University of Bremen
Digital Media /Computer Science

Vers. 1.0, 20.07.2006

Course „Interactive Systems: Usability of Digital Media“

Lecturer:	**Juergen Friedrich**
Course no.	03-05-H-801.03
Digital Media:	Module 308-2
Computer Science:	Category: V
Workload:	6 Credit Points (ECTS)
Time and place:	Summer semester 2006 Intensive course (lectures and lab practicals): 27.07. – 08.08.2006 MZH 5280 (Master Room) Start of lectures: 27.07.2006, 09:00

Aims and scope

User friendliness of computer systems became an important quality criterium in IT development during the last two decades. Computer users at the workplace as well as at home require easy to use, effective and efficient software which supports them in handling system as well as application programmes. “Usability Engineering” which is an interdisciplinary approach combining knowledge from computer science, perception/cognition psychology, work organisation, communication design etc. deals with development as well as analysis of computer programmes aiming at minimising stress and workload and maximising motivation and health prevention of the user. Nowadays the field of usability engineering is extended to Digital Media: The simple “human-computer relation” is supplemented by a comprehensive look at networked relations: “human-computer-human relations” put the computer in the middle of a human communication and co-operation chain, the computer becomes a medium.

The course starts with an explanation of general aspects of usability. In the second part of the course the focus will be put on the special usability problems of Digital Media. Subjects of the course range from the application of physiological and psychological theories of human perception, cognition and interaction to practical rules and standards of usability design and further to usability testing and evaluation methods.

There will be lab practicals accompanying the course. They will provide the opportunity to transfer knowledge from the lectures to concrete use cases by performing and evaluating lab experiments.

Content of course

- **Usability: Problem analysis**
  Why media have to be user-friendly and what is Usability Engineering about
- **Theoretical foundations of human-computer interaction in Digital Media**
  Perception, cognition, communication, inter/action
- **Practical guidelines**
  How Digital Media professionals can design and develop user-friendly systems**:**

Information architecture, screen design, dialogue modes, multimedia navigation, errors and help systems, adaptation, user modelling
Usability standards (ISO, W3C)

- **Globalisation and localisation of media user interfaces**
  Inter/cultural aspects, metaphors, gestures, languages
- **Usability of Digital Media applications**
  User-friendly e-learning, e-commerce and groupware systems in a World Wide Web environment
- **Accessibility of Digital Media**
  Problems, requirements (practice, law), standards (WAI), design/implementation,
- **Methods, tools, and programming environments of usability engineering**
  Practical hints to do a good job in media usability
- **Evaluation of user-friendliness**
  Usability reviews and user tests, heuristic evaluation, cognitive walkthrough,
  Media quality assurance
  Evaluation of home page design, incl. accessibility
- **Enriched communication - Usability of next generation media systems**
  Mobile media, wearable computers, ubiquitous/pervasive computing
  Innovative navigation methods: 3 D navigation, voice input/output, gesture navigation

Course Schedule

				Thursday, 27.07.2006	Friday, 28.07.2006
09:15 – 10:45				Lecture **1**	Lecture **3**
11:00 – 12:30				Lecture **2**	Lecture **4**
14:00 – 18:00					Lab Practical **1**
24:00					

	Monday, 31.07.2006	Tuesday, 01.08.2006	Wednesday, 02.08.2006	Thursday, 03.08.2006	Friday, 04.08.2006
09:15 – 10:45		Lecture **6**		Lecture **9**	
11:00 – 12:30	Lecture **5**	Lecture **7**	Lecture **8**	Lecture **10**	Lecture **11**
14:00 – 18:00	Lab Practical **2**	Report/Preparation	Lab Practical **3**	Report/Preparation	Lab Practical **4**
24:00		Deadline Report **1**		Deadline Report **2**	

	Monday, 07.08.2006	Tuesday, 08.08.2006	Wednesday, 09.08.2006	Thursday, 10.08.2006	Friday, 11.08.2006
09:15 – 10:45	Lecture **12**				
11:00 – 12:30	Lecture **13**	Lecture **14**			
14:00 – 18:00	Report/Preparation	Lab Practical **5**	Report/Preparation		
24:00	Deadline Report **3**		Deadline Report **4**		Deadline Report **5**

Course requirements

To get a certificate ("Schein") students have to perform the following:

- Participate in the lectures
- Participate successfully in the lab practicals, performing experiments, taking minutes
- Writing reports about the lab practicals (Deadlines: see schedule below, send report by email attachment)

Organisational issues:

- *Description of experiments/assignments*
  Description of aims and scope of the experiments as well as concrete operational hints will be delivered for each practical. The descriptions comprise also the assignments to be fulfilled.
- *Working in groups*
  Lab experiments and reports are done in groups of three students (due to the needs of the experimental settings).
- *Form of report*
  Reports have to have a cover page with at least the following declarations:
  University …, department …, semester …, group no., names of group members, number and title of experiment, delivery date
  Paper format: A 4, file format: pdf, numbered pages
- *Web site*
  You will find the material used in the course, e.g.
  - transparencies of lectures,
  - instructions of lab practicals etc.
  on the course web site
  http://sin01.informatik.uni-bremen.de/lehre/06s-udm
- *Access to the lab*
  Computer science students as well as DM students from HSB need an additional code on there access cards to enter the Digital Media Lab area (5. floor MZH). Please address to Irmgard Laumann (218-8636, ikv@informatik.uni-bremen.de, MZH 5240) for getting access.
- *Contact lecturer*
  Juergen Friedrich, 218-3395, friedrich@informatik.uni-bremen.de, MZH 3350

Literature *(to be complemented during the course)*

Shneiderman, B.; Plaisant, C.: Designing the user interface. Strategies for Effective Human-Computer Interaction. Reading, Mass./USA: Addison-Wesley 2004 (4.edition)

Preece J., Rogers Y., Sharp H.: Interaction Design, John Wiley & Sons, 2002

Dumas J., Redish J., A Practical Guide to Usability Testing, Intellect, 1999

Perlman, G.: HCI Bibliography: Human-Computer Interaction Resources. http://www.hcibib.org/ (27.07.2006)

Nielsen, J.: Alertbox: Current Issues in Web Usability. http://www.useit.com/alertbox/ (27.07.2006)