Catalogue report

LUT School of Business and Management

Master's Programme in Computer Science

Study Guide includes the following master's programmes for academic year 2017-18:

Computer Science master's programmes

• Software Engineering
• Erasmus Mundus Master's Programme in Pervasive Computing and Communications for Sustainable Development (PERCCOM)
• Double Degree Programme in Computer Science

Facts

- Degree Master of Science in Technology (M.Sc. Tech.), (Diplomi-insinööri DI in Finnish)
- Higher university degree, gives eligibility to scientific doctoral studies
- Extent 120 ECTS credits
- Duration 2 years

Learning Outcomes of the Master's Programme in Computer Science

The graduates from the Master's degree programme in Computer Science, M.Sc.(Tech)
• are able to apply scientific knowledge and methods in practice
• are able to apply modern design techniques and methods in daily software engineering
• are able to participate in software projects in the role of an expert or as a project manager
• are able to recognise problems in software development and improve processes from technical, project management, and organisational viewpoints
• are able to communicate both orally and in written form using English language
• have good skills in presenting results, doing project work, leading teams, and working in multicultural environments
• are ready for scientific graduate studies and lifelong learning at work.

Degree structures

Master of Science in Technology, Computer Science 2017-18

Core studies 26 ECTS cr
Spesialisation studies 72 ECTS cr (min.)
Minor studies 20 ECTS cr (min.)
Free elective studies 2 ECTS cr

Master of Science (Tech.) 120 ECTS (min.) credits

PERCCOM and Double Degree follow their own degree structures.

Double Degree Programme in Computer Science(E)

Degree structure status: published

Academic year: 2017-18

Beginning date of the academic year: 01.08.2017

Core and Specialisation Studies (60 - 80 cp)

CT60A7610: Data-Intensive Software Systems, 6 cp
CT10A6001: Master's Thesis, 30 cp
CT60A5102: Models and Methods of Software Engineering, 6 cp
CT10A9511: Research Methods in Software Engineering, 6 cp
CT60A5300: Software Projects, Processes and Entrepreneurship, 6 cp
CT30A8910: Software as a Service: Architectures and Engineering, 6 cp

Studies from the home university 60 cr (60 cp)

Double degree programme in Computer Science is a co-operative degree programme between LUT and an international partner university. The students will study one year at their home university and come to LUT for the second year to specialize in Software Engineering. To get the two degrees the student must comply with the regulations of both the universities.

Compensation of the first year studies at the home university to LUT degree is 60 ECTS credits.At LUT they are registered: 26 ECTS cr core studies, 12 ECTS cr specialisation studies, 20 ECTS cr to minor studies and 2 ECTS cr free elective studies from home university.

Free Elective Studies

Recommended: CT10A0015 Introduction to M.Sc. Studies in Computer Science and KIEN0001 Academic Writing in English 4 ECTS cr.

Erasmus Mundus Master's Degree Programme in Pervasive Computing and Communications for Sustainable Development (PERCCOM)

Degree structure status: published

Academic year: 2017-18

Beginning date of the academic year: 01.08.2017

Perccom Core Studies 23 cr (min 23 cp)

PERCCOM Core Studies include also 3 credits from University of Lorraine: French Culture and Language.

And 12 credits from Luleå University of Technology:

- Multimedia Systems

- Swedish for Beginners and

- Seminar.

PERCCOMcore: PERCCOM Core Studies, 23 cp
Obligatory Studies
A350A1000: Transformation of a Modern Industrial Society: The Finnish Model, 2 cp
CT60A9200: Seminar on sustainable software and services 1 (Erasmus Mundus Perccom), 3 cp
CT60A9400: Seminar on sustainable software and services 2(Erasmus Mundus Perccom), 3 cp

Perccom Specialisation Studies 76 cr (min 76 cp)

PERCCOM Specialisation studies include 6 credits from University of Lorraine: Specification of Master's thesis project, and 18 credits from Luleå University of Technology:

- Network Programming and Distributed Applications

- Wireless Sensor Networks / Wireless Mobile Networks

- Special Studies in Pervasive and Mobile Computing.

PERCCOMspec: PERCCOM Specialisation Studies, 76 cp
Obligatory Studies min 76 cr
CT10A7002: Green IT and Sustainable Computing, 6 cp
CT10A7011: Running a Software Project, 6 cp
CT10A7041: Code Camp, 1 - 6 cp
CT30A8921: User and Design Research in Software Engineering, 6 cp
CT10A6001: Master's Thesis, 30 cp

Perccom Minor Studies 21 cr (min 21 cp)

21 credits from University of Lorraine: Sustainable and Resource Efficient Communication.

Perccom Elective Studies

The minimum of the degree is 120 ECTS cr. In PERCCOM the electives are not obligatory, but allowed. Elective studies can include any courses offered by LUT if the prerequisites are fulfilled.

Master's Programme in Computer Science 2017-2018

Degree structure status: published

Academic year: 2017-18

Beginning date of the academic year: 01.08.2017

Core Studies 26 cr (min 26 cp)

CSMCore: Core Studies, Computer Science, 26 - 35 cp
Obligatory Studies 26 cr
CT10A9511: Research Methods in Software Engineering, 6 cp

CT30A8910: Software as a Service: Architectures and Engineering, 6 cp
CT60A5102: Models and Methods of Software Engineering, 6 cp
CT60A5300: Software Projects, Processes and Entrepreneurship, 6 cp
FV11A6500: Presenting in English, 2 cp

Specialisation Studies, Software Engineering 72 cr (min 72 cp)

TiDSyvOhtu: Specialisation Studies, Software Engineering, 62 - 80 cp
Pakolliset opinnot 60 op
CT10A7002: Green IT and Sustainable Computing, 6 cp
CT10A7011: Running a Software Project, 6 cp
CT30A8921: User and Design Research in Software Engineering, 6 cp
CT60A7510: Design Patterns, 6 cp
CT60A7610: Data-Intensive Software Systems, 6 cp
CT10A6001: Master's Thesis, 30 cp
Vaihtoehtoiset opinnot min. 20 op
CT10A7020: Personal Literature Study, 1 - 6 cp
CT10A7030: Personal Design Science Study, 1 - 6 cp
CT10A7041: Code Camp, 1 - 6 cp
CT10A7061: Visitor’s Viewpoint on Software Engineering, 1 - 6 cp
CT10A9520: Research Project in Software Engineering, 1 - 10 cp
CT30A5003: Games and Networking, 6 cp
CT60A5400: Fundamentals of Game Development, 6 cp
CT60A7102: Seminar on Software Engineering, 6 cp
CT60A7322: Software Business Development, 3 cp
CS30A7402: Software and Application Innovation, 6 cp
BL40A1101: Embedded System Programming, 5 cp
CT10A0510: Work Internship in Master's Degree, 3 - 10 cp

Minor Studies min 20 cr (20 - 30 cp)

The Minor can be selected freely form any LUT minor studies. Computer Science degree programme recommends the Entrepreneurship (TuSOEntr) and International Business and Management (KaSOIbm) minors.

Free Elective Studies 2 cr (min 2 cp)

Elective studies can include any courses offered by LUT if the required prerequisites are fulfilled. The programme recommends CT10A0015 Introduction to M.Sc. Studies in Computer Science 1 cr and KIEN0001 Academic Writing in English 4 cr courses. Studies in other universities may be included upon application.

Courses and study modules not included in degree structures

The Minor can be selected freely from any LUT minor studies. The minimum of minor studies is 20 ECTS credits. Computer Science degree programme recommends the Entrepreneurship (TuSOEntr) and International Business and Management (KaSOIbm) minors.

TuSOEntr: Entrepreneurship, minor, 20 - 35 cp
Elective studies

CS30A1372: Creative Design and Problem Solving, 6 cp
CS30A1691: Social Sustainability, 6 cp
CS34A0302: Entrepreneurship Theory, 6 cp
CS34A0401: Strategic Entrepreneurship in an Age of Uncertainty, 6 cp
CS34A0551: Business Idea Development, 6 cp
CS34A0721: Entrepreneurship, ownership and family firms, 6 cp
A330A5101SS: Creativity and Entrepreneurship in New Product Development from Silicon Valley's Perspectives, 3 cp

KaSOIbm: International Business and Management, 21 - 35 cp

Obligatory courses 21 cr

A370A0401: Case-Course of Business, 6 cp
A380A0000: Cross-Cultural Issues in International Business, 6 cp
A380A0200: Promotion and Sales Management, 6 cp
A380A6050: Introduction to International Business and Planning, 3 cp

Elective 3 cr (if 24 cr minor needed)

A380A6000: Cross-Cultural Encounters, 3 cp

Course descriptions

Descriptions of courses and study modules included in the degree structures

CT60A7610: Data-Intensive Software Systems, 6 cp

Validity: 01.01.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ajantha Dahanayake

Note:
Can't be included into a same degree as CT60A7600 Distributed Database Systems.
Year:
M.Sc. (Tech.) 1
Period:
1-2
Teaching Language:
English
Teacher(s) in Charge:
Professor, PhD Ajantha Dahanayake
Aims:
At the end of the course students have an understanding of the main challenges and techniques in the design and implementation of distributed database systems
for complex distributed software systems such as e-commerce platforms such as Amazon.
Students gain the understanding of concepts and principles underlying the functioning of distributed database systems as well as their implementation.
Contents:
Introduction to distributed database systems, distributed database applications, databases systems and internet, distributed data storage and retrieval,
data scalability, performance, data warehousing and data mining from the perspective of value creation and

communication in distributed systems,
advanced topics in databases such as security, authorization, modeling and programing for semi-structured data, secondary storage management, query execution.
Teaching Methods:
Lectures 14 h, homework work 20 h, 1. period.
Lectures 14 h, homework 20 h, 2. period.
Reading assignments, 2 hands on team project assignments 88 h. Total 156 h.
Examination in Examination schedule (Yes/No):
No
Examination in Moodle (Yes/No):
No
Examination in Exam (Yes/No):
No
Assessment:
0-5. Individual assignments = 40%. Project Assignments = 60%
Course Materials:
M. Tamer Özsu, Patrick Valduriez, Principals of Distributed Database Management Systems. 3rd Edition, Springer ISBN 978-1-4419-8833-1

Hector Garcia-Molina, Jeffrey D. Ullman and Jennifer Widom: Database Systems : The Complete Book, Pearson Prentice Hall 2nd Edition, 2009

Tanenbaum and M. Van Steen: Distributed Systems; Principles and paradigms, Pearson Education 2007
Matteo Golfarelli, Stefano Rizzi Data Warehouse Design: Modern Principles and Methodologies, Mc Graw Hill 2009.
Weka 2: Data Mining Software in Java. (Open Source)
Prerequisites:
CT30A3202 Webbed Applications or equivalent
CT30A3401 Distributed Systems or equivalent
CT60A4302 Databases

Places for exchange-students? (Yes, number/No):
No
Places for Open University Students?(Yes, number/No):
No

CT10A6001: Master's Thesis, 30 cp

Validity: 01.08.2015 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Year:
M.Sc. (Tech.) 2
Period:
1-4 and summer time
Teaching Language:
English
Teacher(s) in Charge:
Professor, D.Sc. (Tech.) Jari Porras
Aims:
A student is able to independent work and scientific writing, related into specific problems in the field of information technology.
Contents:

An independent thesis done in the field of information technology, according to the instructions given. In the beginning a student must contact the professor responsible. The starting and finishing point of the thesis vary. Before the thesis is returned for grading it must be checked with the Turnitin programme in the moodle page of the course.

