (C1-C2)

The student's ICT vocabulary is at an advanced level. He/she demonstrates knowledge of idiomatic ICT and business English, and is able to carry out discussions and debates successfully. .. The

student produces high-quality ICT texts that follow the correct formats and ademic traditions. The student is able to give fluent presentations in an engaging manner.

COM1TF012 Communication in Multicultural Environments: 5 op

Learning objectives

Upon successful completion of this course, the students will be able to increase their cross-cultural communications skills in global and culturally diverse work environments. This will be accomplished through comparing and contrasting key dimensions in global cultures. One of the main goals is appreciating how reaching multicultural synergy benefits individuals and companies. A key learning point is positioning your own culture in universal systems.

Contents

Topics to be covered on the course include the following:

- The nature of multicultural communication; concept of culture
- Universal systems, contrasting cultural values and cultural clashes
- Verbal and nonverbal communication
- Business and social customs; global etiquette
- Intercultural negotiations and virtual meetings

Assignments and course agenda:

- Introduction and dividing the students into teams. Discussing the concept of culture. (Culture can be global, local, geographical or demographical and there can be subcultures and subgroupings.)
- Individual oral or written assignment: My cultural conflict. (Explaining personal experiences of culture shock, understanding the dynamics of an acculturation process, as well as concepts of ethnocentrism and stereotypes.)
- Team assignment: Watching a videoed lecture by a specialist. Analyzing that lecture within your team. Comparing and contrasting Finnish culture with some other culture and its values.
- Team assignment: Creating an educational video that describes the communications or work culture in one country to an audience of expatriate employees.
- Team assignment: Writing a comparative cultural report on two countries according to HH guidelines.
- Team assignment: Recording a video or giving an oral presentation based on your comparative cultural report.
- Individual assignment: 1-2 peer evaluations; assessing the shared work effort in your team and/or evaluating some of the course material according to Lewis and Hofstede models

Starting level and linkage with other courses

No special requirements or prior studies.

Further information

Working life connections:

Current international trends in the field of ICT/business are closely monitored.

International characteristics of the course:

Timetables allowing, the implementations are comprised of students from both the Finnish and international degree programs, including exchange students. Presentations of international ICT professionals are included, when applicable.

Assessment criteria

Grade 1

The student can present values, communication and cultural features pertaining to a country and understands the importance of cultural sensitivity and global awareness. The quality of work and participation is uneven.

Grade 3

The student celebrates diversity and understands the possible negative effects of cultural miscommunication. The student can compare and contrast values, communication and cultural features in two countries constructively and understands how selected cultures can be positioned in universal systems. Even contribution in group work, active participation and good quality of work.

Grade 5

The student understands the personal and corporate benefits of cultural synergy and knows how to improve intercultural communication and behavior in conflict situations. Universal cultural systems have been internalized and the person understands how to apply these theories into new situations. Impressive contribution in the team's work effort, active attendance and participation, as well as excellent quality of work.

Preparing in advance, timely execution in all assignments and active participation during sessions is required and does have an impact in evaluation.

THE7TF910 Research Process: 5 op**Learning objectives**

The purpose of the course is to acquaint students with scientific research method and scientific writing. Besides contact teaching, the course involves plenty of independent work. Every student will plan and carry out an independent IT-related research project: choose a topic, plan a timetable, apply the chosen research method, and present the results in a written academic report and an oral presentation. In the course of the Writing Business Report, oral presentation skills and the genre of academic writing will be briefly recapitulated. Students are also required to peer-review each other's assignments. Students are to revise their written documents during the course, if necessary, after the lecturers in charge of the course and a peer student have reviewed them with comments.

Contents

Research methods
Research process
Research reporting
Recap of academic writing and presentation skills

Starting level and linkage with other courses

English 2 (recommended)

Assessment criteria**Grade 1**

Student is able to write a report with at least:

- Good source material
- References to sources (in every paragraph)
- No major errors in solving the research problem or terminology
- Logical organization
- Proper layout / structure

Grade 3

Student is able to write a report with (in addition to previous ones):

- Successful scoping
- Results correspond to the topic
- Critical analysis where necessary
- Reasonable conclusions based on the research
- The research problem is reasoned
- Good abstract

Grade 5

Student is able to write a report with (in addition to previous ones):

- Well organized and logical overall structure of the paper
- Discussion between the sources
- Organized and logical proceeding of the research

COM1TF010-1001 Study and Working Skills: 5 op

COM1TF010A Study and Working Skills 1: 3 op

Learning objectives

Upon successful completion of the course, the students

- know the structure of their studies and the courses included in them
- can use Haaga-Helia's student services and independently search for the information they need for their studies
- can lead their own actions so that they progress in their studies according to the objectives set by the Ministry of Culture And Education i.e. completing 60 ect's in an academic year and graduating within the 3,5 years' statutory study time
- can operate constructively in their studying community, plan their professional future, evaluate their own strengths and development needs in order to make right choices to support their study process
- can determine their interests and targets for their career development being aware of the realistic opportunities the field has to offer
- can pitch themselves to the labor market and build their contact network in a global working environment.

Contents

Lessons

- orientation days (compulsory attendance)
- the contents of the curriculum
- student services at Haaga-Helia (e.g. Study services Pasila, health care, HELGA, library)
- student exchange
- start-up school
- creating a Individual Study Plan (ISP) with the Guidance Counsellor
- Learning environment: systems and efficient studying
- Plagiarism
- Work ergonomics

COM1TF010B Study and Working Skills 2: 2 op

COM1TF011-1001 Finnish and Swedish: 5 op**COM1TF011A Finnish and Swedish - Svenska skriftlig del: 2 op****COM1TF011B Finnish and Swedish - Svenska muntlig del: 1 op****COM1TF011C Finnish and Swedish - Finnish: 2 op****Learning objectives**

- Opiskelija ymmärtää viestinnän osaamisen tärkeyden ja haluaa kehittyä viestintä- ja vuorovaikutustaidoissaan sekä suullisesti että kirjallisesti.
- Opiskelija tuntee viestinnän merkityksen nykypäivän organisaatioissa. Opiskelija tunnistaa erilaisia opiskelun ja työelämän viestintätilanteita ja tekstilajeja sekä ymmärtää niiden erilaisia tavoitteita.
- Opiskelija hallitsee esiintymistaidon perusteet ja ymmärtää vuorovaikutuksen ja sanattoman viestinnän merkityksen osana onnistunutta viestintää.
- Opiskelija osaa tuottaa asiantuntevaa ja kielellisesti ongelmattonta tekstiä. Hän osaa soveltaa Haaga-Helian raportointi- ja opinnäytetyöohjeita oppimistehtävissään.
- Opiskelija osaa arvioida ammatillisten ja tieteellisten lähteiden luotettavuutta sekä hyödyntää hankkimiaan tietoja opinnoissaan ja työtehtävissään.

Contents

- Viestinnän perustaitojen hahmottaminen
- Opintojen ja työelämän erilaiset viestintätilanteet sekä suullisesti että kirjallisesti: mm. henkilökohtainen vuorovaikutus, opastavan ja ohjaavan tekstin laatiminen, sähköpostiviestintä, asiakaskohtaamiset
- Sanallisen ja sanattoman viestinnän peruspiirteiden tunnistaminen ja ymmärtäminen
- Esiintymisen perustaidot
- Puhe-esityksen valmistelemine ja havainnollistaminen
- Kielenhuolto
- Haaga-Helian raportointiohjeiden tunteminen ja soveltaminen omiin töihin

Starting level and linkage with other courses

Ei edeltävyyssehtoja tai sidonnaisuuksia muihin opintojaksoihin.

Further information

Työelämäyhteydet:

Opintojaksolla hyödynnetään mahdollisuuksien mukaan yrityselämän edustajia vierailuluennoitsijoina.

Kansainvälisyys:

Omien viestintätaitojen ymmärtäminen ja niiden kartuttaminen on kansainvälisen vuorovaikutuksen onnistumisen keskeinen perusta. Omien viestintävalmiuksien parantaminen ja oman kielellisen taustan ymmärtäminen on keskeistä kansainvälisen osaamisen rakentumisessa.

FIN4TF-1001 Finnish: 15 op**FIN4TF010 Beginners' Finnish: 5 op****Learning objectives**

The student

- * can introduce oneself, give basic information about oneself and ask simple questions
- * can understand and use basic expressions and simple sentences in routine everyday situation
- * is able to deal with everyday social situations and handle simple shopping situations
- * is aware of the basic characteristics of the Finnish language, culture and habits
- * is able to use the surrounding language environment to develop one's language skills.

Target level A1. Level descriptions can be found at

http://www.coe.int/t/dg4/education/elp/elp-reg/Source/Global_scale/globalscale.pdf.

Contents

The course is an introduction to Finnish language and culture, and themes handled during this course are me, my family, weather, time and everyday life. Emphasis will be given to all four language skills: listening, speaking, reading and writing.

Pronunciation

Greetings, basic small talk phrases

Introducing oneself and telling about oneself

Numbers, prices

Weather, seasons, months, telling the time

Asking questions and giving basic information in routine everyday situations

Conjugation of some basic verbs

Vocabulary and key phrases for everyday needs

Describing people and objects in a simple way

Starting level and linkage with other courses

No previous knowledge of Finnish language required.

Assessment criteria

Grade 1

The student knows some basic characteristics of Finnish language, and is able to understand some basic vocabulary in everyday situations.

The student can use familiar everyday expressions and very basic phrases. He/she can interact in a very simple way in everyday situations.

The student has limited motivation to take responsibility for his/her learning process. He/she is able to deal with some of the communicative situations handled during the course.

Grade 3

The student knows most basic characters of Finnish language and understands familiar everyday expressions and very basic phrases in everyday situations well.

The student can use familiar everyday expressions and very basic phrases well. He/she can interact in a simple way in everyday situations.

The student is partly motivated to take responsibility for his/her learning process. He/she can somewhat master the communicative situations handled during the course.

Grade 5

The student knows basic characters of Finnish language and understands and uses familiar everyday expressions and very basic phrases very well.

The student can understand and use familiar everyday expressions and very basic phrases very well. He/she can interact in a simple way in everyday situations.

The student is fully motivated to take responsibility for his/her learning and participates actively. He/she can fully master the communicative situations handled during the course.

Approved/ Failed

Continuous demonstration of Finnish skills 20 %

Regular and active participation is crucial to progress. Coming in time, being prepared, doing activities, answering questions and speaking Finnish as much as possible are all part of the continuous demonstration of your language skills.

Texts and/or other assignments 10 %

Exams and quizzes 70 %

The course is evaluated on a scale from 1 to 5.

FIN4TF011 Beginners' Finnish 2: 5 op**Learning objectives**

This course develops student's ability to understand and use Finnish language further and activates the language skills learned earlier. The purpose is that students will be encouraged and able to use Finnish in everyday situations.

Upon successful completion of the course, the student

- * can communicate in simple everyday situations requiring exchange of information on familiar matters
- * can understand conversations on basic, everyday subjects
- * knows the main difference between spoken and written Finnish
- * can deal with simple situations likely to arise when travelling
- * can tell about his/her home and his/her job
- * can tell about his/her hobbies and free time
- * can express his/her feelings.

Upon successful completion of the course, the student should be on their own way to level A2 in most of the language skill areas - speaking, listening, reading and writing. Level descriptions can be found at http://www.coe.int/t/dg4/education/elp/elp-reg/Source/Global_scale/global...

Contents

This course increases student's knowledge of Finnish language and culture. The purpose is for students to achieve basic language skills that enable them to cope in everyday situations and participate in everyday communication. Themes handled during this course are everyday life, home and travelling, food and drinks, celebrating different holidays in Finland and elsewhere, work and free time. The grammar studied during this course:

- * Consonant gradation and other changes (in the stem) of nouns and verbs
- * Local cases of nouns (Where? Where from? Where to?)
- * T-plural
- * Pronouns
- * Partitive plurals
- * Ordinary numbers
- * Postpositions
- * Basics of the object
- * Some word types

Starting level and linkage with other courses

The student has successfully completed the course Beginners' Finnish FIN4TF010 or acquired this level in the entry level test in Finnish.

Assessment criteria

Grade 1

The student knows some of the basic Finnish vocabulary, and is able to understand some basics in texts and spoken Finnish in everyday situations. He/she knows a few basic differences between spoken and written Finnish.

The student can somewhat use the vocabulary and grammar handled during the course. He/she has limited capability to interact in simple everyday situations.

The student has limited motivation to take responsibility for his/her learning process. He/she is able to deal with some of the communicative situations handled during the course.

Grade 3

The student knows and understands basic Finnish vocabulary and understands basics in texts and spoken Finnish in everyday situations. He/she knows differences between spoken and written Finnish.

