

MASTER´S PROGRAMME IN SERVICE MANAGEMENT AND ENGINEERING (120 ECTS)

STUDY PROGRAMME

Service Management and Engineering intermediate module A2 (20 cr)

The objective of the intermediate module is to introduce students to the operational side of service delivery, focusing on the service delivery systems, human resource management, and sales and marketing.

Courses:

TU-22.1307 Introduction to Services P (4 cr)

Teaching Period: I (Autumn)

Teachers: Paul Lillrank

Learning Outcomes: The course provides an introduction to service production systems.

Content: Service systems and processes are discussed in terms of modelling, analysis, and management. Service business and revenue models are included.

Assessment Methods: Short examination based on the lectures and the reading package. The examination will be held during some of the lectures. Active participation in the seminar sessions.

Students should prepare a learning diary or other written summary of what they perceive as the core issues learned.

Prerequisites: TU-22.1101 or TU-22.1102 and TU-22.1302.

Substitutes for Courses: Replaces the course TU-22.306 and TU-22.1306

Language of Instruction: English

TU-22.1320 Industrial Service Operations (6 cr) L

Teaching period: III

Teachers: Jan Holmström, Eero Eloranta

Learning outcomes: The student learns 1) how to analyze industrial service operations from both the service user and service provider perspectives; 2) how to design industrial service operations that effectively add value and improve asset and resource productivity for both service users and providers

Content: Service adoption and market, asset management, maintenance, product service systems, service supply chain, performance management, service planning and fulfillment, supporting information systems

Variable contents: Visiting lectures, updated article selection.

Literature: Lecture handouts and selected articles

Assessment methods: Exams and case assignments. To pass course 28 points are required. A pre-exam based on a reading list gives a maximum of 12 points, the exam based on lectures, visits, and case work gives a maximum of an additional 36 points. Each completed case assignment compensates for 2 exam points.

Language of instruction: The course and materials are in English

Prerequisites: TU-22.1101/TU-22.101. Other industrial management courses are recommended.

Additional information: Number of students restricted

TU-22.1325 Assignment in Industrial Service Operations (2 cr)

Teaching period: III-IV

Teachers: Jan Holmström, Eero Eloranta

Learning outcomes: The student applies in a practical context the knowledge needed to: 1) analyze an industrial service operation from both the service user and service provider perspectives; 2) propose a design for an industrial service operation that effectively adds value and improves asset and resource productivity for both service users and providers

Content: Work on a practical problem in a group of 3 to 4 students

Literature: -

Assessment methods: Practical assignment report passed

Language of instruction: The report is to be written in English

Prerequisites: Pre-exam of Industrial Service Operations

Additional information: Number of students restricted. Selection based on prerequisite pre-exam and availability of suitable assignments.

TU-22.1330 Service Purchasing and Supply Management (5 cr)

Teaching period: IV

Teacher in charge: Jussi Heikkilä

Other teachers: To be specified later

Learning outcomes: After participating in this course the student (1) knows the area of purchasing and supply management and (2) is capable of defining the main issues related to purchasing various types of goods and services. Furthermore, he/she (3) can analyze different types of services from the purchasing perspective and (4) develop a plan to implement supply management of selected services over a long term.

Content: Role of purchasing and supply management in a firm, purchasing spend, total cost of ownership, category management, structuring service needs and managing service content, sourcing and supplier management, setting objectives and negotiating contracts, service level agreements and performance measurement.

Assessment methods: Written exam, assignments

Evaluation: Exam, assignments

Study materials: To be specified later

Prerequisites: Service Management and Engineering Intermediate Module A2

Language of instruction: English

TU-91.2510 Managing Sales P (3 cr)

Teaching Period: IV (Spring)

Teachers: Juha Mattsson and guest lecturers from the Finnish industry.

Learning Outcomes: To give students a general but thorough understanding of the area of sales management for both professional and academic purposes, and to learn how to apply the knowledge to a number of industries.

Content: This course is an advanced level course giving a general but thorough overview of the area of sales management, with topics ranging from grass root level management of sales staff to the role of sales orientation in corporate strategy. This course binds sales together with such diverse subjects as R&D, corporate management, marketing, IT and public relations, in order to provide students with the insight of the diversity and importance sales has these days. Students will be rewarded with a deep understanding of the dynamics and challenges in organising sales work, and the course is ideal for students aiming any position dealing with the sales function. The course is organised jointly with HSE, mixing students with different backgrounds, ideas and approaches.