Topic of the master's thesis has to be confirmed as soon as the topic has been decided with the supervisor. Use form 1A in UNI-portal.
Teaching Methods:
Master’s Thesis and maturity exam. Total 780 h.
Examination in Examination schedule (Yes/No):
No
Examination in Moodle (Yes/No):
No
Examination in Exam (Yes/No):
No
Assessment:
0 - 5. Master's thesis 100 %.
Prerequisites:
CT10A9500 Research Methods completed and a minimum of 15 ECTS credits of the major studies completed.
Places for exchange-students? (Yes, number/No):
No
Places for Open University Students?(Yes, number/No):
No

CT60A5102: Models and Methods of Software Engineering, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Year:
M.Sc. (Tech.) 1
Period:
1-2
Teaching Language:
English
Teacher(s) in Charge:
Professor, Ph.D., PEng. HDR. Ahmed Seffah
Aims:
The course covers the main software engineering methods including object-oriented, agile, formal as well as traditional approaches. At the end of this course, the students should be able to:
1. Understand and select the appropriate method or methods for the software development project at hand and for the various types of software systems such as critical-safety systems, interactive consumer services, enterprise applications, hardware software, etc.
2. Master the importance of modeling techniques in software engineering and the diverse types of models. Students should be able to explain the concepts of models, meta-models, platforms dependent and independent models, model-to-model transformations, automated code generation from models.
3. Manage, plan, analyze and contribute to the requirements, design, implementation and maintenance of large software products.
4. Understand how human, social and technical factors may have both positive and negative influences on software engineering methods and practices.
5. Identify the challenges facing the software engineering research community as well as the avenues for further investigations.
Contents:

Software Engineering Body of Knowledge (SWEBOK). Principles and foundations of software engineering. Agile software development. Formal methods. Prototyping techniques. Object-oriented design and analysis. Data-centric methods. Model-driven architecture (MDA). Modeling techniques. Importance of modeling in software development projects. Software engineering tools. Information, structure and behavioral modeling. Systematic literature review and large case studies on specific models and methods, their uses and abuses such as UML, use cases, user task-based prototypes, Z, B, G-Express and BPMN (Business Process Modeling Notation).

Teaching Methods:

Lectures/seminars on selected topics 24h. Presentations 8h, weekly self-study 48 h (mandatory readings), scientific literature review and case studies 56 h, period 1-2. Research papers 20 h. Total 156 h. The course is designed to be a forum for a scientific discussion and presentations by the professor, students and guests' researchers. Except an introductory lecture, the professor will be mainly acting as a senior project manager and a researcher advising students regarding literature review, reliable information sources on software engineering as well as how to select, review and present a case study on software engineering methods. The students will have to work in a team of 2-3; each team will make 2 presentations in class; each student will have to contribute to the writing of a research paper that can be submitted to a conference or a workshop. Altogether, the presentations provide a systematic framework for selecting the appropriate methods for complex software systems development projects.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Research assignment (60%); research paper (40%) and presentation in class (10%).

Course Materials:

There is no book that covers all the topics addressed in the course. A selection of readings from top journals will be used as basic readings; students are requested to make their own literature review. IEEEE Transactions on Software Engineering IEEE Software ACM Transactions on Software Engineering Methodologies Journal of Software and Systems (JSS) Communication of the ACM The students are encouraged to walkthrough, one of the two following books as a basic introductory reading: R.S Pressman. Software Engineering: A Practitioner's Approach, 7/e, McGraw Hill, 2010 J. Sommerville. Software Engineering. 9/e, Addison Wesley, 2011

Prerequisites:

CT60A4001 Ohjelmistotuotanto

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 48

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-10 places for open university students. More information on the web site for open university instructions.

CT10A9511: Research Methods in Software Engineering, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ajantha Dahanayake

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English
Teacher(s) in Charge:
Professor Ajantha Dahanayake
Aims:
The student will be able to describe the essential concepts and methods in empirical software engineering research. The student will understand the principles of scientific research and reporting and be able to prepare a research plan for a Master's thesis and doctoral studies. Students will be able to do In-depth analysis of: current research trends, research methodologies, data acquisition and analysis, and research findings reporting. Students will be required to conduct a research project in a group setting.
Contents:
Principles of science and scientific communities. Epistemology and ontology in research. The practical research process. Designing research, research questions and hypotheses. Research methods including literature review, qualitative methods, experiments, quantitative methods, and design research. Reporting scientific work.
Teaching Methods:
Lectures 14 h, lecture preparation 7 h, 1st period. Practical assignments: 55 h, 2nd period. Seminars: 14 h, preparing for the seminars 7 h. Reading literature 44 h. Preparation for exam 12 h. Exam 3 h. Total 156 h.
Suitability for doctoral studies (Yes/Leave empty):
Yes
Examination in Examination schedule (Yes/No):
No
Examination in Moodle (Yes/No):
No
Examination in Exam (Yes/No):
No
Assessment:
0-5. continuous evaluation (no Exam), personal work 10%, team work assignments 50%, team paper 40%.
Course Materials:
Mark Saunders, Philip Lewis and Adrian Thornhill, Research Methods for Business Students. 6th edition, Prentice Hall/ Pearson Education ISBN: 978-0-273-70148-4.
Prerequisites:
B.Sc. studies finished.
Places for exchange-students? (Yes, number/No):
No
Places for Open University Students?(Yes, number/No):
This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT60A5300: Software Projects, Processes and Entrepreneurship, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Timo Pihkala, Marita Rautiainen, Suvi Konsti-Laakso, Uolevi Nikula

Year:
M.Sc. (Tech.) 1
Period:
1-2
Teaching Language:
English
Teacher(s) in Charge:
Associate Professor, D.Sc. (Tech.) Uolevi Nikula
Professor, D.Sc. (Econ. & Bus. Adm.) Timo Pihkala

Aims:

The course establishes a solid and common ground on software project management practices, software processes and entrepreneurship in Finland. After the course the students know how to plan and run a software project, how process models are related to software projects, and how an entrepreneur thinks, acts, and establishes a business in Finland.
Contents:
Software project planning, cost estimation and control. Software processes, history, maturity, and state of the practice. Software development teams and organizations. Entrepreneurship theory, entrepreneurial characteristics and skills, business start-up in Finland, LUT supporting entrepreneurship, business idea development, business opportunities, and co-creation processes.
Teaching Methods:
Lectures 14 h, exercises 14 h, assignments & self-study 14 h, team assignments 36 h, 1. period. Lectures 14 h, exercises 14 h, assignments & self-study 14 h, team assignments 36 h, 2. period. Total workload 156 h.
Examination in Examination schedule (Yes/No):
No
Examination in Moodle (Yes/No):
No
Examination in Exam (Yes/No):
No
Assessment:
0 - 5. Weekly and team assignments 100 %, no exam.
Course Materials:
Robillard, Kruchten, and d'Astous: Software Engineering Process with the UPEDU, Addison-Wesley, 2002. Other materials announced in the lectures.
Prerequisites:
Software Engineering CT60A4001 or equivalent.
Places for exchange-students? (Yes, number/No):
Yes, 20
Places for Open University Students?(Yes, number/No):
This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT30A8910: Software as a Service: Architectures and Engineering, 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Note:
Can't be included into a same degree as CT60A7201 Architecture in Systems and Software Development or CT30A8904 Software Systems as a Service: Technology and Engineering.
Year:
M.Sc. (Tech.) 2
Period:
1-2
Teaching Language:
English
Teacher(s) in Charge:
Professor, Ph.D., PEng, HDR. Ahmed Seffah
Aims:
1. Understanding of the service orientation and software as a service as a fundamental shift to producing, deploying and using software applications, as well as a domain for academic research.
2. Architecting and implementing service systems and Web services that merge business and technical requirements to support the needs of an organization.
3. Mastering the technology used in modeling, designing, and composing services to create an effective SOA-

based application.
4. Understanding the new business challenges and opportunities of software as a service versus shrink-wrapped software systems.
5. Applying the SOA (software-oriented architecture) and software architecture principles and techniques to the design, programming, testing, and public cloud deployment of Web services-based systems.
Contents:
Service-orientation fundamentals and principles. Software as a Service (SaaS). Internet of services. Platform and software engineering tools as a Service (PaaS). Infrastructure as a service (IaaS). Service-Oriented Architecture (SOA) principles and technologies. Service design patterns. Security, sustainability, and privacy. SOA governance. Service lifecycle management. Web services programming. Successful and failures stories from industry. Large team-oriented project on service systems for sustainability innovation. Sustainability is addressed at two different levels in this course: 1. Similar to security and other software quality attributes, sustainability is defined as a key quality attribute of a service system 2. Students are encouraged to consider projects related to the re-engineering of existing software systems and/or the development of innovative services to support sustainability development including the management of natural resources consumption as well as the ways software services can make citizens more aware about their impacts on the environment.
Teaching Methods:
Lectures 16 h, lecture preparation (weekly mandatory readings) 24 h, in class exercises 16h, practical analysis, design and development team-oriented project 64 h, Self-study and research poster 24 h. Final exam preparation 10h. Final exam (open book) 2 h. Total 156 h.
Examination in Examination schedule (Yes/No):
No
Examination in Moodle (Yes/No):
No
Examination in Exam (Yes/No):
No
Assessment:
0-5. Final Exam 30%, Practical design, Practical analysis, design and programming project 40%, research posters 30%.
Course Materials:
Mandatory readings:
1. Selected chapters from Thomas Erl. Service-Oriented Architecture: Concepts, Technology and Design. Prentice Hall, 2005 (http://www.servicetechbooks.com)
2. Selected research and white papers by the professor; announced during the lecture.
Additional readings: Thomas ERL Website (http://www.serviceorientation.com) Fox, Armando and Patterson, David. Engineering Software as a Service: An Agile Approach Using Cloud Computing. First edition.
Prerequisites:
Advanced programming course.
Places for exchange-students? (Yes, number/No):
Yes
Places for Open University Students?(Yes, number/No):
Yes, 10

PERCCOMcore: PERCCOM Core Studies, 23 cp

Validity: 01.08.2016 -

Form of study: Major studies

Type: Study module

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

No course descriptions.