The student can use the vocabulary and grammar handled during the course. He/she is capable to interact in simple everyday situations.

The student is motivated to take responsibility for his/her learning process. He/she can somewhat master the communicative situations handled during the course

Grade 5

The student knows and understands basic Finnish language well. He/she understands basic texts and spoken Finnish in everyday situations very well. He/she knows the main differences between spoken and written Finnish.

The student can very well use the vocabulary and grammar handled during the course. He/she is fully capable and confident to interact in simple everyday situations.

The student is well-motivated to take responsibility for his/her learning and participates actively. He/she can fully master the communicative situations handled during the course.

Approved/ Failed

Continuous demonstration of Finnish skills 20 %

Regular and active participation is crucial to progress. Coming in time, being prepared, doing activities, answering questions and speaking Finnish as much as possible are all part of the continuous demonstration of your language skills.

Texts and/or other assignments 10 %

Exams and quizzes 70 %

The course is evaluated on a scale from 1 to 5.

FIN4TF012 Finnish 3: 5 op**Learning objectives**

This course develops student's ability to understand and use Finnish language further and activates the language skills learned earlier. The students are encouraged and able to use Finnish in everyday situations.

Upon successful completion of the course, the student

- * can introduce his/her own culture or other topics of interest
- * knows the basics of Finnish working life and job application process
- * has experience of preparing and having a short presentation in Finnish

- * can tell about his/her past
- * develops vocabulary and speaking skills, and also the knowledge of Finnish grammar.

Upon successful completion of the course the students should be at level A2+, on their way to level B1, in most of the language skill areas - speaking, listening, reading and writing. Level descriptions can be found at <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900001>

Contents

Themes handled during the course are health, traveling, nature, free time and hobbies.

The grammar which is studied during the course:

- * past tense forms of verbs (simple past and perfect tenses)
- * object
- * imperative forms of verbs
- * pluperfect forms of verbs
- * 3. infinitive forms of verbs.

Starting level and linkage with other courses

The student has successfully completed the courses Beginners' Finnish (FIN4TF010) AND Beginners' Finnish 2 (FIN4TF011) or acquired this level in the entry level test in Finnish.

Assessment criteria

Grade 1

The student can understand many sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, and employment).

The student can somewhat use the vocabulary and grammar handled during the course. He/she can describe in very simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.

The student has limited motivation to take responsibility for his/her learning process. He/she is able to deal with some of the communicative situations handled during the course. He/she can communicate in very simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters.

Grade 3

The student can understand most of the sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, and employment).

The student can use the vocabulary and grammar handled during the course. He/she can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.

The student is motivated to take responsibility for his/her learning process. He/she can somewhat master the communicative situations handled during the course. He/she can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters.

Grade 5

The student understands easily sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, and employment).

The student can very well use the vocabulary and grammar handled during the course. He/she can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.

The student is well-motivated to take responsibility for his/her learning and participates actively. He/she can fully master the communicative situations handled during the course. He/she can communicate fluently in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters.

Approved/ Failed

Continuous demonstration of Finnish skills 20 %

Regular and active participation is crucial to your progress. Coming in time, being prepared, doing activities, answering questions and speaking Finnish as much as possible are all part of the continuous demonstration of your language skills.

Texts and/or other assignments 10 %

Exams and quizzes 70 %

The course is evaluated on a scale from 1 to 5.

DIGIESAL-1001 Sales and Service Skills: 10 op**SAL1TF001 Office Tools in Sales and Services: 5 op****Learning objectives**

After the course, the student

- can use Office Tools effectively both in work and studies. understands the concept of modern sales and knows the role of an IT specialist in sales
- can turn features of IT solutions into customer benefits
- can explain customer-oriented thinking understands the concept of customer experience
- can use Office Tools effectively to support the sales process, for instance
- produce marketing material
- produce presentations for customer meetings

Contents

Sales and Services (2 ECTS):

What is modern sales

Sales meeting and sales process

IT-specialist in customer interface

Customer insight

Customer experience

Value creation process

Features – benefit – advantages

Sales presentations

- presentation skills, presentation

- sales documents

Office Tools (3 ECTS):

Word processing:

- own template and styles

- different headers and footers

- forms (fields)

- sales documents
- mailing documents
- reports (section break, table of content)

Basics of spread sheet calculation:

- formulas, functions
- charts
- tables, data bases, Pivot tables

Presentation graphics:

- producing a sales presentation
- producing an own template
- using animations

Producing the selected sales material by using Office Tools.

Summarising the sales and service promise by producing such sales material.

Starting level and linkage with other courses

Not any requirements or prior studies.

Not any pre-exam.

Further information

Working life and co-operation with companies:

These examples and home assignments are like they normally are in real companies and customer situations.

Assessment criteria

Grade 1

The assessment of one's own learning does not influence the grade. The assignment is the same for all courses/modules and the answers will also be used for course/module development. It is possible to pass the course by different assignments and contact lessons.

Level 1-2 (pass)

Student

- can partly describe the sales process and the role of IT-specialist in sales
- can partly take into account the customer view in providing services
- can differentiate solutions' features and benefits
- knows all central terms concerning the theme
- knows the principles of the central tools
- can use tools according to the instructions of the teacher

Grade 3

Level 3-4 (good)

Student

- can describe the sales process and the role of IT specialist in sales
- can take into account the customer in providing Services
- knows the terms of providing value
- can explain customer benefits of IT-solutions
- can use all central tools effectively and in a flexible way
- is active and interested

Grade 5

Level 5 (excellent)

Student

- can describe the sales process and the role of an IT specialist in sales very well
- can actively suggest solutions for customer needs based on customer understanding and value creation
- can explain IT-solutions' customer advantages in an excellent way
- knows all the tasks of the field in an excellent way
- can use professionally and independently all the central tools
- wants to find more information and try to develop his/her own professionalism during the studies

SAL1TF002 Selling ICT solutions: 5 op

Learning objectives

Student

- learns the solution sales process through theory and practice
- learns techniques and negotiation skills required at different stages of sales process
- understands the challenges in diverse areas of IT solution sales
- becomes aware about his/her own skill profile and knowing where to learn more
- learn team working skills

Contents

- Selling and sales organizations
- Customer understanding
- Customer Value creation
- Solution sales process
- Tendering
- Solution Negotiations

The course is run by doing the learning tasks, no exam.

The evaluation also based on the participation in teamwork.

1. Activity on lessons 10 %
2. Individual and group assignments 40 %
3. Selling negotiation process 50 %

Starting level and linkage with other courses

Tools in Sales and Service Business (environment), Orientation in ICT and Business, Business Operations.

Further information

Working life connections:

The sales cases on the course are based on actual biddings and sales projects and visitor lecture(s).

International dimension:

The course utilizes international sales and marketing material.

Assessment criteria

Grade 1

(min. 40 % of the target level met)

Knowledge:

The student knows in some respects the steps of the solution sales process and the techniques used in the various phases.

Skills:

The student is able to partially exercise various techniques and tools at the various stages of the solution sales process and in group negotiations.

Competence:

The student participates less actively in group working. Low level of contribution on course.

Grade 3

(min. 70 % of the target level met)

Knowledge:

The student knows the steps of the solution sales process and the techniques used in the various phases.

Skills:

The student is able to exercise various techniques and tools at the various stages of the solution sales process and in group negotiations.

Competence:

The student is actively involved in group working. She/he can work quite independently. Active participation in team work.

Grade 5

(min. 90 % of the target level met)

Knowledge:

The student knows very well the steps of solution sales processes and the techniques used in the various phases.

Skills:

The student is able to exercise well various techniques and tools at the various stages of the solution sales process and in group negotiations.

Competence:

Extremely active participation in the team's work. Good ability to act independently. Innovativeness, positive attitude and compliance with schedules.

Approved/ Failed

Min 80% of assignments submitted and approved

DIGIEBUS-1001 Business Skills: 10 op**MAT1TF010 Business Mathematics: 5 op****Learning objectives**

Upon successful completion of the course, the students

knows statistical basic concepts and can apply them in business

manages most often repeated calculations in business
is able to price products and services
is able to compose calculations of profitability
can calculate impact of general price changes
can present time series by Excel
manages simple interest and compound interest calculations
is able to choose correct calculation method for every day problem
can compare profitability of different investment options
is fluent with Excel in business calculations

Learning outcomes will be reached mostly by completing assignments.

Contents

statistical basic concepts (presenting data, measure scales, variables, grouping, most common parameters, correlation and regression)
percent calculations for business applications, value added tax
profitability calculations
index numbers
time series with Excel
simple interest and compound interest
periodic payments
investments
Excel tools

Assessment criteria**Grade 1**

Moderate understanding of course items and partial ability to apply them in business situations. Can define most common concepts and is able to use them in wider contents.

Grade 3

Reasonable understanding of course items and sufficient ability to apply them in business situations. Can define and apply concepts in wider contents. In business problem situations is able to choose a correct calculation methods and interpret result to accurate decision.

Grade 5

Good understanding of course items and good ability to apply them in business situations. Is able to define and apply all necessary concepts in wider contents. Has no problem in choosing correct calculation methods for most common business problems and deeply knows how to interpret calculation results to business decisions.

BUS1TF011 Business Operations: 5 op**Learning objectives**

Upon successful completion of this course, the student gets a solid understanding of different kind of businesses and their functions, structures and ways of operations. Students also learn to analyze, present and report the business of a selected case company.

Contents

Topics to be covered in the course include the following:

Company foundation and key principles
Business environments and boundaries of business organisation
Value adding, business functions and operations and related analysis methods
Entrepreneurship and company growth
Financial perspective on managing companies
Case company and industry analysis

Starting level and linkage with other courses

No prerequisites

Further information

Grade of the course based on exam, assignments and active participation on course

Assessment criteria**Grade 1**

Has a basic knowledge of the principles of business environments and running business companies. Is interested in identifying and analysing market and competition, company structures, business operations and financial performance of companies. Possesses a rudimentary understanding of the business analysis methods and knows how to apply the methods and concepts learned during the course in practice. Is passable in presenting the company analysis reports as well as in explaining the business concepts. Has a basic knowledge of the business processes.

Grade 3

Has a good knowledge of the principles of business environments and running business companies. Is motivated in identifying and analysing market and competition, company structures, business operations and financial performance of companies. Possesses an eligible understanding of the business analysis methods and is enough skilful in applying the methods and concepts learned during the course in practice. Is fluent in presenting the company analysis reports as well as in explaining the business concepts. Has a basic knowledge of the business processes.

Grade 5

Has a very good knowledge of the principles of business environments and running business companies. Is highly motivated in identifying and analysing market and competition, company structures, business operations and financial performance of companies. Possesses a solid understanding of the business analysis methods and is very skilful in applying the methods and concepts learned during the course in practice. Is highly fluent in presenting the company analysis reports as well as in explaining the business concepts. Has a good knowledge of the business processes.

DIGIEPROJ-1001 Project Skills: 15 op**PRO1TF001-1001 Innovation and Project Work: 10 op****PRO1TF001A Innovation and Project Work A: 4 op****Learning objectives**

After completing the course, the student is able to act responsibly and pro-actively in group work. Students are able to apply the methods of brainstorming creative innovation development activities, as well as customer- and solution-oriented. Students are able to introduce an innovative product,

using visual aids. Students can perform and build solutions according to given concepts and carry out implementation phase of the project.

Contents

- Innovation: concepts, steps and requirements, brainstorming and analysis methods for user-centered approach including aids for structuring ideas
- Conceptualization: definition of the concept and describing, presenting and testing and the releasing

PRO1TF001B Innovation and Project Work B: 3 op**Learning objectives**

Students are familiar with project management practices and they are able to prioritize project goals and project related tasks. They can manage tasks of project organizations for preparing the project. The course learning objectives will be achieved mainly through exercises and group work.

Contents

- Project stakeholders and the organization's responsibilities, evaluation and definition of the scope of the project, project risks and their anticipation
- Project management: preparation of the project, design, control and finalizing the project. The project management templates and project management tools

PRO1TF001C Innovation and Project Work C: 3 op**Learning objectives**

Students will be able to understand and apply knowledge of human communication processes as they occur across various contexts: interpersonal, intrapersonal, small group, organizational, media, intercultural communication. Students will apply knowledge of technologically mediated communication.

Students will develop knowledge and skills that facilitate their ability to work collaboratively with others. Such skills could include communication competencies such as managing conflict, understanding small group processes, active listening and giving feedback.

Contents

Communication as a process and team work. Communication in projects and meetings; giving feedback. Conducting a survey; interviewing. How to contact your audience; planning presentation. Planning and conducting a pitching/elevator speech and video. Designing a poster. Project reporting and documentation.

Further information

Contact lessons, group works, individual assignments and tasks.

Assessment criteria**Grade 1**

Student can communicate in various contexts. She/he is able to give feedback. Student can use the technologically mediated communication tools.

