



AALBORG UNIVERSITET

Information Technology (Information Studies) 8th semester, Aalborg

Semester description

Semester details

School: School of Communication, Art and Technology (CAT)

Study board: Communication and Digital Media

Study regulations: http://www.fak.hum.aau.dk/digitalAssets/153/153006_ka_information-studies_2016_hum_aau.dk.pdf

Semester framework theme

This semester focus on development and design of Information and Communication Technology (ICT). This includes teaching within the overall research area of systems design with specific emphasis on user-driven theories and methods, organisational change in relation to systems design and implementation, information architecture, formal models for preparing and communicating design solutions, and epistemological understandings of information with a view to reflecting on the scientific theoretical basis of design.

Semester organisation and time schedule

The semester is organised with a series of lectures presenting and discussing philosophies, theories and methods combined with exercises. This supports students ability to build knowledge through shared readings, applications and reflections on ICT design philosophies, theories, methods and specific software.

The semester is composed of 3 modules:

- Development and design of ICT (20 ECTS). The module will introduce students to design of ICT directed towards organisational practice or another professional practice as an additional core activity in the practice field of informatics. This module is developed through the whole semester.
- ICT for Learning, Knowledge and Content Management (5 ECTS). Introduces to the management and adaptation of systems for learning, knowledge and content management.
- Elective course (5 ECTS). Students will choose a course from the Elective modules for Master's programmes under the Study Board of Communication and Digital Media. These electives courses will be running on Fridays (starting on February 24th).

Detail of the activities of each module will be described in the specific module description.

Semester coordinator and secretariat assistance

Module coordinator: Ann Bygholm (ann@hum.aau.dk)

Secretary: Pia Knudsen

DEVELOPMENT AND DESIGN OF ICT (KDM_KA_INFORMATIONSVIDENSKAB_AAL)

General

Module Description: Development and design of ICT

The module introduces students to systems design with specific emphasis on designing with the use practice through user-driven theories and methods, organisational change in relation to systems design, Interaction design and information architecture, formal models for preparing and communicating design solutions, and epistemological understandings of information with a view to reflecting on the scientific theoretical basis of design.

Students will acquire skills in assessing and choosing strategies and methods for systems design, data collection and analysis in systems design, applying formal models for communicating systems design to peers and practitioners.

Students will acquire competencies in taking an analytic, reflective and critical approach to the preconditions and approaches to systems design, engaging professionally in interdisciplinary collaboration, and identifying and structuring own learning needs in relation to the design brief.

Scope and expectations

20 ECTS is 550 working hours and 2.000 pages of literature.

The module is organised with 36 (??) lecture hours at campus for which students are expected to prepare for 5-6 hours for each lecture hour. Preparations will especially be readings. Additionally, students are expected to conduct exercises related to lectures. Through the semester students conduct a project within the theme 'Development and Design of ICT' independently. Since Development and Design of ICT is a discipline integrating philosophy, theory and practice students must expect to carry out fieldwork as well as theoretical studies and work on the ability to integrate theory and practice.

Semester Project

Students must expect a workload of 250 hours for the semester project. For the semester project students receive supervision from teachers at the semester. The semester project is concluded with a semester report consisting of no less than 15 pages and no more than 20 pages per student in a project group, and 30 pages if written individually.

Project reports are to be handed in May 24th and examinations will be held in June.

Course readings and scientific project specific literature is expected to be part of the project work.

Examination

Students are examined on the basis of the project report.

Duration of examination: 20 minutes per student and 10 minutes per group for assessment and announcement of result, although no longer than a total of two hours. 30 minutes in total for individual examinations.

Evaluation: Grading according to the 7-point scale. At oral group examinations, the examination must be conducted in such a way that individual assessment of each individual student's performance is ensured.



Meddelelser

This lecture surveys the history of systems development and also give an introduction of activities that takes place in industry practice today, without assuming prior knowledge to programming or industry experience. Waterfall and agile methods are compared and contrasted.

Literature

Agile System Development - v /P.O.Zander

Introduction to agile methods. Reflecting back on previous experience of agile projects (as students or employees). This session is highly interactive.

Information Architecture - v/Tanja Svarre

The lecture introduces the notion of information architecture and presents the four core components of the concept: Organization, navigation, labelling, and search.