Assessment Methods: Exam, lectures and assignments.

Study Materials: Collection of articles on the topic

Prerequisites: Recommended TU-91.1002 or equivalent

Substitutes for Courses: Replaces the course TU-91.2031

Language of Instruction: English

Service Management and Engineering, advanced module A3 (20 cr)

The objective of the advanced module is for students to become aware of the state of the art in service innovation and procurement, and to gain first hand experience in proposing solutions to problems in a specific contexts.

Courses:

TU-22.1335 Service Innovation and New Service Development (5 cr) L

Teaching Period: I-II (2010)

Teacher: Marja Toivonen

Learning outcomes: The course aims at providing students with an understanding of the central topics in the field of service innovation. It links these topics to the general academic discussion about innovation and points out specific characteristics in services.

Content: This course is an advanced level course focusing on the area of innovation in services. It starts with a short overview on general innovation theories which form the basis for understanding innovation in services. Thereafter theories of the specificities of service innovation are discussed and some statistical data of innovation inputs and outputs in services are presented. Analysis of the models and studies focusing on service innovation as a process, and the outcome of this process, forms an important part of the course. Further, the topics include a summary of the drivers of innovation in services and the issues of dissemination and protection of service innovations. The course also provides students with a preliminary know-how of innovation management; this part of the course concentrates, among others, on the issue how to stimulate and channel innovativeness in a service firm. The course ends up with some new topics in the field of service innovation: open innovation, disruptive innovations, discontinuous innovation and service design.

Assessment methods: exam, lectures

Study materials: Collection of articles and book chapters on the topic

Language of instruction: English

TU-53.1110 Human Resources in Service Operations (4-5 cr)

Teaching period: I-II (2010)

Teachers: Matti Vartiainen and visiting lecturers.

Learning outcomes: Getting to know the role of human resources in service business.

Content: This course shows the role of intangible (human, relational and structural) capital in service businesses and provides basics to organize and develop human resources in service processes and networks related to customers' needs. Topics cover the following items among others: services as systems, human resources in service innovation and design, developing and implementing new services and service changes, organizational bases for service operations, knowledge and competences in services, change management in service context, developing and using distributed workspaces in networks, leadership and management of service teams, projects, inter-team collaboration, motivation and reward systems, developing and managing sustainable socio-technical service systems, measuring and evaluating employee and customer wellbeing and satisfaction.

Assessment methods: lectures, term paper.

Study material: Collection of articles on the topic

Prerequisites: Recommended TU-53.1010, TU-53.1020

Language of instruction: English

TU-22.1340 Seminar on Service Management and Engineering (5 cr)

Teaching period: I-II, 2010

Teachers: Paul Lillrank, Jan Holmström

Content: Seminar topics are chosen from current service engineering and management topics. Each

year a different focal industry is chosen. The seminar is divided into different streams based on the academic domain and viewpoint of the different topics.

Objectives: Introduce students to relevant and current service engineering and management topics in a field of business.

Assessment methods: The student submits a seminar report on a topic agreed upon with the instructor. The report is presented at the seminar. Attendance at the seminars is required. The grading follows the standard procedure.

Target group: The course is meant for students taking their Masters in Service Management and Engineering.

Prerequisites: Service Management and Engineering, intermediate module A2

Language of instruction: English

TU-22.1345 Special Study in Service Management and Engineering (5 cr)

Teaching period: I-II, 2010

Teachers :Jan Holmström, Paul Lillrank

Content: Determined by individually defined subject.

Objectives: Introduce students to relevant and current applications in a specific business situation.

Assessment Methods: Progress of individual assignments is followed in seminar sessions. The course is meant for students taking their Masters in Service Management and Engineering.

Prerequisites: Service Management and Engineering, intermediate module A2

Language of instruction: English

Special Studies in Industrial Engineering and Management C (20 cr)

The objective of this module is to harmonize the background knowledge of students. It also allows enhancement of knowledge of some specific area of industrial management. Therefore the courses are agreed with professor in charge.

The following list is an example of the courses that a student can suggest to upgrade or advance his/her knowledge of industrial management:

TU-53.1030 Knowledge and Competence Management 3 cr

Timing: Autumn (Period I-II)

Objective: The goal of the course is to provide the participants with theoretical and practical understanding and knowledge of knowledge, knowledge management and management of competences in organizations. After the course students are expected to understand challenges of managing knowledge and competences as well as how knowledge-intensive organizations operate with their knowledge assets, the different types of intangible capital, and how knowledge and competences can be managed and developed in such organizations. The participants learn to understand how intangible capital can be developed in organizations.