Grade 3

Student can communicate in various contexts: interpersonal and small groups. She/he is able to give presentations and constructive feedback. Students can use the technologically mediated communication tools.

Grade 5

Student can communicate in various contexts: interpersonal, intrapersonal, small group, organizational, media and intercultural communication. She/he is able to give well-planned presentation and constructive feedback. Students can use the technologically mediated communication tools competently and purposefully.

BUS1TF107 Project Management: 5 op**Learning objectives**

Students get an understanding of corporate IT projects and their implementation as disciplined and well managed projects. Practically, the course enhances students' abilities to work in business information systems investment projects and enables them to gradually take more responsibility in managing projects.

Contents

The course is accomplished during the periods 1-2 / 4-5 structured by means of five modules+ study project. Moreover, the course is run in terms of three extents of the course, which are small (four modules, restricted number of assignments), medium (five modules, less assignments compared to large one) and standard (large, five+ study project). This solution is due to varying motivation levels by students. The size is correlating the grade which are: 0-2 in small, 0-3 in medium and 0-5 in large option of the course.

Module 1 – Introduction: Rationale for IT-project failures; Project Lifecycles vs. Systems Development (IT) Life Cycles (incl agile approach); Project management as a platform -overall view on managing projects.

Module 2 – Initiation and early planning stage: Cost benefit analysis; Writing a Business case report, and communicating with sponsors.

Module 3 – Project schedule planning: Techniques involved in WBS; Effort analysis, Scheduling

Module 4 – Structures: Project organisations, Team working, Resource management

Module 5 – Change management. CM from individual, IT-expert, Organisation points of view.

Module 6 – Groupwork

Starting level and linkage with other courses

Student has passed all 1-2 semester compulsory courses. The course Innovation and Project Work must be passed.

In addition, having completed work placement helps participation in the course, due to having some of the knowledge and experience of project work and development process of business information systems.

Students are recommended to participate in the Project Championship competition which is credited as an own course or by letting free to do some of the duties on the course (test and/or groupwork). However, crediting depends on the level the student (in team) reaches in PMC contest run in two rounds.

Further information

Cooperation with the business community:

Visiting lecturer(s), events (voluntary), project management cases, magazines, videos.

International dimension:

Methods, examples and ways of working apply approved and widely used international program and project management standards and disciplines. Also the cross-national and intercultural aspects global projects are focused.

Assessment criteria

Grade 1

Assessment criteria:

- Assignments
- Activity on lessons (participations, presentations, key-terms minor assignments)
- Study by free choice (just for full course students)

Grade 1

Knowledge

Has a basic knowledge of the principles of IT project management. Has a basic knowledge of the project management processes

Skills

Has passable skills 1) in demonstrating the use of some of the PMtools. 2) in presenting the student presentations and the assignments done in teams as well as in explaining project management concepts.

Competence

Possesses a rudimentary understanding of the IT-project methodology and is able to apply some of the methods and the tools learned during the course in practice.

Grade 3

Knowledge

Has a good knowledge of the principles of IT project management. Is motivated in identifying and analyzing the context and the performance of successful IT projects. Has a passable knowledge of the project management processes.

Skills

Is somewhat fluent in presenting the student presentations and the assignments done in teams as well as in explaining project management concepts.

Competence

Possesses an eligible understanding of the IT-project methodology and is able to apply the methods and the tools learned during the course in practice.

Grade 5

Knowledge

Has a very good knowledge of the principles of IT project management. Is highly motivated in identifying and analyzing the context and the performance of successful IT projects. Has a good knowledge of the project management processes.

Skills

Is highly fluent in presenting the student presentations and the assignments done in teams as well as in explaining project management concepts.

Competence

Possesses a solid understanding of the IT-project methodology and is very skillful in applying the methods and the tools learned during the course in practice.

DIGIEORIENTATION-1001 Orientation Studies: 20 op**SWD1TF001 Orientation to Software Engineering: 5 op****Learning objectives**

Upon successful completion of the course the student is able to

- * explain the software engineering profile and the rough contents of its courses
- * communicate the components and phases of software engineering (software development)
- * create simple program logic and write the code in JavaScript
- * create web pages that contain simple functionality implemented with browser programming
- * use the needed development tools and publish the pages on a web server.
- * use technical documentation while needing information or help.

Contents

The course gives a broad view on Software Engineering and software development, and the brief basics of programming:

- * software engineering; goals, main concepts, and challenges
- * main phases/disciplines in software engineering processes
- * few methods and models visualizing the software development work in practice
- * main principles for creating technically sound web pages (with HTML5 and CSS)
- * development environment and publishing the web site on a web server
- * all linkages between the web page and the JavaScript program
- * designing and implementing simple programming logic (with JavaScript, i.e. ECMAScript)
- * using following features of the programming language: selection and repetition structures, arrays and functions
- * the technical documentation needed in basic web development and the ways to utilize it

Starting level and linkage with other courses

No prerequisites.

Assessment criteria**Grade 1**

Student shows passable activity in class and individual studying. Has passable understanding of the course contents, core concepts and terminology. Has passable knowledge and skills in creating an application using the skills taught on the course. Often needs some assistance in solving basic problems. Has some difficulties in using the course materials to support own learning.

Grade 3

Student shows good activity in class and individual studying. Has good understanding of the course contents, basic concepts and terminology. Has good knowledge and skills in creating an application using the skills taught on the course. Sometimes needs assistance in solving basic problems. Can use the course materials in an effective way to support own learning. Can find some more information from other sources.

Grade 5

Student shows excellent activity in class and individual studying. Has excellent understanding of the

course contents, basic concepts and terminology. Has excellent knowledge and skills in creating an application using the skills taught on the course. Can independently solve problems. Can fluently use the course materials and other sources to support own learning. Can independently find more information from other sources. Can independently learn more details of course topics. (Though knowing the given material is enough for the best grade)

BIG1TF001 Orientation to Business and ICT: 5 op

Learning objectives

The student is familiar with a variety of corporate ICT systems and tools. He/she knows the main resources and structure of common systems. Business centered approach is introduced and advocated. The goal is that the student:

Realizes the importance and the role of data and data transformations in the business environment
Recognizes the most common systems and their role in business
Understands the role of IT systems in support and development of business activities
Is familiar with the System Development Life Cycle, understands the role of different development stages, use of UML and embraces business and agile oriented development principles
Student can use leading BI-tools for presenting information

Contents

System resources
Practical introduction to ERP systems in the business environment
Business driven system development and projects
Learning to use leading BI-tools
Important key ICT/Business concepts
The System Development Life Cycle
UML and Use cases

Starting level and linkage with other courses

This course is an introductory course to the ICT and Business profile. No prerequisites.

Assessment criteria

Grade 1

Student:

Recognizes the most common integrated systems in companies
Understands the company main functions
Understands the role of ICT in the company
Understands the coupling between Business and ICT
Is familiar with branch terminology

Grade 3

Student in addition:

Realizes the importance of data in the business environment
Understands the main purpose of integrated systems
Recognizes the role of ICT in enablement and development of the business
Can act responsibly in a team
Understands the role of ICT and ICT management
Understands the connection between ICT system development and business development

Grade 5

Student in addition:

Can describe data as a business enabler

Understands the connection between the most common integrated systems and business steering and development

Understands the coupling between ICT management and different IT frameworks

Approved/ Failed

Exam 1 + 2 \geq 35 p and

Total course points $>$ 50p

ICT1TF010 Orientation to ICT Infrastructures: 5 op**Learning objectives**

Learning outcomes

Upon successful completion of the course, the student can:

- Recognize the computer structure and functions.
- Start to use operating system.
- Identify the ICT infrastructure structures and functionalities.
- Recognize information networks and networked services operating principles.
- Identify security threats.
- Operate in network- and system environments taking into account information security.

Contents

Course contents

- Hardware configurations and interfaces
- Operating Systems: Windows and Linux
- Workstations and servers
- Information security, anti-virus programs, malware, network security
- Data network structure and functions.
- TCP / IP protocols, networking devices.

Assessment criteria**Grade 1**

Level 1-2 (passed)

Student

- Shows sufficient activity in studying.
- Can explain the issues discussed in the course.
- Can use the course basic content.
- Needs often assistance in problem situations, and in the interpretation of the course material

Grade 3

Level 3-4 (Good)

Student

- Shows good activity in studying.
- Can explain well the issues discussed in the course.
- Can use the course content in a versatile way
- Needs sometimes assistance in problem situations, and in the interpretation of the course material

Grade 5

Level 5 (excellent)

Student

- Shows excellent activity in studying.
- Can explain excellently the issues discussed in the course.
- Can apply the course content in a versatile way.
- Can independently examine and solve problems and retrieve information from different sources.

DIG1TF001 Orientation to Digital Services: 5 op**Learning objectives**

After passing this course, the student

- * Recognizes the potential of digital services.
- * Understands the significance of the user experience and usability.
- * Is able to design a user interface.
- * Is able to code a user interface.
- * Is able to analyze a digital service.

Contents

- * Introduction to digital services
- * The concepts of usability and user experience
- * Design of a responsive user interface
- * Coding of a responsive user interface
- * Analysing and designing a digital service

Starting level and linkage with other courses

None.

Further information

Small projects may be completed during the course.

Assessment criteria**Grade 1**

The student recognizes a digital service, knows the basics of user experience and usability and also is able to design and develop a user interface under guidance. The student understands the significance of digital service analysis.

Grade 3

The student recognizes the potential of a digital service, understands the significance of user experience and usability and is also able to independently design and develop a user interface. The student is able to analyze a digital service.

Grade 5

The student is able to utilize effectively the potential of a digital service, utilizes user experience and

usability in an effective way and is also able to independently design and develop a high-quality user interface. The student is able to analyze a digital service in a professional manner.

DIGIEPRO-1001 PROFILE STUDIES: 60 op

DIGIEDIG-1001 Digital Services: 44 op

DIG4TF002 User Experience: 5 op

Learning objectives

Upon successful completion of this course, the student should be able to understand why and how to create better services by bringing the voice of the customer as part of service development.

He/she understands that user experience consists of chain of actions that generate a meaningful and valuable entity from the user's perspective. This chain can contain different kinds of service moments, contact points and interactions with service providers, user interfaces and other service users

He/she can examine and develop the experience as a whole as well as its parts

He/she can use different methods for mapping the user experience and apply the methods purposefully

He/she understands the importance of making the stakeholders participate in the design process and apply different working ways and methods of participatory design

He/she can transform the problems arising from the user's experience or other relevant moments into meaningful service solutions and describe the outcome of development in a manner that is communicable to different stakeholders

He/she can validate the plan created in the process and modify it according to the validation results

Contents

Topics to be covered in the course include the following:

Methods for developing user experience:

for mapping the user experience

for analysing the user information

for utilizing the information in design

for testing and evaluating the designs

Starting Level and linkage with other courses

The student must have passed the course Introduction to Digital Services.

Starting level and linkage with other courses

Orientation to digital service

Assessment criteria

Grade 1

Knows partially the concepts related to user experience and understands the meaning of user experience in service development. Knows the basic principles of designing user experience.

Grade 3

Knows the basic concepts related to user experience, can map the user experience and utilize the

findings in designing user experience.

Grade 5

Masters the entity of user experience, can map the entire user experience and skillfully applies the knowledge gained in designing user experiences.

DIG4TF003 Prototyping of Digital Services: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to apply brainstorming techniques, is able to design a digital service visual user interface and is able to take advantage of tools for prototyping.

Contents

Topics to be covered in the course include the following:

- Iterative design
- User Interface visuals
- Tools for prototyping
- Implementation of the prototype

Starting level and linkage with other courses

Recommended Innovation and Project Work and User Experience courses studied before.

Assessment criteria**Grade 1**

The student understands the importance of the visual image to the digital service, as well as to understand the importance of building of prototypes of tools and are able to implement their primitive prototype.

Grade 3

The student is able to design the visual identity of digital services and are able to implement a prototype utilizing tools for prototyping.

Grade 5

The student is able to plan an appropriate visual image of digital services and are able to implement a high-quality prototype effectively utilizing tools for prototyping.

DIG4TF021 Digital Service Design: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to understand how to create better services by utilizing existing technologies and API's along with graphical design theories and principles

He/she learns how to search and use existing technologies to implement a digital service.

He/she can use the existing graphical design theories to implement a digital service.

He/she can search and use the latest technologies to implement the digital service.

Contents

Topics to be covered in the course include the following:

Graphical design principles

Existing technologies and APIs to develop a digital service

The latest development technologies for testing and evaluating the designs

Interface technologies

Starting level and linkage with other courses

The student must have passed the course Orientation to Digital Services and Orientation to Software Engineering.