Obligatory Studies

A350A1000: Transformation of a Modern Industrial Society: The Finnish Model, 2 cp

Validity: 01.08.2011 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Karl-Erik Michelsen

Year:

M.Sc. (Econ. and Bus. Adm.) 1

Period:

3

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D. Karl-Erik Michelsen

Aims:

1. When students have completed the course, they are able to understand and analyze social change and the factors which affect social change.
2. They are familiar with theoretical frameworks which are used to study social change.
3. They understand the relationship between economy, technology, politics and culture.
4. They are able to write and present critical arguments and complete independent research assignments.
5. They are able to compare different social systems and understand why societies evolve differently.

Contents:

1. Core content: Transformation from industrial into post- or information society. How various factors shape the social change?
2. Additional content: The dynamics of the change: What are the factors and how the transformation takes place in a society? What are the consequences of change?
3. Special content: How the Finnish society has evolved from agricultural into industrial and now into postindustrial society?

Teaching Methods:

22 hours lectures in English. 20 hours preparation for lectures, 60 hours preparations for written assignments. Total 80 hrs.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Final grades 0-5: Lecture activity 20%, 80% written assignments (two blogs, one 5-10 page paper)

Course Materials:

Pekka Himanen – Manuel Castells; The Information Society and the Welfare State. The Finnish Model; Oxford University Press 2002.

Prerequisites:

This course is open to all students.

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CT60A9200: Seminar on sustainable software and services 1 (Erasmus Mundus Perccom), 3 cp

Validity: 01.08.2013 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

Only for Erasmus Mundus PERCCOM programme.
Course will be arranged in St. Petersburg National Research University of Information Technologies, Mechanics and Optics together with Erasmus Mundus Pervasive Computing and Communications for sustainable development programme partners.

Year:

M.Sc. (Tech.) 1

Period:

Period 4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

After the course students are familiar with the given topic on sustainable software and services and understand its importance from the software engineering perspective. Students are able to discuss about the topic and examine it critically.

Contents:

The course will be arranged in St. Petersburg in cooperation with Erasmus Mundus Pervasive Computing and Communications for sustainable development programme partners.
The contents of the course varies yearly.

Teaching Methods:

Seminars 26h, documentation 26h, self-study and preparation 26h, 4th period. Total 78h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5, Seminar work(s).

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, course is for PERCCOM students.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

Related to:

sustainability

CT60A9400: Seminar on sustainable software and services 2(Erasmus Mundus Perccom), 3 cp

Validity: 01.08.2013 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

Only for Erasmus Mundus PERCCOM programme.
Course will be arranged in St. Petersburg National Research University of Information Technologies, Mechanics and Optics together with Erasmus Mundus Pervasive Computing and Communications for sustainable development programme partners.

Year:

M.Sc. (Tech.) 1

Period:

Period 4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

After the course students are familiar with the given topic on sustainable software and services and understand its importance from the software engineering perspective. Students are able to discuss about the topic and examine it critically.

Contents:

The course will be arranged in St. Petersburg in cooperation with Erasmus Mundus Pervasive Computing and Communications for sustainable development programme partners.
The contents of the course varies yearly.

Teaching Methods:

Seminars 26h, documentation 26h, self-study and preparation 26h, 4th period. Total 78h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5, Seminar work(s).

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, course is for Perccom students.

Places for exchange-students? (Yes, number/No):

NO

Places for Open University Students?(Yes, number/No):

No

Related to:

sustainability

PERCCOMspec: PERCCOM Specialisation Studies, 76 cp

Validity: 01.08.2016 -
Form of study:
Type: Study module
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F

No course descriptions.

Obligatory Studies min 76 cr

CT10A7002: Green IT and Sustainable Computing, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Jari Porras

Year:

M.Sc. (Tech.) 1-2

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

After the course students are familiar with technologies for Green IT and sustainable computing. Students know critical thinking and argumentation principles and are able to apply these skills in discussions carried over the topic. Students are able to discuss about the topic and examine it critically.

Contents:

The course emphasizes Green IT and sustainable computing field in sustainable development. The topic is covered through books and scientific articles. Students may be divided into small groups that will each study the topic.

Teaching Methods:

Lectures 2 h, seminars and discussions 8 h, homeworks 16 h, self-study 24 h, 3. period.
Seminars and discussions 20 h, homeworks 26 h, self-study 60 h, 4. period. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Seminar work(s), active participation in discussions, homeworks.

Course Materials:

To be announced in Moodle pages before the course.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 36. Priority is given to Software Engineering students.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CT10A7011: Running a Software Project, 6 cp

Validity: 01.08.2017 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ahmed Seffah

Year:

M.Sc. (Tech.) 2

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor Ahmed Seffah

Aims:

The students can plan and execute a team software project and conduct a post mortem analysis for it.

Contents:

Students form 3-6 member teams that run a software project. Each team develops a project proposal including a standard project plan and what role each team member will have. During the project each team will report their progress weekly and develop a plan for the next week. The project is closed with a written report, a presentation of the project results, and a project post mortem analysis.

Teaching Methods:

Weekly progress reporting and planning, final presentations with written report, project post mortem analysis. Weekly meetings 14 hours, preparation for them 14 hours, and project work 40 h both in 1. and 2. period; preparing for the final presentation 14 hours, presentation 4 hours, and post mortem analysis 2 hours during the intense week after term. Total workload is 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 – 5, 50% weekly progress reports and 50% final presentation.

Course Materials:

Learning materials are provided during the lectures.

Prerequisites:

A project management course, e.g. “Software projects, process and enterprises” must be completed before or at the same time with this course.

Places for exchange-students? (Yes, number/No):

Yes, 10

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT10A7041: Code Camp, 1 - 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

The course is an intense course lasting from one day to a week, and the actual timing of each course is announced separately. This course can be included in one degree two times provided that the course contents are different.
Also available at LUT Summer School with code CT10A7041SS.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4, intensive course,
LUT Summer School 5.-6.8.2017

LUT Summer School time:

5.-6.8.2017

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

The students learn to work with given software development technologies in teams and innovate solutions to given software development challenges in a given time box.

Contents:

Students are presented a problem in the beginning of each code camp and they develop solutions to the problem in the given time box with the given technologies. After presenting the problem for the code camp, the students innovate possible solutions and start learning the given technologies. The main part of the code camp is spend developing the solution and learning to use the technologies in a collaborative manner before the working solutions are presented in the closing seminar. A code camp lasts typically a weekend or one week, and the technologies used in each code camp are decided case by case. The detailed implementation of each code camp is accepted by the head of the degree program, and the detailed course instructions are published in the course page in Moodle.

Teaching Methods:

Team software project completed in the code camp format based on the detailed course instructions. Each code camp is announced at least a month before the event, and it can last from one weekend to one week. Total workload is specified in the detailed course instructions and can be 26-155 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed. Teamwork during the code camp and presentation after it.

Course Materials:

Study materials are specified in the detailed course instructions and during the lectures.

Prerequisites:

The prerequisites are specified in the detailed course instructions

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

Yes, 1-5.

CT30A8921: User and Design Research in Software Engineering, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ahmed Seffah

Year:

M.Sc. (Tech.) 2

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D., PEng, HDR. Ahmed Seffah

Aims:

How do we design software products, systems and services? Why only few software systems make it to market and most fail? Why users are not able to master and use software systems? The course answers to these questions while outlining the user research, user experience, user-centric design and design thinking theories for software products, systems and services engineering. Through a mix of readings on design theories and practices, user experiences research investigations and practical team-oriented design project in the living lab, students will acquire a solid practical and a research experience in “design methods and user-centric software engineering”. In particular, students will: 1. Have a deep immersion into the state of research in Human Computer Interaction design, user experience design and design thinking as approaches to software systems engineering 2. Acquire new skills in building a portfolio of design and proof of concepts including sketches and prototypes created and tested in a living lab. Students will complete many hands-on activities and interact with your fellow students and representative of users as you experience a completely different way of learning how to develop human-centric software and information systems, services, and socio-technical systems.

Contents:

Design theories, principles and methods. Principles of design thinking. Human-centric design processes. User experience in design practices. Co-design in living lab. User research in design. Persona and customer profiling. Diary studies. HCI design patterns. Storytelling. Paper prototyping. Usability and sustainability testing. Controlled experiments. Design of innovative software products. Introduction to design research and science. Socio-technical systems design. Historical, cultural, and technical foundations of design and innovation in a range of discipline areas (software engineering, MIS, HCI, arts. In a group of 3-5, students are asked to develop a design concept and validate it in the design living lab. Students are requested to write a research paper and to present a design portfolio that demonstrate their capacity to generate design ideas, innovative concepts, proposals or solutions independently and /or collaboratively in response to a set briefs and/or as a self-initiated activity or based on documented user experiences. The importance of human aspects in design and innovation is a key concern in software and information systems engineering and research. Design principles and methods could be used to create values of software products through the open innovation concept. This course follows from work of open innovation and user-centric design and design thinking theories and principles that established the basis of innovation by design. It analyzes the concept of innovation by design applied to software and information system) from the HCI (human-computer interaction), user experience and research perspective.

Teaching Methods:

Lectures 12 h. Lecture preparation (mandatory readings) 24 h. Practical large design project in a group of 6 students 60 h. User research in living lab 36 h. Prototyping and presentation of the design portfolio 28 h. Total 160 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Doctoral School course where enrollment is in WebOodi (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Design Projects and Portfolio 60%. Individual design research work 20%. Oral presentation 20%.

Course Materials:

Course online tutorial, specific mandatory readings from the following books will be provided in class by the professor Tim Brown. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation Terry Winograd (ed.): Bringing Design to Software. Addison-Wesley, 1996. Bill Buxton, Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kauffmann Series on Interactive Technologies, 2007. Mads, et al. (Eds). The Online Encyclopedia of Human Computer Interaction, 2nd Edition. Interaction Design Foundation. Students unfamiliar with basic HCI design are encouraged to walkthrough the textbook User Interface design and evaluation. D. Stone, C. Jarrett, M. Woodroffe. S. Minocha. Morgan Kauffmann Series in Interactive technologies. 2005.

Prerequisites:

Basic expertise in software design methodologies.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 24 max as the course will be in the CODER Living Lab.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

CT10A6001: Master's Thesis, 30 cp

Validity: 01.08.2015 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Year:

M.Sc. (Tech.) 2

Period:

1-4 and summer time

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

A student is able to independent work and scientific writing, related into specific problems in the field of information technology.

Contents:

An independent thesis done in the field of information technology, according to the instructions given. In the beginning a student must contact the professor responsible. The starting and finishing point of the thesis vary. Before the thesis is returned for grading it must be checked with the Turnitin programme in the moodle page of the course.

Topic of the master's thesis has to be confirmed as soon as the topic has been decided with the supervisor. Use form 1A in UNI-portal.

Teaching Methods:

Master’s Thesis and maturity exam. Total 780 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Master's thesis 100 %.

Prerequisites:

CT10A9500 Research Methods completed and a minimum of 15 ECTS credits of the major studies completed.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

CSMCore: Core Studies, Computer Science, 26 - 35 cp

Validity: 01.08.2016 -
Form of study: Major studies
Type: Study module
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F

No course descriptions.

