Human Centered Informatics 8th semester, Aalborg

Semester description

Semester details
School: School of Communication, Art and Technology (CAT)
Study board: Humanistic Informatics
Study regulations: http://www.fak.hum.aau.dk/digitalAssets/84/84303_curriculum_ma_human_centred_informatics_2014_hum_aau.pdf

Semester framework theme
This semester focus on development and design of Information and Communication Technology (ICT). Building on curriculum from previous (7th) semester's work with analysis of use practices, this semester introduce the challenge of how to design with use practice. This includes teaching within the overall research area of 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.

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 and methods.
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 develop 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. This module will be developed in week 10 to 13.
- Elective course (5 ECTS). Students will choose a course from the Elective modules for Master's programmes under the Study Board of Humanistic Informatics. These electives courses will be developed during 5 Fridays (from week 9 to week 13).

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

Semester coordinator and secretariat assistance
Module coordinator: Heilyn Camacho: hcamacho@hum.aau.dk
Secretary:

Module description (description of each module)***

Module title, ECTS credits and STADS code
Module 12 "Development and Design of ICT"   20 ECTS

Location
8th semester   *Study board* Humanistisk Informatik

Module coordinator
Heilyn Camacho

Type and language
English

Objectives
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.

Academic content and basis
Cf. semester description

Scope and expectations
The module is organised with 29 lecture hours at campus for which students are expected to prepare for a minimum of eight hours for each lecture hour. Preparations will especially be readings. Additionally, students are expected to conduct exercises related to lectures for a minimum of 100 hours. 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.   Students must expect a workload of 200 hours for the semester project. For the semester project students receive 12 hours of supervision and examination 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.

Participants
Students enrolled at the 8th semester Human Centered Informatics

Prerequisites for participation
BA-level in studies accepted by the study board of Humanistisk Informatik

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Module activities (course sessions etc.)

Semester Introduction (Heilyn Camacho)
February 2 at 9:00-10:00

Information Philosophy
- *type of teaching:* lectures
- **February 4th**, from 9:00-12:00. These lectures will focus on the notion of information as seen from a conceptual and philosophical point of view. Readings: Gregory Bateson (1972/2000) Social Planning and the concept of deutero learning in Gregory Bateson: Steps to an Ecology of Mind, University of Chicago Press, pp 159-176
- *Lecturer:* Ellen Christiansen
- *Slides and other resources will be available on Moodle.*

Systems Design
- *type of teaching:* lectures and fieldwork.
- ***February 2nd, from 10:00-12:00 : Introduction to systems development. (PO Zander). Readings: a)*** Parnas, D., & Clement, P. (1986). A rational design process - How and why to fake it. IEEE Transactions on Software Engineering, 12(2), 251-257. B) Royce, W. (1970). Managing development of large software systems. IEEE Wescon (pp. 1-9). C)Boehm, B. W. (1988). A spiral model of software development and enhancement. Computer, 21(5), 61–72. doi:10.1109/2.59
- **February 6th,** from 10.00-12.00: Agile methods. *(PO Zander).* Readings: a) http://www.mountaingoatsoftware.com/agile/ (Cohn's site on Agile & Scrum, good for beginners), b) Beyer, H. (2010). User-ceiptionntered agile methods. San Rafael, Calif. Morgan & Claypool Publishers. c) Royce, W. (n.d.). Managing development of large software systems. In IEEE Wescon (pp. 1–9)
- **February 9th,** from 9:00- 12:00: 'Systems Design & Participation – an introduction'. Anne Marie Kanstrup. Readings: a) Löwgren & Stolterman Chapter 1+2 & b) Michael J. Muller: "Participatory Design: The Third Space in HCI" Human-computer interaction: Development process (2003): 165-185. b) Sanders, E. (2008) An evolving map of design practice and design research. Interactions Magazine – November and December, 2008.
- **February 10th, from 12:30 – 15:30**: 'Design roles and Methods and Techniques' Anne Marie Kanstrup. Readings: a) Löwgren & Stolterman Chapter 3 + 4, 6 & b) Yanki Lee: "Design participation tactics: the challenges and new roles for designers in the co-design process", in CoDesign, 4:1,31-50 2010. c) Kanstrup & Bertelsen: "Participatory Reflections – Power & Learning in User participation", In *What is Techno-Anthropology?* Tom Børsen & Lars Botin (eds.) Aalborg University Press, Series in Transformational Studies; Nr. 1, Vol. 2, pp. 405-430.. s) Suchman: "located accountabilities in technology production" in Scandinavian Journal of Information Systems, 2002, 14(2): 91-105.
- **February 12th**, from 9:00 – 14:30: Design Thinking in Practice. Heilyn Camacho. Readings: Brown, Tim. (2008) Design Thinking. Harvard Business Review, June 2008. (available in AUB)