Contents: The course introduces concepts of different types of knowledge (e.g., tacit and explicit) and intangible capital (e.g., human and intellectual, structural and social capitals) that are essential resources for knowledge-intensive organizations. The course discusses how organizations apply organizational practices and technological tools for sharing and creating knowledge and competences, and for utilizing their intangible resources.

Realisation and working methods: Exam.

Study materials and literature: Jashapara, A. (2004) Knowledge management: An integrated approach. Essex: Pearson Education Limited. Selected articles. Additional material will be announced when the course starts.

Lecturer: Eila Järvenpää, Eerikki Mäki and Matti Vartiainen

Language: English

TU-22.1115 Design of Production Systems B 4 cr

Timing: Autumn (Period I-II)

Objective: To elaborate the concepts and theories that aim to explain and predict the design and operation of production systems from strategy level down to daily performance. Further objective is to apply the acquired theoretical and conceptual knowledge in practice for hands-on skills through case studies and a practical assignments.

Contents: Operations strategy, service operations, process choices and production layout, production control, interfaces to supply chain management.

Realisation and working methods: Examination, assignment.

Study materials and literature: Stevenson, William J.: Operations Management. McGraw-Hill. 9th Edition. Lecture handouts.

Lecturer: Eero Eloranta

Prerequisites: TU-22.1101 or TU-22.1102, it is not recommended to take this course before the 3rd year of studies because of the assignment.

Language: English

TU-91.1003 Principles of Strategic Management 4 cr

Timing: Spring (Period III-IV)

Objective: After the course, the participant should (1) know the main concepts of strategic management, (2) understand the main approaches to strategy and how they have developed over time, (3) be able to apply the most common frameworks and tools of strategic management, and (4) have a basic understanding of how to think and act strategically in different kinds of strategy development situations.

Contents: Overview of key concepts, frameworks and theories of strategic management through lectures and course literature; presentations of visiting strategy professionals.

Realisation and working methods: Depends on the course version. Both course versions have the same literature, but the 4 credit version also includes a special assignment.

Study materials and literature: Mintzberg, H., Ahlstrand B., and Lampel, J. 1998. Strategy Safari. The Free Press, and Johnson, G., Scholes, K., and Whittington, R. 2008. Exploring Corporate Strategy. Prentice Hall.

Lecturer: Tomi Laamanen

Prerequisites: TU-22.1101

Language: English

TU-53.1360 Cross-Cultural Management 3 cr

Timing: Autumn (Period II)

Contents: Today many companies and other organizations operate on global market, and their personnel has a multicultural background. Individuals, teams and organizations of different nationalities meet in daily business and other activities. Competences in cross-cultural management are becoming increasingly important. The goal of the course is to increase the participants' understanding about different cultures, and working and doing business in multicultural environment.

Realisation and working methods: Exam, written assignment.

Study materials and literature: Schneider, S.C. and Barsoux, J.L.: Managing across cultures.

Lecturer: Eila Järvenpää and Stina Immonen

Language: English

TU-22.1425 Advanced Project-based Management 3 cr

Timing: Autumn

Objective: The objective of the course is to deepen knowledge in the practical application aspect of project-based management and to increase understanding of different management processes in projects and in project-based firms.

Contents: Application of project management procedures and methodologies in organizations. Processes and their management in professional organizations. Project-based firm's business and project portfolio management. Focus is on deepening the practical application aspect of project-based management. Different project types and industry specific approaches and applications.

Realisation and working methods: Assignments and examination

Study materials and literature: To be announced separately.

Lecturer: Karlos Artto and Kirsi Eloranta

Prerequisites: TU-22.1120

Language: English

TU-22.1160 Business Game 1-2 cr

Timing: Spring

Objective: Students should improve their skills in decision-making and understanding of financial information.

Contents: The course gives an aggregate view of business and financial planning. In the simulated business environment, students learn by doing how different decisions concerning products, production and marketing affect the financial success of a company and how competition complicates planning.

Realisation and working methods: Students form a management team for a company and compete against other companies in a simulated environment. Approved game performance. Extended report of the game performance required for 2 credits.