Literature for the topic

Name of the text	Mandatory	Additional.	Dig. Upload
	lit. no of pages.	lit. no of pages.	
Morville, Rosenfeld, Arango (2015). <i>Information Architecture: For the Web and Beyond</i> . Sebastopol: O'Reilly. Ch. 5-10. Available here.	229		no

Participatory system development and principles of participation -v/Pernille K.V.Andersen

This lecture gives an introduction to the general principles of PD, and a brief introduction to its history and origin. In specific the lecture will elaborate on the notion of participation, as a central aspect of user-driven approaches and ideals. We will discuss different forms, mind-sets and approaches towards participation

Literature

	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. Upload
Simonsen, J., & Robertson, T. (Eds.). (2013). <i>Routledge international handbook of participatory design</i> . New York: Routledge (Introduction, p 1-17 + Chapter 1, p. 17-36 + Chapter 3, p. 37 – 63 + Chapter 6, p. 117-145)	91		
Sanders, L. (2008). An Evolving Map of Design Practice and Design Research. <i>Interactions</i> , November + December, 13-17. (Online access via aub.aau.dk & ACM digital library)	5		

Yanki Lee. "Design participation tactics: the challenges and new roles for designers in the co-design process". <i>CoDesign</i> , 4:1, pp. 31-50 2010. (Available online via aub.aau.dk).	20		
Kanstrup & Bertelsen: "Participatory Reflections – Power & Learning in User participation", In T. Børsen & Lars Botin (Eds.): <i>What is Techno-Anthropology?</i> Aalborg University Press, Series in Transformational Studies; Nr. 1, Vol. 2, pp. 405-430. (Preprint available in folder)	25		yes

Tools and techniques in user-driven design - v/Pernille K.V.Andersen

The lecture introduces challenges as well as potentials of different user-involving methods and techniques in the design process. Most traditional expert driven methods are relatively one-directional – e.g., we analyse the requirements *from* the users; we deliver a system *to* the users; we collect usability data *from* the users. In user-driven design it is important to have *two-directional* communication. The lecture will in specific present different tangible and visual artefacts/techniques communicative, mediating and generative qualities. We will discuss how artefacts can be used to challenge knowledge derived from different domains and practices as well as how artefacts can be used to scaffold mutual learning between designer and stakeholders.

Literature

	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. Upload *
Sanders, L., & Stappers, P. J. (2012). <i>Convivial Design Toolbox: Generative Research for the Front End of Design</i> . BIS. (Chapter 3, p. 64-95)	30		
Muller, M. J., & Druin, J. A. (2012). Participatory Design. The Third Space In J. A. Jacko (Ed.), <i>The Human-Computer Interaction Handbook 3rd Edition</i> : CRC Press. (p. 1125-1153)	28		
Mattelmäki, T. (2005). Applying probes – from inspirational notes to collaborative insights. <i>CoDesign</i> , 1(2), 83–102. Downloades fra: http://www.tandfonline.com/doi/full/10.1080/15719880500135821	20		
Simonsen, J., & Robertson, T. (Eds.). (2013). <i>Routledge international handbook of participatory design</i> . New York: Routledge (Chapter 7, p. 145-182 + Chapter 8, p. 182 - 209)	17		
Kanstrup, A. M., & Christiansen, E. (2009). User-Driven Innovation as Mutual but Asymmetrical Learning. <i>International Journal of Technology and Human Interaction</i> , 5(3), 1-12	12		
Kanstrup, A. M., & Bertelsen, P. S. (2016). Bringing new voices to design of exercise technology: participatory design with vulnerable young adults. In PDC '16 Proceedings of the 14th Participatory Design Conference: Full papers. (Vol. 1, pp. 121-130). Association for Computing Machinery. (PDC : Proceedings of the Participatory Design Conference). DOI: 10.1145/2940299.2940305	20		
Gudiksen, S. K., Poulsen, S. B., & Buur, J. (2014). Making business models. <i>CoDesign</i> , 10(4), 15-30	15		

Multi-stakeholder collaboration, a critical perspective on participatory engagement and design - v/Pernille K.V.Andersen

Participatory development of new technologies or practices takes place within the confines of different professional knowledge bases and work traditions, each of which derives from its own means of formal and informal education, languages, cultural background, and goals. In this lecturer we will take a more critical look at the challenges of multi-stakeholder collaboration and participation, and look at how to navigate between different interests and assumptions as well as support collaborative negotiation. The topic of this lecture is explored through a case example and a concrete tool is presented.

Literature

	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. * Upload
Gottlieb, F., Larsen, H., & Sørensen, V. (2013). <i>Multi stakeholder innovation</i> . Paper presented at the Proceedings of the Participatory Innovation Conference, 2013, Lathia, Finland. 253-261	8		
Sproedt, H., & Larsen, H. (2012). <i>Social Shaping of Innovation—the Practice of Dealing with Paradox, and Conflict</i> . Paper presented at the 13th International CINet Conference, Rome (pp. 1003-1012)	10		
Sengers, P., Boehner, K., David, S., & Kaye, J. J. (2005). <i>Reflective Design</i> . Paper presented at the Proceedings of the 4th decennial conference on Critical computing: between sense and sensibility, (pp. 49-58). ACM	10		
Andersen, P. V. K. (2016). Steps towards a Third Space: A case study of multi-stakeholder communication mediated by a tangible tool . Aalborg Universitetsforlag. (Ph.d.-serien for Det Humanistiske Fakultet, Aalborg Universitet). (Chapter 55-84) (Assesible through: http://vbn.aau.dk/en/publications/steps-towards-a-third-space(d59af168-a682-4416-a609-6f1a6f5f0c20).html)	30		
Simonsen, J., & Robertson, T. (Eds.). (2013). <i>Routledge international handbook of participatory design</i> . New York: Routledge (Chapter 9, 10 and 11 pp. 203-280)	77		

