Human-Computer Interaction - Web course

COURSE SYLLABUS

HCI foundation and history; Usability life cycle and methods; Design rules and guidelines; Empirical research methods; Models in HCI - GOMS, Fitts' law and Hick-Hyman's law; Task analysis; Dialogue design; Cognitive architecture and HCI ; Graphic User Interfaces & aesthetics; Usability Testing; UML,OOP,OOM; Design Case Studies.

COURSE DETAILS

Module		Lecture Details			
SL.No	Topic	No	Topic	No of Lectures	Remarks Author
M1	Introduction	L1	Course objective and overview	1	SB
		L2	Historical evolution of the field	1	SB
M2	Interactive system design (theory and practice)	L1	Concept of usability - definition and elaboration	1	PY
		L2	HCI and software engineering	1	SB
		L3	GUI design and aesthetics	1	PY
		L4	Prototyping techniques	1	SB
M3	Model-based Design and evaluation	L1-L4	Basic idea, introduction to different types of models, GOMS family of models (KLM and CMN-GOMS)	4	SB
		L5, L6	Fitts' law and Hick-Hyman's law	2	SB

NP-TEL

NPTEL

http://nptel.iitm.ac.in

Computer Science and Engineering

Additional Reading:

- Yvonne Rogers, Helen Sharp, Jennifer Preece; Interaction Design 3rd Edition Wiley 2011
- Frank Bentley,Edward Barrett Building Mobile Experiences MIP Press Cambridge 2012
- Selected research papers (details will be provided at the end of relevant materials).
- Jacob Nieilsen; *Useability Engineering*; Morgan Kaufmann, Academic Press, London, 1993.

Coordinators:

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		L7, L8	Model-based design case studies	2	SB
M4	Guidelines in HCI	L1	Shneiderman's eight golden rules	1	PY
		L2	Norman's seven principles	2	PY
		L3	Norman's model of interaction		
		L4	Nielsen's ten heuristics with example of its use	2	PY
		L5	Heuristic evaluation		
		L6	Contextual inquiry	1	PY
		L7	Cognitive walkthrough	1	PY
M5	Empirical research methods in HCI	L1, L2	Introduction (motivation, issues, research question formulation techniques)	2	SB
		L3, L4	Experiment design and data analysis (with explanation of one-way ANOVA)	2	SB
M6	Task modeling and analysis	L1	Hierarchical task analysis (HTA)	1	PY
		L2, L3	Engineering task models and Concur Task Tree (CTT)	2	SB
M7	Dialog Design	L1	Introduction to formalism in dialog design, design using FSM (finite state machines)	1	SB
		L2 – L4	State charts and (classical) Petri Nets in dialog design	3	SB
M8	Cognitive architecture	L1	Introduction to CA, CA types, relevance of CA in IS design	1	SB

		L2, L3	Model Human Processor (MHP)	2	SB
M9	Object Oriented Programming	L1	OOP- Introduction	1	PY
		L2	OOM- Object Oriented Modeling of User Interface Design	1	PY
M10	Design -Case Studies	L1	Case Study 1- Multi-Key press Hindi Text Input Method on a Mobile Phone	3	PY
		L2	Case Study 2 - GUI design for a mobile phone based Matrimonial application.		
		L3	Case Study 3 - Employment Information System for unorganised construction workers on a Mobile Phone.		
Total Modules	10		**Total Lectures**	40	SB = 25 PY = 15

References:

- Dix A., Finlay J., Abowd G. D. and Beale R. *Human Computer Interaction*, 3rd edition, Pearson Education, 2005.
- Preece J., Rogers Y., Sharp H., Baniyon D., Holland S. and Carey T. *Human Computer Interaction*, Addison-Wesley, 1994.
- B. Shneiderman; *Designing the User Interface*, Addison Wesley 2000 (Indian Reprint).