It is also highly recommended to take the previous courses on the digital service path about UX and prototyping.

Assessment criteria

Grade 1

Knows partially the digital service development components

Grade 3

Knows the basic design principles and is familiar with development technologies. The student is capable independently search for existing component to implement digital service. Additionally, the student is able to merge and utilize different technologies to develop digital service. The student has competence on graphical design principle.

Grade 5

Student can elaborate different technologies and design principles applicability. Student can recommend the components and technologies based on the context of use of the digital service. Student can develop a digital service and integrate the developed service with open data. Student capable of analysing and recommending appropriate design principle based on the context of use of the digital service.

DIG8TF801 Digital Economy and E-commerce: 5 op

Learning objectives

Upon successful completion of the course, the student

- will learn the fundamentals of digital economy
- will learn what are on-going trends ?
- understands how e-commerce is related to digital economy
- increases personal awareness of security issues and learn few potential consequences
- gains understanding regarding the value of virtual networks in digital economy
- will identify the needs and skills required for setting up an own dynamic service
- will learn how to setup and methods configure own platform

Contents

The course has two modules:

- The theory part will be based on a course books and the subject related materials. Also your own awareness helps to reach the module objectives. In the theory part, the objective is to understand what means digital economics and e-commerce and what are the requirements of digital economy and e-commerce.

Keywords: Platform business, SaaS, PaaS, IaaS, immaterial economics, immaterial commodities, standards, EU data protection, on-demand services

- Hands on self study using a content management system, e.g. WordPress. In this module your mission is to gain practical knowledge of how an e-commerce platform works and study how to build an e-commerce or content management environment.

Keywords: On-site/out sourcing production models, CMS, E-commerce systems, open source communities, software extensions and plugins, configuration, testing.

How to set up Wordpress and services without technical and coding skills.

Starting level and linkage with other courses

Pre-requisite: Orientation to Business and ICT

At least 46 completed credit units in the academical year

Further information

Working life connections:

Case studies, community work, git hub repositories.

In the end of the course there will be a case sample how small and medium sized enterprises can produce platforms without remarkable financial investments,

Internationality:

The software tools and language used on the course are internationally recognized. The language of the course material is English.

Assessment criteria

Grade 1

(40 %)

The student has sufficient knowledge of the course subject matter. The student has some skill how to use or develop a platform.

Grade 3

(70 %)

The student has good knowledge of the subject matter. The student has a good understanding of the course subject. He/she has sufficient skills as to how to use a platform for e-commerce purposes. Student recognizes and adopt successfully the elements of e-commerce and/or digital economy.

Grade 5

(85 %)

The student has excellent theoretical knowledge. The student has a comprehensive understanding of the course subject and student has established skills as to how to develop a platform or can present a model how to produce a platform including demonstration. Student recognizes and adopt successfully the elements of e-commerce and/or digital economy.

PRO4TF030 Digital Service Project: 10 op

Learning objectives

Upon successful completion of this course, the student understands the digital service concept design, validation, and customer value and marketing processes through a real customer project.

Contents

Student needs to utilize the following process and approaches:

UCD to come up with the proper concept

Semi-functional prototype with proved iterative design and development phases

Evaluation of end-user, customer and/or possible other stakeholder value and experience

Marketing material to justify the efficiency productivity of the proposed concept

Starting level and linkage with other courses

The student must have passed the courses Orientation to Digital Services and Introduction to Software Engineering and have successfully passed one of the following courses: Digital Service Design, User-Centered Design, Usability Engineering, or Digital Service Design.

Assessment criteria**Grade 1**

Come up with a new concept but have not followed any digital service design and development methodology. However, semi-functional prototype is validated and shared with customer.

Grade 3

Come up with a new concept and have followed digital service design and development methodology such as User Centered Design (UCD) poorly such as failed to conduct user studies, or data analysis has not done properly. However, semi-functional prototype is validated and shared with customer. Customer specifically shows satisfaction with the outcome.

Grade 5

Student demonstrate he/she is master with the process and come up with a new and innovative concept. Student have followed digital service design and development methodology such as User Centered Design (UCD). A semi-functional prototype designed, implemented, and validated. Customer specifically shows high satisfaction with the outcome.

MUM8TA001 Basic 3D Design with Blender: 3 op**Learning objectives**

Upon successful completion of the course, the student knows how to create valid and complete 3D meshes for use in visualisation, games design, and 3D printing.

Contents

Introduction to 3D modeling

Blender installation and environment

3D Modeling Basics

Learning to use the Blender environment

Transforming objects in Blender

Tool Shelf and Properties window

Adding and moving more objects in Blender

Subdivision and Extrusion

Subdivision Surface

Using curves and background images

Materials and textures using Blender internal renderer

Using the Simple Deformers

Basic Lighting and Cameras

Modifiers and Add-Ons
Rendering the scene
Basic UV Mapping for Blender Internal Render engine

Starting level and linkage with other courses

No demands on previous courses.

Followed by an extended, problem-based learning course MUM8TA002 Extended 3D.

This course is a NECESSARY PREREQUISITE for MUM8TA003 3D Printing.

Assessment criteria**Grade 1**

The student has limited understanding of 3D and Blender. Meshes created are very simple and texturing is rudimentary.

The student has satisfactory skills to produce small, textured meshes and rendered scenes in Blender.

The student shows satisfactory activity and initiative in learning process.

Grade 3

The student knows partly the Blender application. Meshes created are more complex and have good texturing.

The student has good skills to produce intermediately complex meshes and scenes.

The student shows activity and initiative in learning process. He/she is willing to develop his/her 3D skills further.

Grade 5

The student understands the Blender system to a large extent and can produce complex and well textured meshes.

The student shows activity and initiative in learning process. He/she is willing to develop his/her 3D skills further.

The student shows excellent activity and initiative in the learning process. He/she is independently taking his/her skills further using other online tutorials than those in the course.

MUM8TA003 3D Printing: 3 op**Learning objectives**

Upon successful completion of the course, the student is able to

operate and maintain the various printer types of the 3D LAB
design a mesh in Blender
export it to STL file format
check the manifold properties of the mesh
use RepetierHost or Cura to manage the printing process
adjust the mesh and re-export the mesh until perfect

Contents

Understanding 3D printing

Understanding the path from Blender meshes via manifold checking to STL file and printer

Printer materials (ABS, PLA, nylon)

Fused Deposition Manufacturing type printers (MiniFactory, CoLiDo models, BCN3D)
RepetierHost printer management software and using memory card for transferring print jobs
Managing the printing process
Hands-on training on a variety of 3D printer models

Starting level and linkage with other courses

MUM8TA001 – Basic 3D Design with Blender MUST be taken prior to this course with a good grade, or, the student must display adequate design competence using Blender, 3DS Max, or Cinema 4D.

Any other 3D package can be considered, if it exports STL file format files.

Further information

Should a student already possess the knowledge and practice of 3D printing, it is possible for that student to design a mesh in the 3D package of his/her choice and then take it through the printing process from the STL file stage onwards. If the person has 3D prints that he/she has printed previously and individually, these can be considered at the teacher's contact hour.

Assessment criteria**Grade 1**

The student

has a passable knowledge of the 3D design process
understands the use of different file formats
understands the significance of the concept of manifold objects
manages to create a very simple printable mesh
manages to take the object through the printing process and the result is a small and simple 3D printed object

Grade 3

The student

has a good knowledge of the 3D design process
understands the use of different file formats and is able to move between file formats as necessary
understands the significance of the concept of manifold objects and uses tools to check for manifold properties
manages to create a more complex printable mesh
manages to take the object through the printing process and the result is a relatively complex 3D printed object

Grade 5

The student

has an extensive knowledge of the 3D design process
understands the use of different file formats and is able to move between file formats as necessary
understands the significance of the concept of manifold objects and uses tools to check for manifold properties
manages to create a very complex or multi-part printable mesh
manages to take the object through the printing process and the result is a complex or multi-part 3D printed object

MUM8TA002 3D Extended Course: 3 op

Learning objectives

Upon successful completion of the course, the student has a deep understanding of one feature of Blender that he/she has researched.

Contents

This course is a problem-based learning style course, in which the student selects a feature of Blender and produces a tutorial on it. Previous topics of choice have included, but are not limited to:

Rigging
Animation
Procedural materials
Compositing
Physics engine
Game engine
Node-based material systems
Cycles rendering engine

Starting level and linkage with other courses

This course follows MUM2TA001 Basic 3D Design with Blender, which must be passed before enrolling in this one.

Assessment criteria

Grade 1

The student has put together a very basic tutorial. Using the tutorial it is possible to gain a narrow idea of the topic.

The student has satisfactory skills to produce a small and limited-scope tutorial on his/her selected topic.

The student's work shows limited capability in the learning process.

Grade 3

The student's tutorial makes it possible to see the potential of the subject matter. The tutorial provides a good scope of the subject matter.

The student has good skills to act as a tutor into using Blender in a more complex way.

The student shows activity and initiative in learning process. He/she is willing to develop his/her 3D skills further.

Grade 5

The student provides a complete and well-functioning tutorial with which the reader can fully understand the potential of the subject matter and is able to go further with it.

The student has excellent skills to assist new learners into the subject matter of the tutorial. His/her skills provide a solid support for new users.

The student shows excellent activity and initiative in the learning process. He/she is independently taking his/her skills further and provides full coverage on the topic.

MUM8TA004 3D + Robotics: 3 op

Learning objectives

After passing this course, the student has enhanced skills for 3D modeling, 3D scanning, 3D printing

or working with robotics or IoT. He/she is able to apply skills and knowledge from past courses.

It is recommended that the student has passed some previous courses such as Innovation and Project Work, Basic 3D Design using Blender, or IoT Experimental.

This course is for the most part individual study, but guidance will be made available for 2 h / week either on site or online.

Contents

This is an eight week nonstop course. Its structure and contents will vary depending on the student project. The project can be a student project, a project for use at the 3D + Robo Lab, or a client project. Example topics for students to choose from:

- 3D Modeling for gaming or virtual world applications
- 3D Printing
- 3D Scanning
- Robotics and SoC (System on a Chip, such as Arduino, Raspberry PI tai ESP32) projects
- Internet of Things projects with Raspberry PI- tai ESP32 devices
- Developing the Haaga-Helia 3D + Robo Lab with modeling, scanning, printing or robotics projects
- Teaching 3D printing to other students as tutors
- Student project in which the topic and the scope are agreed upon individually.

Starting level and linkage with other courses

It is recommended that the student has completed Innovation and Project Work, Basic 3D Design using Blender, or IoT Experimental, but these are not prerequisites.

Further information

This course is intended to enable wider use for the 3D + Robo Lab, and to allow for client projects to start even in the middle of terms.

Assessment criteria

Grade 1

The student produces a minimum viable product which satisfies at least the basic requirements set for the project at the start. The student learning diary fulfils the minimum criteria regarding content, understandability and readability. The diary shows scant development in student capabilities.

Grade 3

The student produces a functioning project which satisfies most of the requirements set for the project at the start. The student learning diary is of good content, understandability and readability. The diary shows good development in student capabilities.

Grade 5

The student produces a functioning project which completely satisfies or exceeds the requirements set for the project at the start. The student learning diary is very well made and has high quality content, understandability and readability. The diary shows excellent development in student capabilities. The student learning diary contains ideas and opportunities for further development or alternative methods for the project.

DIGIESWD-1001 Software Engineering: 65 op

SWD4TF032 Programming 1: 5 op

Learning objectives

Upon successful completion of the course, the student should be able to

- * Explain basic concepts and terminology of the Java programming language and object-oriented programming
- * Design and write small and simple Java programs in the object-oriented way
- * Use an IDE for writing and debugging Java programs

Contents

The Java Language, Java API, JDK, JRE, and IDE

- * Creating, running, and debugging small stand-alone Java programs in a modern IDE
- * Java program structure and life cycle

Elementary programming techniques in Java

- * Console input and output
- * Data types, variables, and type conversions
- * Statements, expressions, and operators
- * Control structures
- * Sub-programs (methods)

Exception handling

String handling and regular expressions in Java

Manipulating aggregate data structures

- * Arrays and lists

Object-oriented thinking

- * Object-oriented programming with classes and objects

Starting level and linkage with other courses

The student has completed the course Orientation to Software Engineering (SWD1TF001) with exam grade 3 or higher, or can demonstrate equivalent skills and knowledge in the basics of programming.

Assessment criteria

Grade 1

The student

- * shows passable activity and punctuality on the course
- * has passable understanding of the course contents, core concepts and terminology
- * has passable knowledge and skills in writing simple Java programs in the object-oriented way
- * needs often assistance in problem situations, and in the interpretation of the course material.