Organizational Change and Desing of ICT

Lecture description

This lecture will introduce the students to the organizational context and chance when designing ICT. The students will be get an understanding of different change models, different type of changes and considerations before, during and after technology is implemented in organizations. Furthermore, it will present some cases/examples of ICT related organizational changes.

Literature for the topic

Name of the text	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. Upload
Burnes, Bernard (2004) Kurt Lewin and the Planned Approach to Change: A Re-appraisal. Journal of Management Studies 41:6 September 2004 (only from page 977-992)	16		
Cabrera, A., Cabrera, E. and Barajas, S. (2001).The key role of organizational culture in a multi-system view of technology-driven change. International Journal of Information Management 21.	17		
Rafferty, A., Jimmieson, N., & Armenakis, A. (2013). Change Readiness: A multilevel review. Journal of Management, 39(1), 110-135.	26		
Kotter, J. (2012). Leading Change (2.nd ed.). Boston, Mass: Harvard Business Review Press (chapter 2)	15		
Kotter, J. (2012). Leading Change (2.nd ed.). Boston, Mass: Harvard Business Review Press (chapter 3-10)		130	
Lewis, L. K. (2011). Organizational change: creating change through strategic communication. Chichester, West Sussex; Malden, MA: Wiley-Blackwell. (Chapters 1-3)	94		
Markus, L. (2004) Technochange management: using IT to drive organizational change. Journal of Information Technology 19:4-20. (Palgrave Macmillan)	17		
Schein, E. (1996) Kurt Lewin's Change Theory in the Field and in the Classroom: Notes Toward a Model of Managed Learning. Systems Practice, Vol. 9, No. 1(only from page 27-37)	10		
Total literature pages for this topic	195	130	

Formal Models - v/Tanja Svarre

The lecture defines formal models within the frame of software development and gives examples of different ways of modelling software, e.g. by means of UML and blueprints.

Name of the text	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. Upload
Garlan (2000). Software architecture: a roadmap. Proceedings of the Conference on The Future of Software Engineering (pp. 91-101). New York: ACM. Available here.	12		no

Design Thinking in Practice - v/Heilyn Camcho

Lecture description

These lectures cover the theory of Design thinking and the implementation of the methodology through a real case exercise (6 hours lectures + a field trip).

The topic is organized as follow:

- On March 1st, we are focused on the theory of Design Thinking
- On March 1st and 2nd, there is a short field trip about collecting data using Design Thinking tools. It is around 3 hours. The group will be divided in sub-groups and each subgroup will collect data in different places.
- On March 2nd, we will working with the data collected, we will try to get some first prototypes for the design challenge.

The design challenge will be around the topic of technology to improve education in schools.

Literature of the topic

Name of the text	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. Upload
Brenner, W., Uebernickel, F., & Abrell, T. (2016). Design Thinking as Mindset, Process, and Toolbox. In Brenner, W., Uebernickel, F. (Eds.), Design Thinking for Innovation (pp. 3-25). Cham: Springer International Publishing.	18		
Thienen, V., Meinel C. and Nicolai, C (2014). How Design Thinking Tools help to solve Wicked Problems. In H. Plattner et al. (eds.), Design Thinking Research, Understanding Innovation, Springer International Publishing Switzerland.	6		
Kôppen, E. and Meinel, C. (2014). Empathy via Design Thinking: Creation of Sese and Knowledge. In H. Plattner et al. (eds.), Design Thinking Research, Understanding Innovation, Springer International Publishing Switzerland.	14		
Gumienny, R., Dow, S., Wenzel, M., Gerick, L. and Meinel C. (2014). Tagging User Research Data: how to support the synthesis of Information in Design Teams. In H. Plattner et al. (eds.), Design Thinking Research, Understanding Innovation, Springer International Publishing Switzerland.	23		
Thoring, Katja, Muller, Roland, M., Martens, Jean-bernard, & Markopoulos, Panos. (2011). Understanding the creative mechanisms of design thinking: An evolutionary approach. Creativity and Innovation in Design Proceedings of the Second Conference, 137-147	10		
Tschimmel, K. (2012). Design Thinking as an effective Toolkit for Innovation. In: Proceedings of the XXIII ISPIM Conference: Action for Innovation: Innovating from Experience. Barcelona.	20		
Brown, T. Change by design: how design thinking transforms organizations and inspires innovation. Harper Business, New York, 2009 (Chapters from 1-8).	202		

Martin, R. L. (2009). The design of business. Why design thinking is the next competitive advantage (3rd ed.). Cambridge, MA: Harvard Business School Press (195 pages).		195	
Total of literature pages	293	195	

Students will get a lot of "how to do" material.