Obligatory Studies 26 cr

CT10A9511: Research Methods in Software Engineering, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ajantha Dahanayake

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor Ajantha Dahanayake

Aims:

The student will be able to describe the essential concepts and methods in empirical software engineering research. The student will understand the principles of scientific research and reporting and

be able to prepare a research plan for a Master's thesis and doctoral studies. Students will be able to do In-depth analysis of: current research trends, research methodologies, data acquisition and analysis, and research findings reporting. Students will be required to conduct a research project in a group setting.

Contents:

Principles of science and scientific communities. Epistemology and ontology in research. The practical research process. Designing research, research questions and hypotheses. Research methods including literature review, qualitative methods, experiments, quantitative methods, and design research. Reporting scientific work.

Teaching Methods:

Lectures 14 h, lecture preparation 7 h, 1st period. Practical assignments: 55 h, 2nd period. Seminars: 14 h, preparing for the seminars 7 h. Reading literature 44 h. Preparation for exam 12 h. Exam 3 h. Total 156 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. continuous evaluation (no Exam), personal work 10%, team work assignments 50%, team paper 40%.

Course Materials:

Mark Saunders, Philip Lewis and Adrian Thornhill, Research Methods for Business Students. 6th edition, Prentice Hall/ Pearson Education ISBN: 978-0-273-70148-4.

Prerequisites:

B.Sc. studies finished.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT30A8910: Software as a Service: Architectures and Engineering, 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Note:

Can't be included into a same degree as CT60A7201 Architecture in Systems and Software Development or CT30A8904 Software Systems as a Service: Technology and Engineering.

Year:

M.Sc. (Tech.) 2

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D., PEng, HDR. Ahmed Seffah

Aims:

1. Understanding of the service orientation and software as a service as a fundamental shift to producing, deploying and using software applications, as well as a domain for academic research.
2. Architecting and implementing service systems and Web services that merge business and technical requirements to support the needs of an organization.
3. Mastering the technology used in modeling, designing, and composing services to create an effective SOA-based application.
4. Understanding the new business challenges and opportunities of software as a service versus shrink-wrapped software systems.
5. Applying the SOA (software-oriented architecture) and software architecture principles and techniques to the design, programming, testing, and public cloud deployment of Web services-based systems.

Contents:

Service-orientation fundamentals and principles. Software as a Service (SaaS). Internet of services. Platform and software engineering tools as a Service (PaaS). Infrastructure as a service (IaaS). Service-Oriented Architecture (SOA) principles and technologies. Service design patterns. Security, sustainability, and privacy. SOA governance. Service lifecycle management. Web services programming. Successful and failures stories from industry. Large team-oriented project on service systems for sustainability innovation. Sustainability is addressed at two different levels in this course: 1. Similar to security and other software quality attributes, sustainability is defined as a key quality attribute of a service system 2. Students are encouraged to consider projects related to the re-engineering of existing software systems and/or the development of innovative services to support sustainability development including the management of natural resources consumption as well as the ways software services can make citizens more aware about their impacts on the environment.

Teaching Methods:

Lectures 16 h, lecture preparation (weekly mandatory readings) 24 h, in class exercises 16h, practical analysis, design and development team-oriented project 64 h, Self-study and research poster 24 h. Final exam preparation 10h. Final exam (open book) 2 h. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Final Exam 30%, Practical design, Practical analysis, design and programming project 40%, research posters 30%.

Course Materials:

Mandatory readings:
1. Selected chapters from Thomas Erl. Service-Oriented Architecture: Concepts, Technology and Design. Prentice Hall, 2005 (http://www.servicetechbooks.com)
2. Selected research and white papers by the professor; announced during the lecture.
Additional readings: Thomas ERL Website (http://www.serviceorientation.com) Fox, Armando and Patterson, David. Engineering Software as a Service: An Agile Approach Using Cloud Computing. First edition.

Prerequisites:

Advanced programming course.

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

Yes, 10

CT60A5102: Models and Methods of Software Engineering, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ahmed Seffah

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D., PEng. HDR. Ahmed Seffah

Aims:

The course covers the main software engineering methods including object-oriented, agile, formal as well as traditional approaches. At the end of this course, the students should be able to:
1. Understand and select the appropriate method or methods for the software development project at hand and for the various types of software systems such as critical-safety systems, interactive consumer services, enterprise applications, hardware software, etc.
2. Master the importance of modeling techniques in software engineering and the diverse types of models. Students should be able to explain the concepts of models, meta-models, platforms dependent and independent models, model-to-model transformations, automated code generation from models.
3. Manage, plan, analyze and contribute to the requirements, design, implementation and maintenance of large software products.
4. Understand how human, social and technical factors may have both positive and negative influences on software engineering methods and practices.
5. Identify the challenges facing the software engineering research community as well as the avenues for further investigations.

Contents:

Software Engineering Body of Knowledge (SWEBOK). Principles and foundations of software engineering. Agile software development. Formal methods. Prototyping techniques. Object-oriented design and analysis. Data-centric methods. Model-driven architecture (MDA). Modeling techniques. Importance of modeling in software development projects. Software engineering tools. Information, structure and behavioral modeling. Systematic literature review and large case studies on specific models and methods, their uses and abuses such as UML, use cases, user task-based prototypes, Z, B, G-Express and BPMN (Business Process Modeling Notation).

Teaching Methods:

Lectures/seminars on selected topics 24h. Presentations 8h, weekly self-study 48 h (mandatory readings), scientific literature review and case studies 56 h, period 1-2. Research papers 20 h. Total 156 h. The course is designed to be a forum for a scientific discussion and presentations by the professor, students and guests' researchers. Except an introductory lecture, the professor will be mainly acting as a senior project manager and a researcher advising students regarding literature review, reliable information

sources on software engineering as well as how to select, review and present a case study on software engineering methods. The students will have to work in a team of 2-3; each team will make 2 presentations in class; each student will have to contribute to the writing of a research paper that can be submitted to a conference or a workshop. Altogether, the presentations provide a systematic framework for selecting the appropriate methods for complex software systems development projects.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Research assignment (60%); research paper (40%) and presentation in class (10%).

Course Materials:

There is no book that covers all the topics addressed in the course. A selection of readings from top journals will be used as basic readings; students are requested to make their own literature review. IEEEE Transactions on Software Engineering IEEE Software ACM Transactions on Software Engineering Methodologies Journal of Software and Systems (JSS) Communication of the ACM The students are encouraged to walkthrough, one of the two following books as a basic introductory reading: R.S Pressman. Software Engineering: A Practitioner's Approach, 7/e, McGraw Hill, 2010 J. Sommerville. Software Engineering. 9/e, Addison Wesley, 2011

Prerequisites:

CT60A4001 Ohjelmistotuotanto

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 48

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-10 places for open university students. More information on the web site for open university instructions.

CT60A5300: Software Projects, Processes and Entrepreneurship, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Timo Pihkala, Marita Rautiainen, Suvi Konsti-Laakso, Uolevi Nikula

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Associate Professor, D.Sc. (Tech.) Uolevi Nikula
Professor, D.Sc. (Econ. & Bus. Adm.) Timo Pihkala

Aims:

The course establishes a solid and common ground on software project management practices, software processes and entrepreneurship in Finland. After the course the students know how to plan and run a software project, how process models are related to software projects, and how an entrepreneur thinks, acts, and establishes a business in Finland.

Contents:

Software project planning, cost estimation and control. Software processes, history, maturity, and state of the practice. Software development teams and organizations. Entrepreneurship theory, entrepreneurial characteristics and skills, business start-up in Finland, LUT supporting entrepreneurship, business idea development, business opportunities, and co-creation processes.

Teaching Methods:

Lectures 14 h, exercises 14 h, assignments & self-study 14 h, team assignments 36 h, 1. period. Lectures 14 h, exercises 14 h, assignments & self-study 14 h, team assignments 36 h, 2. period. Total workload 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Weekly and team assignments 100 %, no exam.

Course Materials:

Robillard, Kruchten, and d'Astous: Software Engineering Process with the UPEDU, Addison-Wesley, 2002. Other materials announced in the lectures.

Prerequisites:

Software Engineering CT60A4001 or equivalent.

Places for exchange-students? (Yes, number/No):

Yes, 20

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

FV11A6500: Presenting in English, 2 cp

Validity: 01.08.2007 -

Form of study: Language and communication studies

Type: Course

Unit: Language Center

Grading: Study modules 0-5,P/F

Teachers: Riitta Gröhn, Olesya Kullberg, Kristiina Karjalainen

No course descriptions.

TiDSyvOhtu: Specialisation Studies, Software Engineering, 62 - 80 cp

Validity: 01.08.2016 -
Form of study: Major studies
Type: Study module
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F

No course descriptions.

Pakolliset opinnot 60 op

CT10A7002: Green IT and Sustainable Computing, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Jari Porras

Year:

M.Sc. (Tech.) 1-2

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

After the course students are familiar with technologies for Green IT and sustainable computing. Students know critical thinking and argumentation principles and are able to apply these skills in discussions carried over the topic. Students are able to discuss about the topic and examine it critically.

Contents:

The course emphasizes Green IT and sustainable computing field in sustainable development. The topic is covered through books and scientific articles. Students may be divided into small groups that will each study the topic.

Teaching Methods:

Lectures 2 h, seminars and discussions 8 h, homeworks 16 h, self-study 24 h, 3. period.
Seminars and discussions 20 h, homeworks 26 h, self-study 60 h, 4. period. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Seminar work(s), active participation in discussions, homeworks.

Course Materials:

To be announced in Moodle pages before the course.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 36. Priority is given to Software Engineering students.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CT10A7011: Running a Software Project, 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Year:

M.Sc. (Tech.) 2

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor Ahmed Seffah

Aims:

The students can plan and execute a team software project and conduct a post mortem analysis for it.

Contents:

Students form 3-6 member teams that run a software project. Each team develops a project proposal including a standard project plan and what role each team member will have. During the project each team will report their progress weekly and develop a plan for the next week. The project is closed with a written report, a presentation of the project results, and a project post mortem analysis.

Teaching Methods:

Weekly progress reporting and planning, final presentations with written report, project post mortem analysis. Weekly meetings 14 hours, preparation for them 14 hours, and project work 40 h both in 1. and 2. period; preparing for the final presentation 14 hours, presentation 4 hours, and post mortem analysis 2 hours during the intense week after term. Total workload is 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 – 5, 50% weekly progress reports and 50% final presentation.

Course Materials:

Learning materials are provided during the lectures.

Prerequisites:

A project management course, e.g. “Software projects, process and enterprises” must be completed before or at the same time with this course.