Grade 3

The student

- * shows good activity and punctuality on the course
- * has good understanding of the course contents, core concepts and terminology
- * has good knowledge and skills in writing simple Java programs in the object-oriented way
- * uses the course materials and other sources in an effective way to support own learning
- * needs sometimes assistance in problem situations.

Grade 5

The student

- * shows excellent activity and punctuality on the course
- * has excellent understanding of the course contents, core concepts and terminology

- * has excellent knowledge and skills in writing simple Java programs in the object-oriented way
- * uses the course materials and independently found sources fluently to support own learning
- * can independently examine and solve almost all problem situations
- * shows that he/she can acquire more knowledge and skills independently and apply them creatively.

SWD4TF033 Programming 2: 5 op

Learning objectives

Upon successful completion of the course, the student should be able to

- * explain basic web application concepts and terminology
- * use a web server for developing and testing a web application
- * create small and simple web applications where the back-end is written in Java
- * access databases programmatically to retrieve data and modify data in the database

Contents

Introduction to web application development

- * Web application architecture
- * Using a development web server
- * HTTP communication with requests and responses
- * Creating a small and simple back-end in Java
- * Programmatic database access in Java
- * Creating a small and simple front-end

Basics of unit testing

Basics of version management

Starting level and linkage with other courses

The student has completed the course Programming 1 (SWD4TF032), or can demonstrate equivalent skills and knowledge.

In addition, the student should take the course Data Management and Databases (SWD4TF003) alongside the Programming 2 course if he/she already doesn't have equivalent skills in basics of databases and SQL.

Assessment criteria

Grade 1

The student

- * shows passable activity and punctuality on the course
- * has passable understanding of the course contents, core concepts and terminology
- * has passable knowledge and skills in writing small and simple web applications
- * needs often assistance in problem situations, and in the interpretation of the course material.

Grade 3

The student

- * shows good activity and punctuality on the course
- * has good understanding of the course contents, core concepts and terminology
- * has good knowledge and skills in writing small and simple web applications
- * uses the course materials and other sources in an effective way to support own learning
- * needs sometimes assistance in problem situations.

Grade 5

The student

- * shows excellent activity and punctuality on the course
- * has excellent understanding of the course contents, core concepts and terminology
- * has excellent knowledge and skills in writing small and simple web applications
- * uses the course materials and independently found sources fluently to support own learning
- * can independently examine and solve almost all problem situations
- * shows that he/she can acquire more knowledge and skills independently and apply them creatively.

SWD4TF003 Data Management and Databases: 5 op

Learning objectives

Upon successful completion of this course, the student should be able to

- * explain the basic concepts and terminology of data management and databases
- * explain the principles, structure, and terminology of the relational database
- * explain the DBMS services and their importance and value in software development
- * explain what database transaction is and why it has a crucial role in reliable software systems
- * explain the database design methodology
- * use data-oriented ER diagrams and database diagrams written in UML
- * create a small and simple database in SQL Server and MariaDB
- * write intermediate-level SQL queries to retrieve and manipulate the database's data.

Passed courses are assessed on a scale of 1 to 5.

Contents

Basic concepts and terminology of data management and databases

Principles, structure, and terminology of the relational database

DBMS services and their importance and value in software development

Database transactions

Database design methodology

Data-oriented ER diagrams and database diagrams written in UML

Creating create a small and simple database in SQL Server and MariaDB

Writing intermediate-level SQL queries to retrieve and manipulate the database's data.

Starting level and linkage with other courses

The student has completed the course Orientation to Software Engineering (SWD1TF001), or can demonstrate equivalent skills and knowledge. In addition, the course Orientation to ICT Infrastructures (ICT1TF010) is recommended to be completed before taking the Data Management and Databases course.

Assessment criteria

Grade 1

The student

- * shows passable activity and punctuality on the course
- * has passable understanding of the course contents, core concepts and terminology
- * has passable knowledge and skills in writing database queries in SQL
- * has passable knowledge and skills in using data-oriented diagrams
- * has some difficulties in using the course materials to support own learning.

Grade 3

The student

- * shows good activity and punctuality on the course

- * has good understanding of the course contents, core concepts and terminology
- * has good knowledge and skills in writing database queries in SQL
- * has good knowledge and skills in using data-oriented diagrams
- * has sufficient knowledge and skills in creating a small and simple database
- * can use the course materials in an effective way to support own learning.

Grade 5

The student

- * shows excellent activity and punctuality on the course
- * has excellent understanding of the course contents, core concepts and terminology
- * has excellent knowledge and skills in writing database queries in SQL
- * has excellent knowledge and skills in using data-oriented diagrams
- * has good knowledge and skills in creating a small and simple database
- * uses the course materials and independently found sources fluently to support own learning.

SWD4TF020 Mobile Programming: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to

- understands the mobile development characteristics
- develop professional mobile applications on 1-2 platforms
- further develop his/her development skills.
- knows the limitations of his or her skills

Contents

Topics to be covered in the course include the following:

- Mobile development characteristics
- Android platform basics
- Selected mobile development technologies

Starting level and linkage with other courses

Student has completed the second semester studies in programming and databases.

Assessment criteria**Grade 1**

Knows the basic concepts of mobile development.

Shows passable activity in class and individual studying

Has skills in creating an application using the technologies taught on the course

Grade 3

Knows the mobile development concepts well

Shows good activity in class and individual studying

Has good knowledge and skills in creating an application using the technologies taught on the course

Can use the course materials in an effective way to support own learning

Grade 5

Knows the mobile development concepts in depth.

Has excellent knowledge and skills in creating an application using the skills technologies on the course Able to develop security practices.

Can fluently use the course materials and other sources to support own learning
Can independently solve problems

Approved/ Failed

Project 60%
Assignments and Activity 40%

SWD4TF021 Server Programming: 5 op**Learning objectives**

Upon completion of the course, the student is able to

- Understand and describe the role of the back-end development in modern web applications
- Act like a professional back-end developer. Able to analyze problems, seek for needed information, apply a solution, verify it
- Able to discuss and take into use more back-end technologies

Contents

- Introduction to server side programming
- Introduction to security issues in server side programming
- Application programming interfaces (REST-API, JSON)
- Database programming on server side
- Software frameworks for server side
- Performance of back-end software
- Version management, build automation tools, deployment tools

Starting level and linkage with other courses

Student has completed the second semester studies in programming and databases.

Further information

Course covers Spring Security, which solves part of backend security issues. Complete security coverage does not fit into the course.

Assessment criteria**Grade 1**

- Knows the basic concepts of server programming.
- Shows passable activity in class and individual studying
- Has skills in creating an application using the technologies taught on the course

Grade 3

- Knows the server programming concepts well
- Shows good activity in class and individual studying
- Has good knowledge and skills in creating an application using the technologies taught on the course
- Can use the course materials in an effective way to support own learning

Grade 5

- Knows the server programming concepts in depth.
- Has excellent knowledge and skills in creating an application using the skills technologies on the course Able to develop security practices.
- Can fluently use the course materials and other sources to support own learning
- Can independently solve problems

Approved/ Failed

60% Project

40% Assignments and activity

SWD4TF022 Front End Development: 5 op**Learning objectives**

Upon completion of the course, the student is able to

- understand and describe the role of front-end development in modern web applications
- act like a professional front-end developer. Able to analyze problems, seek for needed information, apply a solution, verify it
- see the alternative ways for creating a front-end
- able to discuss and take into use more front-end technologies

Contents

- The set of needed tools and their relevance
- Mastering HTML, CSS, JavaScript, browser developer tools, e.g. JavaScript debugger and JavaScript console
- Verification and error-tracking
- Document Object Model, Browser Object Model and their relationship and linkages with JS,
- Request-Response model. Understanding http request methods. Understanding how the browser communicates with the web server.
- Understanding how to connect to the back-end. Understanding how to specify and use back-end services in the front-end.
- Creating different kind of front-ends that use the given ready-made back-end services
- JSON as response format
- React.js

Starting level and linkage with other courses

Student has completed the second semester studies in programming and databases.

Assessment criteria**Grade 1**

- Knows the basic concepts of front end development.
- Shows passable activity in class and individual studying
- Has skills in creating an application using the technologies taught on the course

Grade 3

- Knows the front end development concepts well
- Shows good activity in class and individual studying
- Has good knowledge and skills in creating an application using the technologies taught on the course
- Can use the course materials in an effective way to support own learning

Grade 5

- Knows the front end development concepts in depth.
- Has excellent knowledge and skills in creating an application using the skills technologies on the course.
- Can fluently use the course materials and other sources to support own learning

- Can independently solve problems

SWD4TF023 Software Development Technologies: 5 op

Learning objectives

Able to use and further learn software development, version management and project management tools and techniques needed on the Software Project course.

Contents

Software Development, Database, Version management and team work management tools and technologies. Contents change for each semester depending on the need.

Starting level and linkage with other courses

Pre-requisite courses:

Data Management and Databases SWD4TF003

Server Programming SWD4TF021 Front End Development SWD4TF022

Note: This course is meant only for Software Development oriented students.

Further information

Working life connections:

The tools on this course will be based on the project commissioned by a customer company or organization.

Internationality:

Teams consist of both Finnish and multinational students. All used materials, technologies and methods are international.

Assessment criteria

Grade 1

Knows about the tools

Grade 3

Can use the tools independently without help

Grade 5

Also understands the broader meaning of the tools and can evaluate their strengths and weaknesses and compare tools for a purpose

SWD4TF024 Software Project: 10 op

Learning objectives

Upon successful completion of the course, the student is able to solve customer problems through his/her software development skills. The student understands and is able to define customer needs and requirements, and s/he is able to utilize proper software solutions. The student is able to develop independently his/her competence in learning and discussing new technologies. The student is able to assess and select the proper technologies and approaches to solving the problem. The student is capable of taking responsibility for implementing designated tasks. The student is able to share the developed competence with other team members. As a member of a team, the student is responsible for implementing production-level software solutions for customer needs and

requirements.

Contents

The course operates like a genuine software company, from whom a client orders software solutions for real needs.

The students

1. Study customer needs
2. Define and plan the solution
3. Determine with the customer the selected technologies that are considered an appropriate solution to the problem
4. Develop the working software solution at a near production level
5. Evaluate the results and plan the future improvements

Course evaluation is based on group work, the functionality of the final outcomes, and peer review that evaluates individual and group contribution.

Assessment components and their respective weights:

- Activity, Responsibility, and attitude in the project 50-60% (including coming to work in time, focus, contribution to team efficiency). Outstanding contribution might lead into a 10% extra bonus.
- Examination 40-50%

Starting level and linkage with other courses

Pre-requisites

Student has good object-oriented programming, web programming and database skills. Student is ready for independent teamwork and information seeking.

Data Management and Databases (SWD4TF003)

Server Programming (SWD4TF021)

Front End Development (SWD4TF022)

Further information

Cooperation with the business community:

Case topics usually from companies.

International dimension:

Only international learning materials used. All implementations have students from several continents. Possible guest lecturers from international companies.

Assessment criteria

Grade 1

Knowledge

The student can identify, list and combine the main theoretical concepts related to the course contents.

Skills

With great difficulty and under strict supervision, the student partly or poorly works as a team member in software projects using relevant tools and technology at beginner's level.

Competence

With great difficulty and under strict supervision, the student can cooperate with the actual developers, e.g. in a testing team. S/he can poorly apply problem identification, analysis and solving to software projects.

The student participates insufficiently to the group work. In the final peer review, student superficially

defines his/her roles in the project. The group's outcomes do not meet the initial purpose, and cooperation with the customer is weak.

Grade 3**Knowledge**

The student can describe the relevant concepts and apply them to new contexts.

Skills

The student can work as a team member in software projects developing a working system.

Competence

The student can cooperate with the actual developers, e.g. in an assisting role. S/he can apply problem identification, analysis and solving to software projects.

The student participates actively in the group work. S/he helps the implementation, but does not take a big responsibility for any topic in the subject area. In the peer review, the student evaluates his/her roles sufficiently, but has not expressed in depth comparison or shows her/his analyzing capabilities. The group's outcomes serve the purpose partially, and cooperation with the customer is moderate.

Grade 5**Knowledge**

The student uses and combines different theories to present own models. Student is aware of other views of the knowledge. His/her use of theory and specific terminology is very accurate. S/he uses findings to compare different theories and viewpoints.

Skills

The student can collect, analyze and use relevant technologies to create systems.

Competence

The student can work very professionally with a client company in a team. S/he can fully apply problem identification, analysis and solving to software development.

The student participates actively in the group work. S/he takes the lead in one or more area in the project. S/he can recommend methods and technologies for group use. In the final peer review, the student analyzes his/her own and group performances thoroughly and analytically. S/he is able to analyze what has been done well and where it could have been done better. The group's outcomes serve the purpose very well, and cooperation with the customer was excellent.