Usability - v/Tanja Svarre

The lecture presents the notion of usability as a component for design and evaluation of web interfaces. Further, usability is discussed and compared to user experience as a different way of measuring user satisfaction.

Name of the text	Mandatory	Additional.	Dig. Upload
	lit. no of pages.	lit. no of pages.	
<i>Rogers, Sharp, Preece (2015). Interaction design: beyond human-computer interaction. Chichester: Wiley. Ch. 13-15.</i>	229		
Vermeeren et al. (2010). User experience evaluation methods: current state and development needs. Proceedings of the 6th Nordic Conference on Human-Computer Interaction (pp. 521-530). <i>Available here.</i>	10		

Philosophy and Information v/P.O. Zander

This lecture revisits information as a concept and relates it to our field. We trace the historical origins and outline relevant streams of thought (philosophical, domain-specific). We try to relate it to other, related, foundational concepts (data, knowledge, information system, information architecture, etc.). Can we talk about information systems without using the concept of information?

ICT FOR LEARNING, CONTENT AND KNOWLEDGE MANAGEMENT

(KDM_KA_INFORMATIONSVIDENSKAB_AAL)



Meddelelser

Welcome to ICT for Learning, Content and knowledge Management

Introduction (POZ)

Learning Theory (TR)

Workshop on adoption and implementation of Learning Management Systems (POZ/HC)

Knowledge management and KM systems (HC)

Lecture Description

This lecture will introduce the students to the concepts of the process of Knowledge creation, knowledge sharing and knowledge management. Furthermore, the role of ICT in the field of Knowledge management will be presented including a brief introduction about knowledge management systems.

Literature

	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. * Upload
Tan, S. C., So, H. J., & Yeo, J. (Eds.). (2014). Knowledge Creation in Education. Singapore: Springer Singapore (chapter 2).	24		
Blacker F. (1995). Knowledge, knowledge workers and organizations: an overview and interpretation. Organization Studies 16(6): 1021-1046.	25		
Teo, T., Nishant, R., Goh, M. and Agarwal, S. (2011) Leveraging Collaborative Technologies to Build a Knowledge Sharing Culture at HP Analytics. MIS Quarterly Executive. Vol. 10, No 1, page 1-18	18		
Panahi, P.; Watson, J. and Partridge, H. (2013) Towards tacit knowledge sharing over social web tools. Journal of Knowledge Management, Vol. 17, No 3. pp. 379-397. Emerald Group Publishing Limited, ISSN 1367-3270	18		
Alavi, M. and Dorothy E. L. (2001) "Review: Knowledge Management and Knowledge Management Systems: Conceptual Foundations and Research Issues", MIS Quarterly, Vol. 25, No. 1, pp 107-136.	29		

Nonaka, I., Toyama, R., & Byosiore, P. (2001). 'A Theory of Organizational Knowledge Creation: Understanding the Dynamic Process of Creating Knowledge'. In: M. Dierkes, A. B. Antal, J. Child & I. Nonaka (eds.). *Handbook of Organizational Learning and Knowledge*. Oxford: Oxford University Press, p. 491-517

Enterprise systems (HC)

Lecture description

This lecture introduces the different enterprise systems (Customer Relationship Management, Enterprise Resource Planning, Supply Chain Management) and its impact in organizations.

Literature

	Mandatory lit. no of pages.	Additional. lit. no of pages.	Dig. * Upload
Shari Shang & Peter B Seddon. (202) Assessing and managing the benefits of enterprise systems: the business manager's perspective. Info Systems Journal 12, 271–299	28		
Rajiv Malhotra and Cecilia Temponi (2010). Critical decisions for ERP integration: Small business issues. International Journal of Information Management 30, pag. 28–37	9		
Kumar, V; Reinartz, Werner (2012) Chapter 1: Strategic Customer Relationship Management Today. In Customer Relationship Management : Concept, Strategy, and Tools. Chapter 1: / SpringerLink (Online book at AUB)	17		
Ross, D. (2011). Introduction to Supply Chain Management Technologies. Second Edition. CRC Press. Taylor & Francis Group. Chapter 3 from page 65-80	15		

Topic 7

Topic 8

Topic 9

Topic 10