Places for exchange-students? (Yes, number/No):

Yes, 10

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT30A8921: User and Design Research in Software Engineering, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Year:

M.Sc. (Tech.) 2

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D., PEng, HDR. Ahmed Seffah

Aims:

How do we design software products, systems and services? Why only few software systems make it to market and most fail? Why users are not able to master and use software systems? The course answers to these questions while outlining the user research, user experience, user-centric design and design thinking theories for software products, systems and services engineering. Through a mix of readings on design theories and practices, user experiences research investigations and practical team-oriented design project in the living lab, students will acquire a solid practical and a research experience in “design methods and user-centric software engineering”. In particular, students will: 1. Have a deep immersion into the state of research in Human Computer Interaction design, user experience design and design thinking as approaches to software systems engineering 2. Acquire new skills in building a portfolio of design and proof of concepts including sketches and prototypes created and tested in a living lab. Students will complete many hands-on activities and interact with your fellow students and representative of users as you experience a completely different way of learning how to develop human-centric software and information systems, services, and socio-technical systems.

Contents:

Design theories, principles and methods. Principles of design thinking. Human-centric design processes. User experience in design practices. Co-design in living lab. User research in design. Persona and customer profiling. Diary studies. HCI design patterns. Storytelling. Paper prototyping. Usability and sustainability testing. Controlled experiments. Design of innovative software products. Introduction to design research and science. Socio-technical systems design. Historical, cultural, and technical

foundations of design and innovation in a range of discipline areas (software engineering, MIS, HCI, arts. In a group of 3-5, students are asked to develop a design concept and validate it in the design living lab. Students are requested to write a research paper and to present a design portfolio that demonstrate their capacity to generate design ideas, innovative concepts, proposals or solutions independently and /or collaboratively in response to a set briefs and/or as a self-initiated activity or based on documented user experiences. The importance of human aspects in design and innovation is a key concern in software and information systems engineering and research. Design principles and methods could be used to create values of software products through the open innovation concept. This course follows from work of open innovation and user-centric design and design thinking theories and principles that established the basis of innovation by design. It analyzes the concept of innovation by design applied to software and information system) from the HCI (human-computer interaction), user experience and research perspective.

Teaching Methods:

Lectures 12 h. Lecture preparation (mandatory readings) 24 h. Practical large design project in a group of 6 students 60 h. User research in living lab 36 h. Prototyping and presentation of the design portfolio 28 h. Total 160 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Doctoral School course where enrollment is in WebOodi (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Design Projects and Portfolio 60%. Individual design research work 20%. Oral presentation 20%.

Course Materials:

Course online tutorial, specific mandatory readings from the following books will be provided in class by the professor Tim Brown. Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation Terry Winograd (ed.): Bringing Design to Software. Addison-Wesley, 1996. Bill Buxton, Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kauffmann Series on Interactive Technologies, 2007. Mads, et al. (Eds). The Online Encyclopedia of Human Computer Interaction, 2nd Edition. Interaction Design Foundation. Students unfamiliar with basic HCI design are encouraged to walkthrough the textbook User Interface design and evaluation. D. Stone, C. Jarrett, M. Woodroffe. S. Minocha. Morgan Kauffmann Series in Interactive technologies. 2005.

Prerequisites:

Basic expertise in software design methodologies.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 24 max as the course will be in the CODER Living Lab.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

CT60A7510: Design Patterns, 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ajantha Dahanayake

Note:

Can't be included into a same degree as CT60A7501 Object-Oriented Programming Techniques.

Year:

M.Sc. (Tech.) 1

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor Ajantha Dahanayake

Aims:

The students understand the advanced concepts and techniques of design patterns and object-oriented programing and the application of those concepts and techniques for solving practical problems in programming tasks.

Contents:

The course covers: Design Patterns and their applications, Design rules and Principles, reusability, and reflections by Introduction to Java,
Java run-time object model, composition, inheritance, interfaces, collections and containers.

Teaching Methods:

Period 3: Lectures 14 h, exercises 14 h, exercise & team project preparation 25 h, weekly self-study 25 h.
Period 4: Lectures 14 h, exercises 14 h, exercise & team project preparation 25 h, weekly self-study 25 h.
Total hours 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Continuous assessments: Weekly quizzes 10 %, exercises and practical assignment 50 %. Team Project 40%

Course Materials:

Lecture notes. Eckel, B.: Thinking in Java, Prentice Hall. Gamma, E. et al.:

Design Patterns, Addison-Wesley. Freeman, Freeman, Sierra & Bates: Head First Design Patterns, O'Reilly (2004 or newer).

Prerequisites:

CT60A2411 Olio-ohjelmointi (Object-Oriented Programming) or equivalent.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Further information:

Moodle-exam every week.

CT60A7610: Data-Intensive Software Systems, 6 cp

Validity: 01.01.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ajantha Dahanayake

Note:

Can't be included into a same degree as CT60A7600 Distributed Database Systems.

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor, PhD Ajantha Dahanayake

Aims:

At the end of the course students have an understanding of the main challenges and techniques in the design and implementation of distributed database systems
for complex distributed software systems such as e-commerce platforms such as Amazon.
Students gain the understanding of concepts and principles underlying the functioning of distributed database systems as well as their implementation.

Contents:

Introduction to distributed database systems, distributed database applications, databases systems and internet, distributed data storage and retrieval,
data scalability, performance, data warehousing and data mining from the perspective of value creation and communication in distributed systems,
advanced topics in databases such as security, authorization, modeling and programing for semi-structured data, secondary storage management, query execution.

Teaching Methods:

Lectures 14 h, homework work 20 h, 1. period.
Lectures 14 h, homework 20 h, 2. period.
Reading assignments, 2 hands on team project assignments 88 h. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5. Individual assignments = 40%. Project Assignments = 60%

Course Materials:

M. Tamer Özsu, Patrick Valduriez, Principals of Distributed Database Management Systems. 3rd Edition, Springer ISBN 978-1-4419-8833-1

Hector Garcia-Molina, Jeffrey D. Ullman and Jennifer Widom: Database Systems : The Complete Book, Pearson Prentice Hall 2nd Edition, 2009

Tanenbaum and M. Van Steen: Distributed Systems; Principles and paradigms, Pearson Education 2007
Matteo Golfarelli, Stefano Rizzi Data Warehouse Design: Modern Principles and Methodologies, Mc Graw Hill 2009.
Weka 2: Data Mining Software in Java. (Open Source)

Prerequisites:

CT30A3202 Webbed Applications or equivalent
CT30A3401 Distributed Systems or equivalent
CT60A4302 Databases

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

CT10A6001: Master's Thesis, 30 cp

Validity: 01.08.2015 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Jari Porras

Year:

M.Sc. (Tech.) 2

Period:

1-4 and summer time

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

A student is able to independent work and scientific writing, related into specific problems in the field of information technology.

Contents:

An independent thesis done in the field of information technology, according to the instructions given. In the beginning a student must contact the professor responsible. The starting and finishing point of the thesis vary. Before the thesis is returned for grading it must be checked with the Turnitin programme in the moodle page of the course.

Topic of the master's thesis has to be confirmed as soon as the topic has been decided with the supervisor. Use form 1A in UNI-portal.

Teaching Methods:

Master’s Thesis and maturity exam. Total 780 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Master's thesis 100 %.

Prerequisites:

CT10A9500 Research Methods completed and a minimum of 15 ECTS credits of the major studies completed.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

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CT10A7020: Personal Literature Study, 1 - 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

To do this course study the Moodle page for the course and follow the instructions given there. The details of the course like the topic, scope, and the timeframe are agreed with the supervisor as explained in Moodle.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4, Any period of time agreed.

Teaching Language:

Finnish and English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

The course deepens students’ understanding of a research topic through the study of the given literature package and the discussion with the instructor about suitable research methods and approaches to the given topic. The course also develops students’ skills in writing a synthesizing report of the given readings.

Contents:

Study of literature, analysis and summary of the key findings from the literature as a report. A list of selected themes for the reading packages can be found at the course page in Moodle. The student contacts the instructor of a theme of interest and agrees on the personal implementation of the study including the workload and the schedule. A report on the studied readings package.

Teaching Methods:

Personal study of the selected literature package. Course can be done at any point of studies based on the discussions with the supervisor. Total workload is agreed with the instructor and can be 26-156 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes. In doctoral level the study requires broader and deeper study as agreed with the supervisor.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed. Research report.

Course Materials:

The detailed literature list is received from the instructor.

Prerequisites:

CT10A9511 Research Methods in Software Engineering or comparable course.

Places for exchange-students? (Yes, number/No):

Yes, 10

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CT10A7030: Personal Design Science Study, 1 - 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Ahmed Seffah

Note:

To do this course study the Moodle page for the course and follow the instructions given there. The details of the course like the topic, scope, and the timeframe are agreed with the supervisor as explained in Moodle.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4, Any period of time agreed.

Teaching Language:

Finnish and English

Teacher(s) in Charge:

Professor Ahmed Seffah

Aims:

The students learn to conduct design science studies as well as complete assignments and manage related tasks independently. The emphasis on different areas can vary between different course instances.

Contents:

The students conduct design science studies starting with evaluation of the current state, defining the desired state, developing a plan to achieve the desired state, implementing that plan, comparing the original and target states, and reporting results as a written report. The course page in Moodle includes instructions on how to agree the course topic with the supervisor. The student contacts the teacher listed in the course instructions and develops a proposal for his/her personal implementation of a course. The course instructions provide more detailed information about the aims, content, modes of study, evaluation, study materials, and prerequisites for each specific course.

Teaching Methods:

Personal study based on the detailed course instructions. Course can be done at any agreed point of time and if multiple students want to do the same course at the same time, they can be supervised as a cohort. Total workload is specified in the detailed course instructions and can be 26-156 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes. In doctoral level the study requires broader and deeper study as agreed with the supervisor.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed. Research report and seminar presentation.

Course Materials:

Study materials are agreed with the instructor.

Prerequisites:

CT10A9511 Research Methods in Software Engineering or comparable course.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT10A7041: Code Camp, 1 - 6 cp

Validity: 01.08.2017 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

The course is an intense course lasting from one day to a week, and the actual timing of each course is announced separately. This course can be included in one degree two times provided that the course contents are different.
Also available at LUT Summer School with code CT10A7041SS.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4, intensive course,
LUT Summer School 5.-6.8.2017

LUT Summer School time:

5.-6.8.2017

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

The students learn to work with given software development technologies in teams and innovate solutions to given software development challenges in a given time box.

Contents:

Students are presented a problem in the beginning of each code camp and they develop solutions to the problem in the given time box with the given technologies. After presenting the problem for the code camp, the students innovate possible solutions and start learning the given technologies. The main part of the code camp is spend developing the solution and learning to use the technologies in a collaborative manner before the working solutions are presented in the closing seminar. A code camp lasts typically a weekend or one week, and the technologies used in each code camp are decided case by case. The detailed implementation of each code camp is accepted by the head of the degree program, and the detailed course instructions are published in the course page in Moodle.

Teaching Methods:

Team software project completed in the code camp format based on the detailed course instructions. Each code camp is announced at least a month before the event, and it can last from one weekend to one week. Total workload is specified in the detailed course instructions and can be 26-155 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed. Teamwork during the code camp and presentation after it.

Course Materials:

Study materials are specified in the detailed course instructions and during the lectures.

Prerequisites:

The prerequisites are specified in the detailed course instructions

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

Yes, 1-5.