SWD8TF040 Database Developer: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to

- * explain the basic concepts and terminology related to physical database design and implementation
- * use the basic database administration tools to create and manage a database in the target environment
- * apply declarative and procedural integrity enforcement in the database implementation
- * explain basic database performance problems and ways to improve database performance
- * explain the basic concurrency mechanisms and concurrency conflicts
- * use SQL transactions efficiently to ensure database performance and consistency
- * explain transaction logging and database recovery

- * perform database backup and restore operations.

Passed courses are assessed on a scale of 1 to 5.

Contents

The course focuses on physical database design and implementation in the relational database environment. The main themes on the course are database integrity, database performance, database security, and database recoverability. The course includes hands-on work on the following:

- * data integrity enforcement
- * database performance, database indexes
- * concurrency control and transaction management in the multi-user environment
- * transaction logging and database recovery, backup and restore
- * database security.

Starting level and linkage with other courses

The student has completed the course Data Management and Databases (SWD4TF003) or equivalent.

Assessment criteria

Grade 1

The student

- * shows passable activity in class and individual studying
- * has passable understanding of the concepts and terminology discussed in the course
- * has passable understanding of the basic ways to improve database performance
- * has passable understanding of the main problems in concurrent database access
- * often needs some assistance in solving basic problems
- * has some difficulties in using the course materials to support own learning.

Grade 3

The student

- * shows good activity in class and individual studying
- * has good understanding of the concepts and terminology discussed in the course
- * has good understanding of the basic ways to improve database performance
- * has good understanding of the main problems in concurrent database access
- * sometimes needs assistance in solving basic problems
- * can use the course materials in an effective way to support own learning
- * can find some more information from other sources.

Grade 5

The student

- * shows excellent activity in class and individual studying
- * has excellent understanding of the concepts and terminology discussed in the course
- * has excellent understanding of the basic ways to improve database performance
- * has excellent understanding of the main problems in concurrent database access
- * can solve problems independently
- * can fluently use the course materials and other sources to support own learning
- * can independently find more information from other sources
- * can independently learn more details of course topics.

PRO4TF024 Multidisciplinary Software Project: 15 op

Learning objectives

Student is able to use most of the software engineering skills needed in solving the real customer problem. She/he is able to understand and document customer's needs and to propose appropriate software solutions. Student is able to independently acquire unknown technology knowledge and skills. She/he learns to evaluate and choose between technologies and methods. She/he is able to take personal responsibility over a certain part of the commonly created solution. Student is able to share acquired knowledge to other members of the team or course.

Student can, as a member of the team, implement a valid and ready-to-use solution to the customer's problem.

Contents

This course will be implemented as a project, with project management methods. Student will sign a project contract with Haaga-Helia at the start of the course. Students will be assigned to certain teams based on prior knowledge, available projects, required and mastered language (Finnish and/or English) and needs of each project.

Students will implement and demonstrate ready-to-use solutions to the customer. Students will learn the needs of the customer, specify and plan the solution and agree with the customer upon the used technologies, that are the best-suited ones for this problem, considering also the team's initial skill level and learning goals.

1. Project assigned by the commissioner (customer company or organization)
2. Project work management, change management and contract principles
3. Project goal related development tools, environment and documentation practices provided by the commissioner.
4. Software development process models and methods
5. Interaction, tutoring and presentation skills

Starting level and linkage with other courses

Before attending this course, students must have completed the courses Server Programming, Data Management and Databases, and Software Project. Or student has obtained corresponding skills. Front End Development and Mobile Development course skills are also needed.

Note: This course is meant only for software development oriented students. Furthermore, students cannot take this course and other big 5. semester project course (Digital Service, Business, Infra) at the same semester as the course schedules for all these are put on the same times on purpose, and attendance is mandatory.

Further information

Working life connections:

The software projects on this course will be commissioned by a customer company or organization.

Internationality:

Teams consist of both Finnish and multinational students. All used materials, technologies and methods are international.

DIGIEICT-1001 ICT Infrastructures: 25 op**PRO4TF023 ICT Infrastructure project: 10 op****Learning objectives**

Upon successful completion of this course, the student understands the ICT processes in regards to

a real Business/ICT projects. The student is able to work in customer contact and solve challenges and problems in co-operation with various parties. The student is able to take responsibility in the project team in his/her own role.

Student is able to work, familiarize his/herself with the topic and apply his/her learning independently.

Contents

The student will participate as a team member or project leader in a project in one of the following main focus areas:

- Computer networking and technologies
- Server platforms and operating systems
- Cloud Services
- Software Development technologies in Cloud Platforms
- Information Security
- Internet of Things

The type and purpose of the project is generally based on a commission and could be containing:

- Network services deployment / testing
- Operating system and server design / testing / implementation
- Management of information services
- Cloud Platform design, implementation and testing
- Software Development in Cloud Platforms, design, implementation and testing
- Implementation, management and development of information security
- Penetration testing

Starting level and linkage with other courses

The student must have passed the courses Orientation to ICT Infrastructures and Server Technologies, and have successfully passed at least one of the following courses Data Security or Cloud Service Technologies or similar courses in other degree programs.

Assessment criteria

Grade 1

Grade 1

The student has participated in the project but the individual contribution is minor and/or the quality of the deliverables is not or barely fulfilling the target.

Grade 3

Grade 3

The student has well participated in the project and the individual contribution is on a good level with timely and qualitative deliverables.

Grade 5

Grade 5

The student has been a key member of the project and the individual contribution has clearly had a great impact on the project outcome.

ICT4TF021 Server Technologies: 5 op

Learning objectives

Upon successful completion of this course, the student should be able to

- install the Linux/Windows Server operating system, and specify the server
- deploy a variety of server roles and features
- understand network protocols functions
- understand server platforms requirements and their suitability for different services
- deploy the most typical servers and knows the basics of the Windows / Linux server environment
- install and maintain appropriate programming platform

Contents

- Windows / Linux server architectures
- Data networks main protocols
- Server environment installation and management
- Directory Services
- Network services and their function
- System services and service management
- Installation and maintenance of web-server
- LAMP / MEAN
- Maintenance and maintenance tools.

Starting level and linkage with other courses

Student has completed the Orientation to ICT Infrastructures ICT1TF010

Assessment criteria**Grade 1**

Grade 1

- Student shows sufficient activity in studying
- Can explain the issues discussed in the course
- Can use the course basic content. Needs often assistance in problem situations, and in the interpretation of the course material

Grade 3

Grade 3

- student shows good activity in studying
- can explain well the issues discussed in the course
- can use the course content in a versatile way
- needs sometimes assistance in problem situations, and in the interpretation of the course material

Grade 5

Grade 5

- student shows excellent activity in studying
- can explain excellently the issues discussed in the course
- can apply the course content in a versatile way
- can independently examine and solve problems and retrieve information from different sources

ICT4TF022 Data Security: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to

- understand the needs of enterprise information security and the importance of risk management
- be familiar with the laws and regulations related to information security
- identify company's security risks

- know the company's security policies
- protect against security risks

Contents

Topics to be covered in the course include the following:

- Security and Risk Management
- Protection of information assets
- Security Engineering
- Communications and Network Security
- Identity and Access Management
- Security Assessment and Testing
- Security Operations
- Security in the Software Development
- OWASP

Starting level and linkage with other courses

Student has completed courses Orientation to ICT Infrastructures, ICT1TF010 and Server Technologies, ICT4TF021

Assessment criteria**Grade 1**

Grade 1 (40%)

- Knows the basic concepts of network security.
- Understands the importance of information security to the corporation.
- Knows the basics of information security practices.
- Manages the basics of using information security tools.

Grade 3

Grade 3 (70%)

- Knows the information security concepts well
- Able to perceive how the various information security areas are related to the company's operations.
- Manages security practices well
- Able to use information security tools independently

Grade 5

Grade 5 (90%)

- Knows the information security concepts in depth.
- Able to define and analyze the security requirements resulting from the activities of the company.
- Able to develop security practices.
- Knows how to use information security tools excellently.

ICT4TF024 Cloud Service Technologies: 5 op**Learning objectives**

After completing the course, the student knows cloud computing technologies and applications. The student understands the basic mechanism of cloud computing and implementations. The student knows the foundational services and cloud offerings provided by the top tier Public Cloud providers. Student understands the Cloud Computing terminology and the generic Cloud Computing Frameworks used in cloud computing systems and s(he) can choose the suitable cloud computing

technologies and offerings for IT the services in businesses.

Contents

Topics covered in the course:

- * Benefits and challenges of cloud computing
- * Most common cloud usage methods: IAAS, PAAS, SAAS, XAAS

Cloud Computing in Enterprise environment

- * Cloud implementation / provisioning types: Private, Public, Hybrid Clouds, serverless cloud services
- * Virtualisation in cloud computing
- * Most common commercial cloud computing services
- * Open source cloud computing systems
- * Seminar presentations about cloud computing
- * Benefits and Economics of Cloud Computing
- * Full AWS Academy Cloud Practitioner Certification Preparation Course

Starting level and linkage with other courses

Course prerequisites:

- * Student can install and administer Windows or Linux-servers and IP-networks.
- * Student should have hands on experience and working knowledge of SME Corporate IT-services

Recommended skills prior attending:

- * Cisco RSCCNA 1 version 6.x or later
- * Linux operating systems
- * Windows server administration

Assessment criteria

Grade 1

Course grade is composed from multiple weighted and evaluated parts according to the following table:

- * Labs and AWS Cloud Practitioner: 30%
- * Presentation: 20%
- * Written Exam: 50%

Grading:

50 -59 Grade: 1

Grade 3

Course grade is composed from multiple weighted and evaluated parts according to the following table:

- * Labs and AWS Cloud Practitioner: 30%
- * Presentation: 20%
- * Written Exam: 50%

Grading:

70 - 79 Grade: 3

Grade 5

Course grade is composed from multiple weighted and evaluated parts according to the following table:

- * Labs and AWS Cloud Practitioner: 30%
- * Presentation: 20%
- * Written Exam: 50%

Grading:

90 - 100 Grade: 5

Approved/ Failed

Course grade is composed from multiple weighted and evaluated parts according to the following table:

- * Labs and AWS Cloud Practitioner: 30%
- * Presentation: 20%
- * Written Exam: 50%

Grading:

< 50% Grade: 0
50 -59 Grade: 1
60 - 69 Grade: 2
70 - 79 Grade: 3
80 -89 Grade: 4
90 - 100 Grade: 5

ICT8TF001 IoT Experimental Project: 5 op

Learning objectives

Upon successful completion of the course, the student is able to ideate, research, design, and implement an IoT device that complies with the design requirements set by the client.

Contents

- Introduction to IoT
- Non-connected System on a Chip (SoC) devices such as Arduinos
- Basic sensors and Arduino shields
- Basic circuitry
- Basic sensors and actuators (ultrasound, light, sound, touch, servos, DC motors)
- Bluetooth capable SoC devices
- Network-aware devices such as ESP32, LORAWan etc.
- IoT devices built out of the basic parts
- Sending and receiving data via the Internet
- Ideation, idea research, implementation cycle
- Building the device
- Testing and maintaining

Starting level and linkage with other courses

Innovation and Project Work

Assessment criteria

Grade 1

Knowledge - The student has limited understanding of IoT. He/she is able to describe how a basic IoT device can be made

Skills - The student has good skills in using available parts in IoT design and can come up with a

simple device.

Competence - The student shows satisfactory activity and initiative in learning process.

Grade 3

Knowledge - The student is able to ideate and describe how to produce an IoT device as part of the team.

Skills - The student has good skills in using available parts in IoT design and can come up with a simple device.

Competence - The student shows activity and initiative in learning process. He/she is willing to develop his/her IoT skills further.

Grade 5

Knowledge - The student has a good understanding of the IoT world and able to ideate various credible approaches towards a given IoT device

Skills - The student has excellent skills in designing innovative approaches towards the IoT device and delivering a competent, working device.

Competence - The student shows excellent activity and initiative in the learning process. He/she is independently taking his/her skills further using other online tutorials than those in the course.

DIGIEBIG-1001 Business and ICT: 63 op

BIG4TF002 SAP ERP 1: 5 op

Learning objectives

Upon successful completion of this course, the student...

Understands core business processes and structure of ERP systems.

Understands the projects related to ERP systems.

Has hands-on skills for using SAP ERP system.

Contents

The topics of this course are as follows:

Getting familiar with core business processes in SAP ERP system.

Structure and modules of integrated systems

Core business processes: Order-to-Cash, Procure-to-Pay, Plan-to-Produce

ERP-projects / system implementation

Starting level and linkage with other courses

Pre-requisite: Orientation to Business and ICT or equivalent knowledge

Assessment criteria

Grade 1

Grade 1 (40%)

Student has sufficient knowledge of ERP basic concepts and business processes. Student has weak hands-on skills in use of SAP ERP system

Grade 3

Grade 3 (70%)

Student has good knowledge of ERP basic concepts and business processes. Student has good hands-on skills in use of SAP ERP system.