- **February 25th** (POZ) 10.00-12.00: Agile Reflections.
- *date of the activity:* Cf. previous bullet
- *Lecturer(s):* Anne Marie Kanstrup, Për-Ola Zander, Heilyn Camacho and Pernille Andersen
- *Set and recommended readings:* Course book: Löwgren & Stolterman: "Thoughtful Interaction Design – a design perspective on information technology". The MIT Press, 2004 + research papers as noted in the above description. For more specific look to each topic.
- *Additional readings (for students in need of methods and techniques):* Kanstrup & Bertelsen "User Innovation Management – a handbook", Aalborg University Press, 2011.
- *slides and other resources:* Slides will be uploaded after each lecture at moodle

Formal models for communicating systems design, IA

- *Type of teaching:* Lectures and discussions
- 1) Information architecture **February 16**, from 9:00-12:00. The lecture presents and discusses the concept of information architecture and presents the four core elements in information architecture: Navigation, organization, labelling, and search.
  Readings: Morville & Rosenfeld (2007). Information Architecture for the World Wide Web. Cambridge: O'Reilly. Ch. 5-8.
- 2) Formal models **February 19**, from 9:00 – 12:00. The lecture will start out with a small exercise summing up lecture 1 and continues with formal models.
- *Lecturer(s):* Tanja Svarre Jonasen
- *slides and other resources:* Slides will be uploaded after each lecture at moodle

Organizational Change

This lecture will cover the following topics: The concept of Organizational change, differences between IT project, organizational change and technochange project, Three different moments of organizational changes lead by technology (Before, during and after the technology arrives) and change management (different change models). Furthermore, it will present some cases/examples of ICT related organizational changes.

- *type of teaching: 1 lecture of 4 hours.*
- *date of the activity: February 23rd, from 9:00- 13:30*
- *Lecturer: Heilyn Camacho Nunez*
- *Obligatory readings:*

  - *Markus, L. (2004) Technochange management: using IT to drive organizational change. Journal of Information Technology 19:4-20. (Palgrave Macmillan)*
  - *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 pages 27-37)*
  - *Burnes, Bernard (2004) Kurt Lewin and the Planned Approach to Change: A Re-appraisal. Journal of Management Studies 41:6 September 2004*
  - *Lewis, L. K. (2011). Organizational change : creating change through strategic communication. Chichester, West Sussex; Malden, MA: Wiley-Blackwell. (chapters 1-*
- *recommended readings*

- o *Leonardi, P. M. and S. R. Barley (2008) "Materiality and change: challenges to building better theory about technology and organizing." Information and Organization. 18: 159-176.*
  - o *Orlikowski, W., & Yates, J., 2006, "ICT and Organizational Change: A Commentary", The Journal of Applied Behavioral Science, 42, pp. 127-134.*

  - o *BASSETTI , C. (2012), 'IS-related organizational change and the necessity of techno-organizational co-design(-in-use). An experience with ethno methodologically oriented ethnography' , in G. Viscusi, G.M. Campagnolo and Y. Curzi (eds.), Phenomenology, Organizational Politics and IT Design: The Social Study of Information Systems, Hershey, Penn.: IGI Global.*
- *slides and other resources: Power point presentations and materials for the course will be upload in Moodle before the lecture.*

Semester project 'Development and Design of ICT'
- *type of teaching:* Project supervision and examination
- *the title and number of the teaching activity:* Project supervision and examination
- *date of the activity:* Project work starts March 2nd. Project reports are to be handed in **May 21st** and examinations will be held in June.
- *Lecturer(s):* Heilyn Nunez Camacho
- *set and recommended readings:* Course readings plus scientific project specific literature.
- *slides and other resources* will be available at Moodle*.*

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.