CT10A7061: Visitor's Viewpoint on Software Engineering, 1 - 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

This course can be included in one degree two times provided that the course contents are different. The actual time of each course will be announced separately.
Also available at LUT Summer School with code CT10A7061SS.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4, intensive course
LUT Summer School 31.7 - 4.8.2017

LUT Summer School time:

31.7 - 4.8.2017

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

The students will deepen their knowledge in a specific advanced topic in software engineering, learn to question and debate with an expert on the topic, and synthesize the studied material in a written report.

Contents:

The course approaches core software engineering topics based on Software Engineering Body of Knowledge as well as current trends and technological developments in the discipline or closely related ones from different viewpoints. The course instances are given by visiting scholars, and the detailed course instructions are confirmed by the head of the degree program.

Teaching Methods:

The course will be implemented in a form best suited for each course instance but can include, for example, workshops, seminars, presentations, home works, readings, self-study, and report writing. The detailed modes of study will be confirmed by the head of the degree program together with the total workload, which can vary between 26 and 156 hours.

Suitability for doctoral studies (Yes/Leave empty):

Yes. The suitability for doctoral studies is decided separately for each course and will be indicated in the detailed course description.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed based on the course participation and final report.

Course Materials:

Study materials are announced in the lectures.

Prerequisites:

The prerequisites are specified in the detailed course instructions

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CT10A9520: Research Project in Software Engineering, 1 - 10 cp

Validity: 01.08.2014 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jari Porras

Note:

To do this course study the Moodle page for the course and follow the instructions given there. The details of the course like the topic, scope, and the timeframe are agreed with the person responsible for the course.

Year:

M.Sc. (Tech.) 1-2

Period:

1-4

Teaching Language:

English, Finnish

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras

Aims:

The student will be able to execute a research task in software engineering.

Contents:

Research work on the topic defined by the degree programme. When starting the course, study the Moodle page for the course and follow the instructions given there. A report on and a seminar presentation of the work carried out.

Teaching Methods:

Participation in the work of the research group, 1st-4th period. Total 26-260 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes. In doctoral level the study requires broader and deeper study as agreed with the supervisor.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Passed/failed. Research report and seminar presentation.

Course Materials:

Literature related to the research topic, agreed with the supervisor of the work.

Prerequisites:

CT10A9511 Research Methods in Software Engineering or comparable course.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT30A5003: Games and Networking, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Jouni Ikonen

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

D.Sc. (Tech.) Jouni Ikonen

Aims:

Students understand problematics of networking, are able to implement basic gaming protocols and understand their limitations in relation to scaling and delay issues.

Contents:

Students familiarize themselves with different game types. Massively multiplayer online games, cloud based games and client-server games. Operation of a game engine.
Study of existing game protocols. Network game traffic patterns, latency compensation techniques, scalability issues, network behavior in scope of games.
Socket interface usage and event-based programming. Analysis and realization of network game protocol.

Teaching Methods:

Lectures/exercises 24 h, 1. period. Lectures/exercises 6 h, Demonstration 8 h, 2. period
Reading assignments, home work, 2 hands on programming assignments and a group work 118 h.
Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Assignments and continuous evaluation 50 %, group work 50%.

Course Materials:

Will be announced during the course.

Prerequisites:

Programming skills are required to pass the course.
CT30A2003 Tietoliikennetekniikan perusteet or equivalent skills, CT60A0210 Käytännön ohjelmointi or CT60A2410 Olio-ohjelmointi or equivalent skills.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

CT60A5400: Fundamentals of Game Development, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Antti Knutas

Year:

M.Sc. (Tech). 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Junior Researcher, M.Sc. (Tech.) Antti Knutas

Aims:

The objective for this course is for students to learn how to use the selected game development tools, and enable them to independently design and develop a small game program for the supported platforms or work as a part of a team developing a larger game product. After the course, the student is able to do independent work and is capable of acquiring further knowledge concerning the taught game development tool.

Contents:

Basics of the game development tool, introduction to game engines and their functions. Basics of working with 3D objects, introduction to game development-related programming. Basics of sound engineering. Gamification and Serious games.

Teaching Methods:

Assisted self-study, two project works. 14h of lectures, no exercises.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

Yes

Examination in Exam (Yes/No):

No

Assessment:

Grade 0-5, Teacher grading (50%) and Peer grading (50%)

Course Materials:

Materials provided by lecturer.

Places for exchange-students? (Yes, number/No):

Yes, 10-15

Places for Open University Students?(Yes, number/No):

This course has 15- places for open university students. More information on the web site for open university instructions.

CT60A7102: Seminar on Software Engineering, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ajantha Dahanayake, Jari Porras

Year:

M.Sc. (Tech.) 1

Period:

3-4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras
Professor, PhD. Ajantha Dahanayake

Aims:

After the course a student should be able to explain the basic principles of scientific work and its reflections, to understand the reporting, to get familiar with approaches in software engineering, and research directions to write a report about software engineering research in the form of a scientific article, to use scientific sources of information, to give the corresponding oral seminar presentation, and to act as an opponent.

Contents:

Basics of scientific work and its reporting, seminar and poster presentations by students.

Teaching Methods:

Seminars 8 h, Self-study 36 h, 3rd period.
Poster presentation 16 h, Seminar presentation 16h, 4th period.
Acting as an opponent 16 h and writing work 64 h. Total 156 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Written seminar reflections report 20%. Scientific article 30%.
Poster Presentation 10%. Seminar presentation 20%. Active participation to all seminar sessions 10%. Acting as an opponent 10%.

Course Materials:

Material published on the course Moodle page.

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT60A7322: Software Business Development, 3 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Marianne Kinnula

Year:

M.Sc. (Tech.) 1-2

Period:

Intensive week 20

Teaching Language:

English

Teacher(s) in Charge:

Docent, Ph.D. Marianne Kinnula

Aims:

After completing the course, the student has knowledge of how to 1. develop a software business idea over the whole life cycle of the business, 2. conduct market and business analyses, 3. identify sources for financing the business, and how to 4. select a suitable business model for the company.

Contents:

The course introduces the concepts of business idea, business plan, software business models and strategies, and the software value network. Case studies vary yearly.

Teaching Methods:

Lectures 6 h, workshops 12 h, seminar presentations 8 h, homeworks and project (pre, course, post) 52h. Total amount 78 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5, pre-task, project, essay.

Course Materials:

To be announced in course pages and in lectures.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 40.

Places for exchange-students? (Yes, number/No):

Yes, 5

Places for Open University Students?(Yes, number/No):

Yes, 5

CS30A7402: Software and Application Innovation, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Antti Herala, Helinä Melkas, Mirva Hyypiä, Jari Porras

Year:

M.Sc. (Tech.) 2

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Jari Porras
Professor, D.Sc. (Tech.) Helinä Melkas

Aims:

This course combines technology and technology management perspectives for cross-scientific approach in software and application innovation process. After completion of the course students have broader perspective on innovation process in some yearly changing technically focused area. Students know how to innovate new meaningful software solutions and applications based on some technology, and what is the technical and business feasibility of the solution in domestic and international markets.

Contents:

Innovation management, idea generation and opportunity identification process. (Open) business models and technology commercialization in global markets. Product and service development. Basics and use cases of the selected technology, user-centric design and privacy perspectives in software and application development. The course is related to sustainability.

Teaching Methods:

Lectures 14 h. Innovation exercise to be given during the lectures 45 h, practical work (documentation) 45 h, independent group work 44 h, presentations 8 h. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Practical work 100 %.

Course Materials:

To be announced later.

Places for exchange-students? (Yes, number/No):

Ýes, 10-15

Places for Open University Students?(Yes, number/No):

No

Related to:

to sustainability

BL40A1101: Embedded System Programming, 5 cp

Validity: 01.08.2017 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Energy Systems
Grading: Study modules 0-5,P/F
Teachers: Jouni Vuojolainen, Tuomo Lindh, Teemu Sillanpää

Note:

Replaces the course BL40A1100 Embedded System Programming, 4 ECTS

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Associate professor, D.Sc. (Tech.) Tuomo Lindh

Aims:

Upon completion of the course the student will be able to: 1. apply C language and its structures to embedded system programming, 2. form complex data types such as structures, unions and buffers and use these in order to maintain information of different entities (e.g. processing units), 3. control the registers of a micro controller using C-language, 4. use different PUs of a micro controller, 5. Take into use a real time operation system.

Contents:

Design tools, C-language in embedded system programming, utilization of a micro controller environment (registers, timers, buses, A/D conversion etc.). Typical data structures, typical program structures in real-time applications.

Teaching Methods:

14 h of lectures, 14 h of tutorials, 1st period. 14 h of lectures, 14 h of tutorials, 2nd period. Assignment. Written examination. Total workload 104 h.

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0-5, assignment 1 50 %, examination 50 %. Satisfactorily completed assignment required.

Course Materials:

Wolf, W.: Computers as components: principles of embedded computing system design.
Lecture notes.

Prerequisites:

Basics of C language.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CT10A0510: Work Internship in Master's Degree, 3 - 10 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Ossi Taipale

Year:

M.Sc. (Tech.) 1-2

Period:

1-4

Teaching Language:

Finnish and English

Teacher(s) in Charge:

D.Sc. (Tech.) Ossi Taipale

Aims:

After the work environment internship, the student has obtained a basic knowledge of the work, work environment and working community in his/her own field. The student is able to apply and generalize knowledge and skills acquired during the course of studies to work in his/her own field.

Contents:

The student obtains a (summer) job from the company, works as a paid employee, requests a certificate of employment and applies for the approval of the work as an internship for the Master’s degree. Full-time employment relationships of at least four weeks can be approved as internships. The completion of the Master’s thesis is not accepted as an internship.
An employment relationship that took place before the studies can be approved as an internship providing that it has not been accepted and included in any other previous degree.

Teaching Methods:

First 3 ECTS credits: applying for a job and recruiting 10 h, tasks connected to starting an employment relationship (e.g. orientation, the rules of the employment relationship and the work place) 15 h, observing (while working) how the working community operates (e.g. how work/production is organized, supervision, the working manners of the working community/teams, the social environment of the work place) 22 h, a written internship report 5 h (2-3 pages), total 78 h.

4-10 ECTS credits: having different tasks in a company 26-208 h (1 ECTS credit/26 h). The number of ECTS credits of compulsory internship varies depending on the degree programme in question, further information is available in the degree structures of the study guide. Alternatively, in 2016-17 piloted Summer Project Camp (SPC) gives students an opportunity to utilize the summer time during the Master' s studies doing a work internship.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Pass/Fail, internship report 100%.

Places for exchange-students? (Yes, number/No):

No

Places for Open University Students?(Yes, number/No):

No

Descriptions of courses and study modules not included in the degree structures

TuSOEntr: Entrepreneurship, minor, 20 - 35 cp

Validity: 01.08.2016 -
Form of study:
Type: Study module
Unit: LUT School of Business and Management

No course descriptions.