Grade 5**Grade 5 (90%)**

Student has excellent knowledge of SAP ERP basic concepts and business processes. Student has very good hands-on skills in use of SAP ERP system.

BIG4TF003 Business Process Management: 5 op**Learning objectives**

Upon successful completion of this course, the student should be able to

- Explain and comprehend the role of BPM in business development
- Describe and discuss general principles of business process development
- Identify, present, analyze and design basic business processes
- Use standard modelling techniques to describe, present and discuss business processes

Contents

The topics of this course are as follows:

- The basic principles in and objectives of BPM
- Process orientation
- Process modeling (BPMN) and process execution (BPMS)
- Process maturity and process development methods
- Performance measures & KPIs
- Analysis, discussion and presentation of a case company's processes or other task

Starting level and linkage with other courses

No prerequisites.

Assessment criteria**Grade 1**

The evaluation scale for an accepted course contains grades 1 to 5.

The student

- Has participated in some course activities, but activity could clearly be better
- Has a passable understanding of the course contents, core concepts and terminology
- Has some knowledge and skills in modelling, describing and analyzing process
- Has some difficulties in using the course material to support own learning

Grade 3

The student

- Has shown reasonable activity on the course
- Has a good understanding of the course contents, core concepts and terminology
- Has basic skills in modelling, describing and analyzing process
- Can use the course material in an effective way to support own learning

Grade 5

The student

- Has shown excellent activity and punctuality on the course
- Masters in an excellent way the course contents, core concepts and terminology
- Has good skills in modelling, describing and analyzing process
- Uses the course materials and independently found sources fluently to support own learning.

Approved/ Failed

The student need to apply to the deadlines set up for start-up module and other modules.

The student need to achieve $\geq 50\%$ of the max course points

If the implementation has an exam , 50% of the total exam points is required

BIG4TF004 Managing CRM Processes: 5 op**Learning objectives**

Upon successful completion of the course, the student

will learn what the term CRM means

will understand the value of data for CRM use purposes

can evaluate business requirements for CRM

gain practical experiences how to use CRM information system (Salesforce)

Contents

Theoretical part of CRM

- marketing, customer relationship management
- operational CRM
- analytical CRM
- collaborational CRM
- digital footprint
- how web pages are collecting customer data
- Salesforce practical excersizes/ Salesforce trails

CRM as a business concept

Introduction to marketing models: Mass marketing vs. Relationship marketing

Self study part based on literal research

Web as a CRM and mass surveillance platform:

How customer data can be collected in the

How users on the web can protect their privacy (hands on guidance included)

CRM and business requirements

Feasibility study

Hands on method how to integrate feasibility study requirements into CRM processes

Hands on exercises on cloud based CRM system

Final report

The final report presents how to integrate business requirements

Identify what are the technical, service and business needs before CRM can be utilized in business

Starting level and linkage with other courses

No prerequisites

Further information

- possibility to get Salesforce badges (useful in CV)

Assessment criteria

Grade 1

Good knowledge of the course subject. Collected more than 45% of the total course points.

Grade 3

Good knowledge of the course subject. Collected more than 65% of the total course points.

Grade 5

Excellent knowledge of the course subject. Collected 90% of maximum amount of the course points.

BIG4TF021 SAP ERP 2: 5 op**Learning objectives**

Upon successful completion of this course, the student:

Is able to work independently with advanced business processes in SAP ERP system.

Is able to configure SAP ERP system within areas in course content (Financials & accounting (FI), Purchasing (MM) and Sales & Distribution (SD)).

Contents

Course is based on practical advanced project assignment in SAP S/4 HANA -system. All project phases include written reporting.

Starting level and linkage with other courses

pre-requisite: SAP ERP 1 or equivalent knowledge

Assessment criteria**Grade 1**

Student understands functionality of ERP-system and system configuration at sufficient level.

Student has no skills to solve problems in system independently, but constant help is needed.

Grade 3

Student understands functionality of ERP-system and system configuration at good level.

Student has skills to solve problems in system independently, just some help is needed.

Grade 5

Student understands functionality of ERP-system and system configuration at excellent level.

Student has very good configuration skills in SAP ERP system. Student has skills to solve problems in system independently

BIG8TF005 Requirements Analysis: 5 op**Learning objectives**

Upon completion of this course, the student

- is familiar with the terminology and array of concepts that are relevant to the area of processing requirements on an information system,
- is familiar with the body of relevant research material of the area and methods to get at it,
- can apply his or her knowledge of the terminology and understanding of the concepts in real-life information system development situations,
- understands the dialogue between the system being developed and the system that is developing in a general business development situation, and can apply the understanding to manage information system development efforts,

- is in process of building a social network part of which is a real-life development concept and another part of which is a usable selection of information sources, and
- has a sound curiosity towards the area of processing requirements on an information system being developed and which curiosity he or she uses to learn more.

Contents

Course contents (relevant topics):

- Defining Requirements.
- Requirements Discovery.
- Classifying Requirements.
- Techniques for Eliciting Requirements.
- Sources and Authorities.
- Managing Requirements.

Starting level and linkage with other courses

This course has no formal prerequisites but students who have a grade on the courses Orientation to Business and ICT, Business Process Management, Orientation to Software Engineering and Orientation to Digital Services are in the best position to get the full gain of this course.

Assessment criteria**Grade 1**

The student

- can identify, list and combine the main concepts and terminology discussed in the course,
 - has some understanding of the basic ways to obtain, model and manage information describing requirements for an information system,
- has some understanding of the main issues associated with the activities mentioned above, and
- often needs assistance in solving basic problems with the assistance in form of dictation and has difficulties in using theoretical materials to support his or her learning.

Grade 3

The student

- has good understanding of the concepts and terminology discussed in the course,
- has good understanding of the basic ways to obtain, model and manage information describing requirements for an information system,
- has good understanding of the main issues associated with the activities mentioned above,
- sometimes needs assistance in solving basic problems with the occasional assistance in form of dialogue,
- can use the theoretical materials in an effective way to support his or her learning, and
- can find more information from additional sources.

Grade 5

The student

- has excellent understanding of the concepts and terminology discussed in the course,
- has excellent understanding of the basic ways to obtain, model and manage information describing requirements for an information system,
- has excellent understanding of the main issues associated with the activities mentioned above,
- can solve problems independently, the eventual assistance being in form of dialogue,
- can fluently use the course materials and other sources to support his or her learning,
- can independently find more information from additional sources,
- can independently learn more details of course topics, and
- can eventually transfer and apply knowledge from other contexts.

BIG8TF008 Financial Accounting, Processes and Systems: 5 op**Learning objectives**

After passing this course the student

is familiar with the basic accounting concepts and can identify common accounting processes
understands the importance of accounting and accounting processes in the business environment
has a solid understanding of the business process integration to accounting in an integrated systems
has a basic knowledge of Microsoft Dynamics Nav accounting functionality and knows how to
customize the accounting processes in Microsoft Dynamics Nav
has gained some experience of SAP ERP accounting functionality (FI) and is familiar with the main
concepts of FI and CO

Contents

The basic accounting principles and processes in a business environment
The sales and purchase process and the integration to accounting in a business environment
Microsoft Dynamics Nav and SAP 4/Hana – sales and purchases, integration and accounting
processes

Starting level and linkage with other courses

Preferably the student is familiar with ERP and other main concepts in Business and ICT.

Assessment criteria**Grade 1**

Student:

Has sufficient knowledge of the basic accounting concepts and principles.
Is familiar with the main accounting processes and their role in a business environment.
Has sufficient knowledge of SAP ERP FI/CO basic concepts and of the basic accounting processes
in SAP ERP.
Has some skills in customizing the accounting processes in Microsoft Dynamics Nav.
Has a general understanding of business integration in SAP ECC and Microsoft Dynamics Nav ERP-
systems.

Grade 3

Student in addition:

Has a good knowledge of the basic accounting concepts and principles.
Is familiar with the main accounting processes and their role in a business environment.
Has a good knowledge of SAP ERP FI/CO basic concepts and of the basic accounting processes in
SAP ERP.
Has good skills in customizing the accounting processes in Microsoft Dynamics Nav.
Has a good general understanding of business integration in SAP ERP and Microsoft Dynamics Nav
ERP-systems.

Grade 5

Student in addition:

Has a very good knowledge of the basic accounting concepts and principles.
Is very familiar with the main accounting processes and their role in a business environment.

Has excellent knowledge of SAP ERP FI/CO basic concepts and of the basic accounting processes in SAP ERP.

Has excellent skills in customizing the accounting processes in Microsoft Dynamics Nav.

Has a very good general understanding of business integration in SAP ECC and Microsoft Dynamics Nav ERP systems.

PRO4TF022 Business IT Project: 10 op

Learning objectives

Upon successful completion of this course:

- the student understands the IT development process in regards to a real Business/ICT project
- has gained experience as team member and/or Team manager

Contents

The student will participate as a team member or project leader in a project in one of the following main focus areas:

Integrated Systems and Enterprise Resource Planning
Customer Relationship Management
Supply Chain Management
Financial Accounting and Controlling
Business Intelligence and Analytics

The type and purpose of the project is generally based on a commission and could be containing:

Process development and/or testing
Process modelling and design
System/Version upgrade
Data migration and/or Data management
Reporting and Analytics
Training and User support

Starting level and linkage with other courses

The student must have passed the courses Orientation to Business and ICT and Business Operations, and have successfully passed at least one of the following courses Business Process Management, SAP ERP 1, SAP ERP 2. Managing CRM Processes, SCM in Business and Business Intelligence, Basics of AI, Advanced AI or similar courses in other degree programs.

Assessment criteria

Grade 1

Grade 1

The student has participated in the project but the individual contribution is minor and/or the quality of the project deliverables are not or barely fulfilling the target.

Grade 3

Grade 3

The student has well participated in the project and the individual contribution is on a good level with timely and qualitative deliverables.

Grade 5

Grade 5

The student has been a key member of the project and the individual contribution has clearly had a great impact on the project outcome. And / Or

The project has overall been successful and reached all goals set.

Approved/ Failed

Assessment criteria for Grade 1

BIG4TF022 Business Intelligence: 5 op**Learning objectives**

Upon successful completion of the course, the student

- a) understands the importance of Business Intelligence in today's competitive business environment
- b) is familiar with the basic concepts, BI architectures, methodologies and strategies as well as with tools and methods used in the business environment
- c) has basic knowledge of the ETL process
- d) has basic understanding of business driven agile BI-development
- e) has gained basic skills in two word leading BI-tools

Contents

Start-up Module + 4 Modules

- Orientation to Business Intelligence
- Business Intelligence solutions and architectures
- Agile development in BI-projects
- Business Intelligence tools
- Microsoft Business Intelligence and Power BI
- Qlikview / QlikSense
- Hands on workshops with BI-tools

Starting level and linkage with other courses

It is recommended that students have more than

80 credit points registered before course start. Knowledge of ERP systems, data structures and business processes are helpful

Further information

The software tools and languages used on the course are international. The language of the course material is in English. Students from many nationalities work together in class on hands-on and/or projects.

Assessment criteria**Grade 1**

The student:

- a) has a basic understanding of the importance of Business Intelligence
- b) is familiar with at least some of the basic concepts, architectures, methodologies, strategies, tools or technics in BI
- c) has basic skills in using market leading BI tools for analyzing business information and data

Grade 3

The student:

- a) has a good understanding of the importance of Business Intelligence

- b) is quite familiar with the basic concepts, architectures, methodologies, strategies, tools and technics in BI
- c) is aware of the steps in the planning process of BI solutions
- d) has some skills in using market leading BI tools for analyzing business information and data

Grade 5

The student:

- a) has a very good understanding of the importance of Business Intelligence
- b) is very familiar with the basic concepts, architectures, methodologies, strategies, tools and technics in BI
- c) is well aware of the steps in the planning process of BI solutions
- d) has good skills in using market leading BI tools for analyzing business information and data

Approved/ Failed

The student need to apply to the deadlines for start-up Module and other Modules - defined in the implementation plan and Moodle
More than 50% of max course points

BIG4TF023 Business Intelligence Development Project: 5 op**Learning objectives**

Upon successful completion of the course, the student

- a) understands the value of business driven BI-development
- b) is knowledgeable of Microsoft SSAS Tabular and SSIS tools/architecture
- c) understands the value of supporting business processes by BI-solutions
- d) has gained experience in creating a BI-solution by using agile development and market leading tools to extract data from an ERP system
- e) has learned to document the created solution and the process

Contents

- Microsoft SSAS Tabular and SSIS
- Tableau introduction , as a possible architecture for the project
- understanding data structures (ERP) and related business processes (O2C and P2P)
- planning, developing and testing a complete BI
- solution based on selected user stories
- documenting and presenting the BI development process and solution

Starting level and linkage with other courses

It is mandatory that students have passed the BIG4TF022 basic course before student can start this course.