Lecturer: Jouko Karjalainen

Prerequisites: TU-22.1101, TU-22.1130, TU-22.1113/1115/1202

Language: English

TU-91.2003 New Venture Development I 3 cr

Timing: Autumn (Period I)

Objective: To gain an understanding of the entrepreneurial process and to apply these insights into the assessment of an entrepreneurial opportunity.

Contents: Process overview and frameworks illustrated with case studies.

Realisation and working methods: Lectures, individual assignment and one group assignment.

Study materials and literature: John W Mullins, the New Business Road Test (FT Prentice Hall, 2003) and other material delivered in course sessions.

Lecturer: Peter Kelly

Language: English

Substitutive: Replaces the course TU-91.120.

Students with insufficient technical background must complete a technical package of 20 credits:

Special Studies in Software Engineering and Services C (20 cr)

T-76.3601 Introduction to Software Engineering 5 cr

Contents: The course provides a broad, but practical view of major areas in software realization. Among others, the course deals with project specification, cost estimation and guidance, quality and quality control, software metering, process estimation and development. The course consists of lectures and exercises during which topics discussed during lectures are realized.

Realisation and working methods: Examination and exercises.

Study materials and literature: Roger S. Pressman: Software Engineering: A Practitioners Approach, 6th edition. McGraw Hill 2005.

Lecturer: Teaching researcher Casper Lassenius

Prerequisites: Basics in programming.

Timing: III-IV, Spring

Language: English

Substitutive: Replaces former course T-76.601 Introduction to Software Engineering.

T-76.4602 Software Development Methods 6 cr

Contents: The course provides basic understanding to software development methods in different development phases. After the course, the student will have a broad understanding of software development methods as a whole and can effectively participate in software development projects. The detailed topics will be announced later. The course consists of lectures and exercises during which topics discussed during lectures are realized.

Realisation and working methods: Examination and exercises.

Study materials and literature: To be announced later.

Lecturer: Marjo Kauppinen

Prerequisites: T-76.3601 Introduction to Software Engineering

Timing: I-II

Substitutive: Replaces former course T-76.611 Software Design and Specification Methods, T-76.614 Software Product Management.

T-86.5310 ICT Enabled Service Business and Innovation 6 cr

Objective: The aim of this course is to provide a good basis for understanding services business and the role of ICT in it. The course will address the timely issues in services innovation in a variety of services sectors, including industrial services, banking and insurance services, consumer services and the public sector. By taking a "Services Design and Engineering" viewpoint the course will focus on issues in designing, developing and managing services.

Contents: While ICT is a tool for increasing productivity, it also is an important enabler for services innovation. The applications range from adding service elements to industrial products to creating new service concepts based on today's interconnected, digital and globally networked environment. By taking a "Service Engineering" view point the course focuses on issues in designing, developing and managing services. These will be illustrated by actual cases from the industry and the public sector that are presented by Finnish and international experts from the industry and research organizations. The course is open for all students, including outside the Helsinki University of Technology

Realisation and working methods: Participation in lectures, assignment and its reporting, exam.

Study materials and literature: See course web pages.

Evaluation: Exam and assignment form the grade.

Lecturer: prof. (pro tem) Matti Hämäläinen, prof. Juha Laine and researcher Mikko Heiskala

Prerequisites: Basic knowledge of IT business and information systems concepts is preferable.

Timing: IV (Spring)

Language: English

Substitutive: Replaces course T-86.5300 Information and Communication Technology Enabled Commerce (ICTEC).

T-110.4206 Information Security Technology 3 cr

Contents: The course covers basic methods for implementing security and applying them. Building safe systems. Identification, authentication and access control. Possibilities offered by cryptography. Security models. Security of operating systems and services.

Realisation and working methods: Final exam and mandatory homework.

Study materials and literature: Please see course homepage.

Lecturer: Lecturer Timo Kiravuo

Prerequisites: T-110.2100 equivalent skills.

Timing: 24 + 0 (4 + 0) II, Autumn

Other information: Equivalent course: T-110.4200

Language: English

Scientific principles M (10 cr)

TU-0.2000 Industrial Management Research Methods 5 cr

5 credits from the list of methodological studies concerning the whole TKK

Elective studies W (20 cr)

Compulsory courses:

T-106.1003 IT –services at TKK (2 cr)

English language test/course (3 cr)

Recommended: Practical training max. 5 cr

Master's thesis D (30 cr)