Elective studies

CS30A1372: Creative Design and Problem Solving, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Andrzej Kraslawski

Year:

M.Sc. (Tech.) 1

Period:

1-2

Teaching Language:

English

Teacher(s) in Charge:

Professor, Ph.D. Andrzej Kraslawski

Aims:

Learning outcomes: After fulfilling all requirements of the course, the students will be able to: 1. Understand the principles of creative problem solving 2. Know the basic methods of creative design 3. Work in team during the design process 4. Apply methods of creative design to products, processes, services and business methods

Contents:

The major subjects of the course are: Major Steps in Problem Solving Types of Problems Types of Design Concept of Creativity Survey of Intuitive and Structured Methods of Creativity Enhancement Types of Brainstorming Check lists Morphological analysis Synectics Case-based Reasoning Graphical Methods Evaluation of Ideas

Teaching Methods:

The course is organised as a combination of regular lectures and interactive problem-solving sessions and project works. The in-class problem-solving sessions will be based on the team work realised by the groups of 3-5 students. The 3-4 project works will be realised by the groups of 3-4 students during the out-of-class activities and it will be finished with the preparation of the project report. In-class teaching and problem-solving sessions 42 h, project works 88 h. Total workload 130 h.

Lectures, in class activity, period 1.
Project work, out-of - class activity, period 2.
Project work 88 hours

Suitability for doctoral studies (Yes/Leave empty):

Yes

Doctoral School course where enrollment is in WebOodi (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Final grade 0-5. Evaluation: Generated solutions of the in class problems 40 %, project reports 30 %, written exam 30%. Obligatory presence during 90% of in-class activities.

Course Materials:

Course slides.

Tony Proctor
Creative problem solving for managers
Routledge; 3rd edition, 2009

H. Scott Fogler and Steven E. LeBlanc
Strategies for Creative Problem Solving

Prentice Hall, 3rd edition , 2013

David Silverstein, Philip Samuel, Neil DeCarlo
The Innovator's Toolkit: 50+ Techniques for Predictable and Sustainable Organic Growth
Wiley, 2009

Alexander Osterwalder and Yves Pigneur
Business Model Generation
Osterwalder and Pigneur, 2010

Prerequisites:

Basic courses of management. Basic knowledge of engineering disciplines (e.g. process or mechanical engineering).

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, 90

Places for exchange-students? (Yes, number/No):

Yes, 35

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CS30A1691: Social Sustainability, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Suvi-Jonna Martikainen, Helinä Melkas, Satu Pekkarinen, Rakhshanda Khan, Suvi Konsti-Laakso

Year:

B.Sc. (Tech.) 3

Period:

4

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Helinä Melkas

Aims:

The student learns to understand the significance and meaning of social sustainability in development of business, organization as well as product and service processes. This aim is approached by looking into the theme both from theoretical and practice-based viewpoints. The student gains insight into the kinds of tools and methods that enable social sustainability to become part of business, management as well as product and service development. The student recognizes appropriate situations for applying these methods, and gains elements for critical thinking.

Contents:

Core content: social sustainability at different levels (global, societal and organizational), social innovation, frugal innovation, social enterprise, end-user involvement, employee involvement, human impact assessment Supplementary content: practical cases, methods and Living Lab activities

Teaching Methods:

Lectures (intensive teaching) and small group assignments during the lectures 5 h; case exercise to be given during the lectures 60 h; independent and/or group studies 66 h; presentation of case exercises in a closing seminar 10 h; personal learning diary 15 h = total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Case exercise 70%, learning diary 30%.

Course Materials:

The study materials consist of course slides and selected articles (will be announced later).

Places for exchange-students? (Yes, number/No):

Yes, 15

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

Related to:

to sustainability

CS34A0302: Entrepreneurship Theory, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Timo Pihkala, Marita Rautiainen

Note:

Opintojakso sisältyy myös yrittäjyyden sivuaineeseen. Mikäli kurssilla on vain suomenkielisiä osallistujia, se luennoidaan suomeksi.

Year:

M.Sc. (Tech.) 1

Period:

1

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Econ. & Bus. Adm.) Timo Pihkala
D.Sc. (Econ. & Bus. Adm.) Marita Rautiainen

Aims:

The student becomes familiar with the basic concepts of entrepreneurship, entrepreneurship theory and the latest theoretical directions within entrepreneurship research.

Contents:

Basic concepts of entrepreneurship, entrepreneurship theory, entrepreneurial person and the latest theoretical directions.

Teaching Methods:

Independent studies 148 h, lectures 8 h, total 156 h.

Suitability for doctoral studies (Yes/Leave empty):

Yes

Doctoral School course where enrollment is in WebOodi (Yes/Leave empty):

Yes

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

Yes

Examination in Exam (Yes/No):

No

Assessment:

0-5, Moodle-exams (50%) and written assignment (50%).

Course Materials:

Bridge, S., O´Neill, K. and Cromie, S. (2003): Understanding, Enterprise, Entrepreneurship and Small Business. (2nd ed.) Palgrave-MacMillan Shane, Scott: A general theory of entrepreneurship. The individual-opportunity nexus. Edward Elgar. Lecture materials

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, maximum 100. Priority is given to the student in Entrepreneurship masters program and students of entrepreneurship minor.

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 15- places for open university students. More information on the web site for open university instructions.

CS34A0401: Strategic Entrepreneurship in an Age of Uncertainty, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Marko Torkkeli, Ekaterina Albats, Justyna Dabrowska

Year:

M.Sc. (Tech.) 1

Period:

1

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Tech.) Marko Torkkeli

Aims:

Managing in a knowledge-based economy, Managing by Core Competences, Knowledge intensive firms, Uncertainty. Are they the latest buzz words or another passing managerial fad? Old wine in new bottles? Or perhaps, just perhaps, a fundamental means of survival and success for modern day corporations? Given the amount of effort that has been devoted to the topic by both academics and practitioners, it appears worth taking a deep and dispassionate look at the role of entrepreneurial thinking in sustained competitive advantage. The goal is to learn as you go and effectively convert assumptions to knowledge at a low cost. During the course students learn to develop and test a business idea following the discovery driven planning steps as well as using the uncertainty management tools of Attribute Mapping, Supply Chain Analysis, Differentiation, Quizzing and Market-Busters. The course does not teach business plan writing but rather focuses on opportunity recognition and feasibility assessment. Moreover, it adds the elements of lean and guerilla marketing as well as social entrepreneurship as possible avenues in dealing with entrepreneurial challenges.

Contents:

During the course students learn to develop and test a business idea following the feasibility analysis, discovery driven planning steps as well as using the uncertainty management tools of Attribute Mapping, Supply Chain Analysis, Differentiation, Quizzing and Market-Busters. The course does not teach business plan writing but rather focuses on opportunity recognition and feasibility assessment. Moreover, it adds the elements of lean and guerilla marketing as well as social entrepreneurship as possible avenues in dealing with entrepreneurial challenges.

Entrepreneurial thinking, uncertainty management, strategic entrepreneurship, discovery-driven planning.

Teaching Methods:

Lectures 20 h, Independent study 73 h, seminar work writing 63 h, 1. period. Total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

0 - 5. Based on assignment and in-class work, participation in the lectures required.

Course Materials:

Lectures and additional reading provided in the class. Book: McGrath Rita and MacMillan Ian, (2000). The Entrepreneurial Mindset. Harvard Business School Press.; McGrath Rita and MacMillan Ian, (2005). MarketBusters: 40 strategic moves that drive exceptional business growth. Harvard Business Press.

Places for exchange-students? (Yes, number/No):

Yes, 15

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

CS34A0551: Business Idea Development, 6 cp

Validity: 01.08.2016 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Timo Pihkala, Suvi Konsti-Laakso

Year:

M.Sc. (Tech.) 1

Period:

2

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Econ. & Bus. Adm.) Timo Pihkala

Aims:

Student can describe and explain key theoretical approaches associated to business idea development. The student learns to identify, develop and assess business opportunities and ideas. The student is familiar with and can apply different systematical tools and techniques related to business idea development.

Contents:

Core content: fuzzy-front end of entrepreneurial process, opportunity recognition, sources of business ideas, systemic generation of ideas; business idea related methods, structures and environments.
Supplementary content: innovation and creativity
Specific content: customer-oriented thinking

Teaching Methods:

Lectures 16 h. Learning diary and assignments 80 h. Written group assignment 60 h. In total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Grades 0-5, Learning diary (60%) and group work and presentation (40)%.

Course Materials:

Study materials include article package and it will be announced later.

Places for Open University Students?(Yes, number/No):

This course has 15- places for open university students. More information on the web site for open university instructions.

CS34A0721: Entrepreneurship, ownership and family firms, 6 cp

Validity: 01.08.2016 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Timo Pihkala, Marita Rautiainen

Note:

Replaces the course CS34A0720 Perheyrittäjyys.

Year:

M.Sc. (Tech.) 1

Period:

3

Teaching Language:

English

Teacher(s) in Charge:

Professor, D.Sc. (Econ. & Bus. Adm.) Timo Pihkala
D.Sc. (Econ. & Bus. Adm.) Marita Rautiainen

Aims:

The course introduces the student with the phenomenon of entrepreneurship, ownership, and family firm. After the course the student knows the conceptual special characteristics and the central theories of these phenomena. In addition, the student learns about ways to manage the transitional processes such as family business succession.

Contents:

Course explores the unique challenges and opportunities involved in managing a family firm. The course will address a wide variety of topics, including: the strengths and weaknesses of a family firm; the dynamics of family interactions; family business culture; conflict resolution in a family firm; transferring ownership of a family firm; planning for a family firm's growth and continuity; effective leadership and communication; and planning for succession.

Teaching Methods:

Lectures 20 h 3rd period. Prior reading and assignments 106 h. Preparation for lectures 30 h. In total 156 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

Yes

Examination in Exam (Yes/No):

No

Assessment:

Individual exercise 50 %, group exercise 30 % moodle exam 20 %

Course Materials:

1. Ernesto J. Poza (2010). Family Business, South-Western, Cengage Learning.
2. Materials indicated during lectures
3. Cases and articles delivered during the course.

Limitation for students? (Yes, number, priorities/Leave empty):

Yes, maximum 80. Priority is given to the student in Entrepreneurship masters program and students of entrepreneurship minor.

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 15- places for open university students. More information on the web site for open university instructions.

A330A5101SS: Creativity and Entrepreneurship in New Product Development from Silicon Valley's Perspectives, 3 cp

Validity: 01.06.2015 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Olli Kuivalainen

Note:

The course topics are related to sustainable development.

Year:

M.Sc. 1-2

LUT Summer School time:

17.-21.7.2017

Teaching Language:

English

Teacher(s) in Charge:

Professor D.Sc. (Econ.) Olli Kuivalainen, LUT

Aims:

Learning outcomes:

- To understand important elements of marketing strategy that is related to product management.
- To develop an in-depth understanding of new product/service development and management.
- To understand and utilise a process-oriented framework for making new product/service development decisions.
- To enhance business communication skills through preparation and presentation of new concepts for products and services via prototyping as well as its marketing plan.