Module title, ECTS credits and STADS code
Lærings-, viden- og indholdshåndtering med ikt *ICT for Learning, Knowledge and Content Management* *5 ECTS*
Location 8th semester Study board of Humanistisk Informatik
Module coordinator Mette Skov
Type and language Study subject module English
Objectives The module introduces students to the management and adaptation of systems for learning, knowledge and content management in order to enable them to act independently when needing to adapt systems, implement prototypes and implement more complete solutions within various domains. Students will gain knowledge of theory and methods regarding ICT systems for learning, knowledge and content management. Students will acquire skills in assessing, selecting and applying methods for learning, knowledge and content management; select and adapt ICT systems as well as communicate methods and solutions for ICT for learning, knowledge and content management. Students will acquire competences in taking an analytical, reflective and critical approach to selecting, adapting and applying ICT systems for learning, knowledge and content management.
Academic content and basis Cf. semester description
Scope and expectations The module is organised with 30 lecture hours at campus for which students are expected to prepare for a minimum of 3 hours for each lecture hour through readings and exercises. Real life cases will be presented as part of the module and it is expected that students engage in case work and exercises in order to work on the ability to integrate theory and practice. The course is co-read with module 5, IT-teknik: software (the master's programme in Information Architecture)
Participants Students enrolled at the 8th semester Human Centered Informatics
Prerequisites for participation BA-level in studies accepted by the study board of Human Centered Informatics
Module activities (course sessions etc.) The module is divided in three sections and will alternate between lectures, hands-on training and

workshops. More detailed descriptions and readings will be available in Moodle:

1. Introduction to knowledge management and learning theories (8 lecture hours – Heilyn Camacho and Thomas Ryberg)
2. Adoption and implementation of CMS/LMS systems. In this part of the course students will be introduced to 2-3 different CMS/LMS tools and will get hands-on experience (8 lecture hours) – Heilyn Camacho and Jacob Davidsen).
3. ICT systems for learning, knowledge and content management in various domains. Through casework students will integrate theory and practice. Two cases are used:
   1. Case 1: ICT for Learning, Knowledge and Content Management in the cultural heritage domain (mix of lectures and workshops, 7 lecture hours – Jacob Davidsen and Mette Skov)
   2. Case 2: ICT for Learning, Knowledge and Content Management within the domain of private enterprises (mix of lectures and workshops, 7 lecture hours – Heilyn Camacho)

Preliminary list of readings:
- Blacker F. (1995). Knowledge, knowledge workers and organizations: an overview and interpretation. Organization Studies 16(6): 1021-1046.
- Dohn, N. B. (2009). Web 2.0: Inherent tensions and evident challenges for education. International Journal of Computer-Supported Collaborative Learning, 4(3), 343–363. doi:10.1007/s11412-009-9066-8
- Lund, H., Bogers, T., Larsen, B. & Lykke, M. (2013). CHAOS: User-driven development of a metadata scheme for radio broadcast archives. In Proceedings of the iConference 2013. iSchools, IDEALS, s. 990-994.
- Karl M. Wiig. (1997) Knowledge Management: An Introduction and Perspective. The Journal of Knowledge Management Volume 1 Number 1
- Kumar, V; Reinartz, Werner (2012) Chapter 1: Strategic Customer Relationship Management Today. In Customer Relationship Management : Concept, Strategy, and Tools. Chapter 1: / SpringerLink
- Malhotra, R. & Temponi, C. (2010). Critical decisions for ERP integration: Small business issues. International Journal of Information Management 30, pp. 28–37
- Nonaka, I. (1994). A Dynamic Theory of Organizational Knowledge Creation. Organization Science, Volume 5, Issue 1, 14-37
- Paavola, S., Lipponen, L., & Hakkarainen, K. (2004). Models of Innovative Knowledge Communities and Three Metaphors of Learning. Review of Educational Research, 74(4), 557–576.
- 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
- Sfard, A. (1998). On two metaphors for learning and on the dangers of choosing just one. Educational Researcher, 27(2), 4–13.
- Shang, S. & Seddon, P.B. (2002) Assessing and managing the benefits of enterprise systems: the business manager's perspective. Info Systems Journal 12, 271–299.
- Srinivasan, R., Boast, R., Furner, J., & Becvar, K. M. (2009). Digital museums and diverse cultural knowledges: Moving past the traditional catalog. The Information Society, 25(4),

265-278.
- Wiig, K.M. (1997) Knowledge Management: An Introduction and Perspective. The Journal of Knowledge Management Volume 1 Number 1.

Examination

The module is completed through an internal, written examination in English. The examination is a seven-day take-home assignment on a set topic. On the basis of the module, students will respond to one or a number of questions and assignments within the subject area of the module. The assignment paper must not exceed ten pages, and it must be prepared individually.

Evaluation: Grading according to the 7-point scale.

The study elements on which the examination is based are equivalent to 5 ECTS.