Assessment criteria**Grade 1**

The student:

- a) has a basic understanding of the agile BI development process
- b) is familiar with data structures and related business processes
- c) has gained some understanding in planning and developing a BI-solution

d) is able to utilize market leading tools to create a BI-solution

More precise Assessment criteria:

To achieve the grade 1 it would be expected that the student:

- has worked independently
- has followed instructions
- has planned the project and presented the project planning
- has planned and fulfilled a basic solution
- has created a final solution
- has utilized tools/architecture
- has reported and presented the solution

Grade 3

The student:

- a) has a good understanding of the agile BI development process
- b) is knowledgeable of data structures and related business processes
- c) has good insights in regards to planning and developing a BI -solution
- d) is confident in utilizing market leading tools to create a BI-solution

More precise Assessment criteria:

To achieve the grade 3 it would be expected that the student:

- has worked independently
- has followed instructions and deadlines
- has planned the project and presented the project planning reasonably well
- has planned and fulfilled a basic solution, the created and presented solution is pretty ordinary
- has created a final solution that corresponds to the plan or there are explanations and reasons why not
- has utilized good capabilities of the selected tools/architecture
- has used at least to some extent a systematic agile approach with iterations
- has reported and presented the solution
- is able in all communications to discuss using BI and ICT terminology
- has done all required prior modules and reported them ok

Grade 5

The student:

- a) has a very good understanding of the agile BI development process
- b) is very knowledgeable of data structures and related business processes
- c) has excellent skills in regards to planning and developing a BI -solution
- d) is mastering market leading tools to create a BI-solution

More precise Assessment criteria:

To achieve the highest grade it would be expected that the student:

- has worked independently
- has followed instructions and main deadlines without exceptions
- has well planned the project and presented the project planning well
- has planned and fulfilled more than just a basic solution, the created and presented solution has

some specialty, some finding or includes an interesting/innovative approach

- has created a final solution that corresponds well to the plan or there are clear explanations and reasons why not
- has utilized good capabilities of the selected tools/architecture
- has clearly used a systematic agile approach with iterations
- has well reported and presented the solution
- is able in all communications to discuss using good BI and ICT terminology
- has done all required prior modules and reported them ok

Approved/ Failed

The student need to apply to deadlines specified in the implementation plan and Moodle

The student need to fulfill the assessment criteria for Grade 1

TOO8TF006 Excel in Business: 3 op**Learning objectives**

Upon successful completion of the course, the student can learn how to use Excel in finance, analytics and management accounting. Application areas are financial reporting, business analysis and ICT development. Students can learn different kind of Excel functions. They will also get extra knowledge in development of data to information

Contents

Orientation to business concepts and business reporting

Excel Formulas mostly needed in business

The value of data - building business knowledge with Excel

Business analytics with Excel

Charts & Pivots

Stock Portfolio Management

Financial & Investment Computing

Macros, VBA,

Templates

Assignments only, no exam.

Starting level and linkage with other courses

Basic skills of using Excel and knowledge of business processes are required. The course is suitable for students of all business branches.

Assessment criteria**Grade 1**

Grading is based on the quality of assignments, all of those are graded. 45% of max. points.

Grade 3

Grading is based on the quality of assignments, all of those are graded. 70% of max. points.

Grade 5

Grading is based on the quality of assignments, all of those are graded. 85% of max. points.

Approved/ Failed

Grading is based on the quality of assignments, all of those are graded. 45% of max. points.

BIG8TN001 Basics of AI: 5 op**Learning objectives**

Upon completion of the course, the student is able to:

- * understand what is AI and how it can affect business
- * recognize opportunities of AI in different domains
- * is able to analyze and visualize data
- * knows the basic statistical methods used in data analysis
- * knows how to use software to perform data analysis
- * knows how to apply some basic methods used in AI
- * knows trends in AI
- * can recognize ethical challenges related to applying AI in business

Contents

- * definition of AI and basic concepts related to it
- * business cases where AI is used
- * methods and software for data analysis and visualization
- * basics of statistical data analysis methods
- * application of AI methods in a project work
- * recent trends in AI
- * ethical issues in AI

BUS8TF711 SAP TERP10 Certification exam: 3 op**Learning objectives**

To complete SAP TERP10 certificate.

Contents

This is additional part of the course "TERP10 - Integration of Business Processes in SAP ERP.

(3 credits if SAP TERP10 certificate is completed)

BUS8TF712 Project Management Championship: 5 op**Learning objectives**

The course description here is in English, but the course is mostly bilingual and teams willing to have this course in Finnish is possible except the multi-choice questions on qualification round are in English.

HUOM! Kurssi ja siihen kuuluva kilpailu on siis suoritettavissa pääosin myös suomeksi.

The course is organized in co-operation with Finnish Project Association, (www.pry.fi). The course as such is two-fold,

1) training and preparing for the competition (PMC) in collaboration with Haaga-Helia's teacher of this course and

2) participating on the Project Championship held by Finnish Project Association, a member of IPMA, International Project Management Association.

About the actual competition, part 2, please ask information in more detailed from the responsible teacher of this course (Pekka Kamaja).

The participating team will achieve the knowledge of managing projects comparable to the IPMA D-level certificate. Thus, the competition is good training for applying the D-certificate which is well-known and recognized document in working life.

Contents

Content is about project management, project phases, project types and the nature (role) of business case in Projects. Yet, the responsibilities by parties in project, team formation and management and change management belong to the subjects of the course.

The competition is run in two rounds, the qualification round and finals. The qualification round is open beginning of November until the end of March each year which enables students from both the fall and spring semester to participate on this competition.

More, please see: <http://www.become.pm/projectmanagementchampionships/registration/>

Starting level and linkage with other courses

Basic knowledge about project management is crucial and working experience of projects is highly recommendable.

The organizer of PMC (PRY/IPMA) has set the following conditions for the participation:

- 1) only teams of 3-4 members are accepted, not individuals;
- 2) each team member must be under 35 years of age.

Further information

Learning on the course is training for the actual competition and it is organized in terms of team meetings where the teacher coaches the teams. The more detailed information is given on Moodle. To get there you need to enroll on Peppi (mynet) on this course, PMC.

The final is possible only for one team from Haaga-Helia. Additional work worth for 2 cr is negotiable for other teams disqualified in the qualification round.

Coaching would give preparedness to solve problems involved in the three main areas of project management: Behavioral, Technology and Content oriented tasks/questions that are the content on the main reference used on the course.

The team heading to the final shall prepare to analyse a challenging project management problem that is investigated and reported in one day session at organizer's premises Eteläranta 10, Hki. Coaching by teacher for the finals is based on reviewing the old PMC assignments.

At the end of final the team will give a PowerPoint presentation to the Jury of competition.

The winner of national competition will be the representative of Finland in the International Competition later.

Assessment criteria**Grade 1**

41 – 50 % from the total points in qualification test

Grade 2:

51 – 60 % from the total points in qualification test

Grade 3

61 – 70 % from the total points in qualification test

Grade 4:

The score in PMC qualification round passes the criterion of acceptance to Finals (all accepted teams are not taken into Finals).

Grade 5

The team is accepted to Finals in PMC.

BUS8TF713 TS410 - Integrated Business Processes in SAP S/4HANA: 5 op

BUS8TF714 SAP TS410 Certification Exam: 3 op

DIGIEWPL-1001 WORK PLACEMENT: 30 op

PLA6TF001 Work Placement: 30 op

Learning objectives

After completing the Work placement student knows how

- identify and evaluate their own professional strengths and areas for development, especially from the perspective of work tasks in information technology and data processing
- act in accordance with the rules of the work community
- evaluate the organisation's activities and, if necessary, make justified development proposals
- Continuously develop and update their working life skills and study and career plans

PLA6TF005 Work Placement: 15 op

Learning objectives

After completing the Work placement student knows how to

- identify and evaluate their own professional strengths and areas for development
- act in accordance with the rules of the work community
- evaluate the organisation's activities and, if necessary, make justified development proposals
- Continuously develop and update their working life skills and study and career plans

PLA6TF002 Work Placement: 15 op

Learning objectives

After completing the Work placement student knows how

- identify and evaluate their own professional strengths and areas for development, especially from the perspective of work tasks in information technology and data processing
- act in accordance with the rules of the work community
- evaluate the organisation's activities and, if necessary, make justified development proposals
- Continuously develop and update their working life skills and study and career plans

DIGIEFREE-1001 FREE CHOICE STUDIES: 25 op

DIGIETHE-1001 BACHELOR'S THESIS: 15 op**THE7TF900 Thesis Seminar and Workshop: 0 op****Learning objectives**

Understand what kind of theses exist and what are their requirements and evaluation principles. Also the thesis writing process will be familiar to the student. After the workshops the student is capable for doing a thesis independently.

Contents

General guidelines for doing thesis in HAAGA-HELIA

Different types of thesis

Personal discussions about topics

The studies consist of workshops and seminars. In workshops the thesis process is discussed and thesis writing will be started.

THE7HH801 Thesis Phase 1: 5 op**Learning objectives**

Upon completion of the module, the student is able to

- Know different stages of the thesis process
- Know the aim of her/his thesis
- Search for information in a variety of reliable sources.
- Define the key concepts of her/his thesis.
- Create a realistic schedule for her/his thesis
- Know requirements and the basic structure of the thesis.
- plan a research-based development project outline.

Contents

- Thesis at Haaga-Helia
- Thesis process and progress in Wihi
- Student's role and responsibilities during the thesis process
- Confidentiality in theses
- Content and extent of the thesis
- Content and extent of a research-based development project
- Source information search, reliable information and critical evaluation of them.
- Formal referencing
- Selection criteria for research and innovation methods
- Thesis reporting according to Haaga-Helia reporting guidelines
- Self management during the thesis process.

Starting level and linkage with other courses

Studies specified by the degree.

Assessment criteria**Grade 1**

[See thesis assessment criteria in haaga-helia.fi](#)

Grade 3

[See thesis assessment criteria in haaga-helia.fi](#)

Grade 5

[See thesis assessment criteria in haaga-helia.fi](#)

Approved/ Failed

During the thesis process, progress is graded as pass/fail according to degree-specific objectives. After the thesis evaluation process is completed, H for "pass" is replaced by the thesis grade.

To pass the module all assignments (incl. research based development project outline = thesis outline) must be submitted and approved.

Research based development project outline is uploaded in Wihi and a thesis supervisor has approved it.

THE7HH802 Thesis Phase 2: 5 op

Learning objectives

The student knows how to use relevant source material, apply suitable methods and follow reporting guidelines.

Contents

2/3 completed thesis, according to programme-specific guidelines and principles

Starting level and linkage with other courses

Thesis phase 1 completed

Assessment criteria

Grade 1

See thesis assessment criteria in MyNet

Grade 3

See thesis assessment criteria in MyNet

Grade 5

See thesis assessment criteria in MyNet

Approved/ Failed

During the thesis process, progress is graded as pass/fail according to programme-specific objectives.

After the thesis evaluation process is completed, H for "pass" is replaced by the thesis grade.

THE7HH803 Thesis Phase 3: 5 op

Learning objectives

The student finishes the thesis according to the Haaga-Helia guidelines and thesis schedule.

Contents

- finalizing the thesis

- publishing the thesis

Starting level and linkage with other courses

Thesis phases 1/3 and 2/3 completed. Phase 3/3 cannot be approved before the maturity exam and plagiarism check have been passed.

Assessment criteria**Grade 1**

See thesis assessment criteria in MyNet

Grade 3

See thesis assessment criteria in MyNet

Grade 5

See thesis assessment criteria in MyNet

Approved/ Failed

See thesis assessment criteria in MyNet

THE7HH804 Maturity Test: 0 op**Learning objectives**

The maturity examination is a learning experience which aims at helping the student polish his/her communication skills. Also, the aim is to present the proficiency of the student as well as the contents of the thesis.

The maturity test demonstrates the student's familiarity and expertise in the subject field of the thesis as well as language competency in Finnish or Swedish, as required in Finnish legislation (A1129/2014, § 8).

The language required for the maturity test is determined by the language the student studied as first language/mother tongue during secondary level education. The maturity test also serves as a demonstration of spoken and written competence in the language in question. The language of the maturity exam is also marked in the degree certificate.

Contents

In Haaga-Helia, the maturity test can take one of three forms, as agreed with the thesis advisor: an essay, an item for a staff newsletter or a media release. The maturity test is not the same as an exam answer.

Starting level and linkage with other courses

The thesis is completed.

Further information

See instructions in MyNet