Contents:

This course is designed to explore two critical business topics related to product management strategy in marketing:

- the design and development of new ideas for product/service innovations
- the management of new and existing products and services for sustainable business.

First, topics in new product development include idea generation and screening, design, planning, and prototyping, and new product roll-out, as well as the development of marketing strategies and implementation plans for new products and services.

Second, management of new and existing products involves in integration of new products into the product line, management of the marketing mix, quality of service, and customer development strategies. Throughout this project-based course, the importance of creativity, innovation and entrepreneurship will be emphasised as the sources of initiating and managing new products and innovation.

Teaching Methods:

- Lectures and in-class learning activities and assignments 28 hours
- Preparation for lectures and assignment 30 hours
- Preparation for the exam, and exam 22 hours

Total workload 80 hours.

Assessment:

Final grade 0-5. Evaluation 0-100 points:

- Final exam 30 points
- Group project 20 points
- In-class projects 5 points
- Group case studies 10 points
- Individual projects 20 points
- Class-participation 15 points

Course Materials:

- Main Textbook: C. Merle Crawford and C. Anthony Di Benedetto, New Products Management, 10th ed. Irwin McGraw-Hill.
- The additional reading materials from academic and business press articles (i.e., case, magazine, newspaper, and journal articles) will be distributed through the class time prior to the class discussion.

Prerequisites:

Previous studies in marketing recommended.

KaSOIbm: International Business and Management, 21 - 35 cp

Validity: 01.08.2016 -
Form of study:
Type: Study module
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F

No course descriptions.

Obligatory courses 21 cr

A370A0401: Case-Course of Business, 6 cp

Validity: 01.08.2012 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Jukka-Pekka Bergman

Year:

B.Sc. (Econ. & Bus. Adm.) 3

Period:

1-2, 3-4

Teaching Language:

English

Teacher(s) in Charge:

Post-Doctoral Researcher, D.Sc. (Tech.) Jukka-Pekka Bergman

Aims:

After completing the course, the student is familiar with basics of case-writing. S/he is able to describe business practices, organizational processes and structures, and explain their development using the frameworks s/he has previously learned. In addition, the student is able to construct a well-written description of a case-company and its development as well as development targets using different empirical materials and methods.

Contents:

Strategy analysis. Case study methodology. Case-writing.

Teaching Methods:

Lectures 4 h, selection of case-company and collection of data 40 h, reading of the literature needed in the description 40 h, case-writing in English (international groups) or Finnish 76 h and possible final seminar (4 hours). Total workload for student 160 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Grade 0-5, evaluation 0–100 p. Literary group assignment 100%.

Course Materials:

Lecture slides.

Prerequisites:

B. Sc. (Econ. & Bus. Adm.) 2 studies

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-10 places for open university students. More information on the web site for open university instructions.

A380A0000: Cross-Cultural Issues in International Business, 6 cp

Validity: 01.08.2011 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Igor Laine

Year:

B.Sc. (Econ. & Bus. Adm.) 2

Period:

3

LUT Winter School time:

Yes

Teaching Language:

English

Teacher(s) in Charge:

Post-doctoral researcher, D.Sc. (Econ. and Bus. Adm.) Igor Laine

Aims:

The goal of the course is to give an understanding of how the cultural environment affects management in international business, and advance students' global mindset by giving conceptual tools to increase their intercultural competence. After completing the course the students can:
- define and categorize culture
- explain cultural orientations towards time, space and context
- analyze and compare national cultures according to Hofstede's, Trompenaars' and GLOBE cultural dimensions
- understand the relationship between culture,
organizations and management - evaluate the effects of the cultural environment on international marketing strategies

- examine the sources of cultural conflicts in international organizations
- identify the role of cultural factors in managing and leading international teams
- apply studied theories and ideas to business situation

General aim of the course is to improve following personal skill sand abilities of the students:
- recognizing cultural differences
- interacting effectively with people from other cultures
- working in groups and international teams

Contents:

Concept and levels of culture, dimensions of culture in business (Hall, Hofstede, Trompenaars and GLOBE), the effect of culture on leadership and management in international business The limits of globalization from the cultural perspective, cross-cultural issues in virtual teams, standardization and adaptation in international marketing Country cases of cultural differences (term paper reports)

Teaching Methods:

15 hours of lectures, case study workshop (2 hours) and term paper presentation seminar (4 hours). Preparation for lectures 12 h. Writing of term paper, preparation for case study and term paper presentations, 63 h. Written exam and preparation for exam 65 h. Total workload for student 160 h.

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Grade 0-5, evaluation 0-100 points, written exam 60 %, term paper 30 %, case assignment 10 %, all assignments must be passed to obtain final grade.

Course Materials:

1. Browaeys & Price: Understanding Cross-Cultural Management (3rd edn), Pearson, 2015
2. Assigned readings
3. Lecture slides
4. Additional material distributed in class and via Moodle

Prerequisites:

Basic course in management or marketing

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

A380A0200: Promotion and Sales Management, 6 cp

Validity: 01.08.2011 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Anssi Tarkiainen, Tommi Rissanen

Year:

B.Sc. (Econ. & Bus. Adm.) 3

Period:

4

Teaching Language:

English

Teacher(s) in Charge:

Associate Professor, D.Sc. (Econ. & Bus. Adm.) Anssi Tarkiainen
Doctoral Student, M.Sc. (Econ. & Bus. Adm.) Tommi Rissanen

Aims:

After completing the course the student will understand how marketing communication (MC) and sales management (SM) are planned and implemented in an organization. This course will pay special emphasis on understanding the linkages between marketing communication and sales, and the challenges in their integrated management. The learning outcomes of the course are the following:
- to understand the role of MC and SM in marketing strategy
- to assess the usability of different forms of communication with regard to buyer behavior
- to be able to design, implement and manage marketing communication as part of the marketing process
- to be able to design, implement and manage sales as part of the marketing process
- to assess the challenges of integrating MC and sales management strategies
- to evaluate the effectiveness of MC and sales
- to recognize the ethical issues of promotion and sales management

Contents:

The role of marketing communication (MC) and sales management in marketing strategy. The role of buyer behavior and its effects on the nature of communication (mass vs interactive/personal). MC strategy process, message and media strategy. Media planning and characteristics of different media. Sales process and selling typologies. Responsibilities and tasks of sales management. Online marketing and selling. Strategic planning process of MC and sales; challenges of integrating MC and sales management strategies. Evaluation and ethics of promotion and sales management. The advertiser-agency relationship. The services in marketing communications campaign planning.

Teaching Methods:

Lectures 21 h 4. period. Exercises 15 h 4. period. Preparation for exercises 58 h (including written work) and preparation for the exam 66 h. Written exam. Total workload for student 160 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

Yes

Assessment:

Final grade 0-5, evaluation 0-100 points. Exercises 40 points, written exam 60 points.

Course Materials:

Selected articles and material that is provided during the course.

Prerequisites:

A130A0250 Kansainvälisen markkinoinnin perusteet

Places for exchange-students? (Yes, number/No):

Yes

Places for Open University Students?(Yes, number/No):

This course has 1-5 places for open university students. More information on the web site for open university instructions.

A380A6050: Introduction to International Business and Planning, 3 cp

Validity: 01.08.2011 -

Form of study: Basic studies

Type: Course

Unit: LUT School of Business and Management

Grading: Study modules 0-5,P/F

Teachers: Sami Saarenketo, Toivo Äijö

Year:

B.Sc. (Econ. & Bus. Adm.) 3

Period:

1 (intensive)

Teaching Language:

English

Teacher(s) in Charge:

D.Sc. (Econ.) Toivo S. Äijö, Top Trainers Group
Professor, D.Sc. (Econ. & Bus. Adm.) Sami Saarenketo

Aims:

To familiarize the students with the fundamentals of international business in general and strategic planning for international business in particular. To provide the students with the analytical skills required for critical evaluation of actual international business strategies.

Contents:

- The changes in the international Business environment and their effect on strategic planning.
- Theories of international trade and business.
- The institutions of international trade and business.
- The essence of competitive strategy.
- Levels of strategic planning.
- International expansion strategy.
- Supporting research.
- International marketing strategy: entry modes, targeting, product, service, pricing, promotion, sales and CRM.
- International functional strategies.
- Case studies.

Teaching Methods:

Intensive course during 1. period. 25 hours of lectures, interactive analyses, case exercises and assignments, carried out by the student, 55 hours, total course 80 h. Written examination.

Examination in Examination schedule (Yes/No):

Yes

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Graded 0-5 on the basis of case studies and class participation 20 % and written examination 80 %, evaluation 0 – 100 points.
50 % class attendance and participation required.

Course Materials:

The study material will be distributed at the beginning of the lectures.

Prerequisites:

Basic course in marketing

Places for exchange-students? (Yes, number/No):

Yes

Notes:

This course has 1-10 places for open university students. More information on the web site for open university instruction.

Elective 3 cr (if 24 cr minor needed)

A380A6000: Cross-Cultural Encounters, 3 cp

Validity: 01.08.2011 -
Form of study: Basic studies
Type: Course
Unit: LUT School of Business and Management
Grading: Study modules 0-5,P/F
Teachers: Tanja Karppinen, Minna Koponen, Aino Harinen

Year:

B.Sc. (Tech.) 1-3, B.Sc. (Econ. & Bus. Adm.) 1-3

Period:

3

LUT Summer School time:

8.1.-2.3.2018.

Teaching Language:

English

Teacher(s) in Charge:

Tanja Karppinen

Aims:

By the end of the course, students will know why it is important to understand and appreciate cultural differences both in business and private life. Students will be able to explain the basic concepts of intercultural communication by the main course themes: cultures and communication, verbal and nonverbal communication, national stereotypes, intercultural sensitivity, cross-cultural interaction, culture shock, adaptation, expatriate assignments. Students will be able to describe themselves as an intercultural communicator, recognize symptoms of culture shock in their own life and know how to make intercultural adaptation process easier.

Contents:

The purpose of the course is to develop students' abilities to understand and appreciate cultural differences both in business and private life.
- cultures and communication
- verbal and nonverbal communication
- national stereotypes
- intercultural sensitivity
- cross-cultural interaction
- culture shock
- adaptation
- intercultural effectiveness
- expatriate assignments

Teaching Methods:

24 hours of lectures and case exercises in English and 56 hours of out-class work. Total course 80 h.

Examination in Examination schedule (Yes/No):

No

Examination in Moodle (Yes/No):

No

Examination in Exam (Yes/No):

No

Assessment:

Graded 0-5 on the basis of activity, assignments given during the lectures and a portfolio composed of them. Case exercises 80 %, active participation and attendance 20 %. Evaluation 0 – 100 points.

Course Materials:

Reading material for the course provided by the lecturer.

Prerequisites:

Active participation and 80 % attendance.

Places for exchange-students? (Yes, number/No):

Yes, 30

Places for Open University Students?(Yes, number/No):

This course has 15- places for open university students. More information on the web site for open university instructions.