Birla Institute of Technology & Science, Pilani, Pilani Campus
Second Semester 2015-16,Instruction Division
Course Handout

03/12/2015

In addition to Part-I (General Handout for all courses appended to the Time-Table) this document provides specific details regarding the course.

Course No.: **BITS F364**
Course Title: **Human Computer Interaction (HCI)**
Instructor-In-Charge: **Asma Rani**
Instructor: **Asma Rani**

1. Objective:
The main objective is to get the students acquire the knowledge and skills needed to create highly usable software systems. They get exposed to analytical way of designing and evaluating interactive technologies.

2. Scope:
This course introduces the skills and concepts of Human-Computer Interaction (HCI) that enable the computer scientists to design systems that effectively meet human needs. The course covers iterative design processes, interactive prototype construction, and model based designs. The course will cover several prototyping tools and require a number of prototypes to be constructed in each. The course will also cover usability testing of interactive prototypes

3. Course Description:
Principles of human-computer interaction; Evaluation of user interfaces; Usability engineering; Task analysis, user-centered design, and prototyping; Conceptual models and metaphors; Software design rationale; Design of windows, menus, and commands. Voice and natural language I/O; Response time and feedback; Color, icons, and sound; Internationalization and localization; User interface architectures and APIs.

4. Text Books:
[T1]Dix A., Finlay J., Abowd G. D. and Beale R. *Human Computer Interaction*, 3rd edition,Pearson Education, 2005.

5. Reference books:
[R1] Preece J., Rogers Y., Sharp H., Baniyon D., Holland S. and Carey T. Human Computer Interaction, Addison-Wesley, 1994.
[R2] B. Shneiderman; Designing the User Interface, Addison Wesley 2000.

6. Course Plan:
a. Course Modules & Learning Objectives

Module	Title	No of classes	Module details	Link
1	Introduction and historical evolution of the field	1	Introduction, course overview	Ch 1
2	Human Interaction	3	Models of interaction, Frameworks and HCI,Interaction styles, WIMP interface, Paradigms for interaction	Ch 2
3	Interaction design	4	Process of design, user focus, scenarios, navigation design, screen design and layout, prototyping, usability engineering, design rules, HCI patterns	Ch 3
4	Paradigms	2	Paradigms of interaction viz. WIMP interface, ,metaphars, agent based interfaces..	Ch 4
5	Interaction design	2	Design focus, scenarios, navigation design,screen design and layouts, affordance..	Ch 5

6	HCI in software process	1	Throw away, evolutionary and incremental prototyping,metrics	Ch 6
7	Design rules	2	Design rules to support usability, learnability	Ch 7
8	Evaluation techniques	3	Goals of evaluation, cognitive walk through, heuristic, model based, user participative evaluations	Ch 9
9	Universal design	3	Design principles, Multi-modal interaction, designing for diversity	Ch 10
10	User support	3	Requirements, approaches, adaptive help systems, design strategies.	Ch 11
11	Model based design and evaluation	4	Cognitive models,goal and task hierarchies, GOMS,CCT, linguistic models ,three state models, cognitive architectures. Communication and collaboration models	Ch 12
12	Task modelling and analysis	2	Task decomposition, knowledge based analysis, ER based techniques	Ch 15
13	Dialog design	4	Dialog Notations and design, Introduction to formalism in dialog design, design using FSM, State charts and Petri Nets in dialog design, textual dialog notations, CSP and event algebras, dialog semantics,	Ch 16
14	Models of the system	3	Standard formalisms, interaction models, continuous behavior, modelling rich interaction,	Ch 17
15	Implicit HCI in Ubiquitous computing and recent advances	6	Introduction to ubiquitous computing , Internationalization, Localization, advances in HCI	Notes

4. Evaluation Scheme:

Evaluation Component	Type	Duration	Weight	Date	Venue
Mid Sem	Closed book		30%	-	
Comprehensive Exam	Closed book		30%	10/5 AN	
Assignments,quizzes (includes surprise quizzes) projects, seminars, literature study	Open book/take home		40%		

5. Assignments will include the following components:
   a) Designing user interfaces for given applications.
   b) Applying formal methodologies studied.
   c) Use .NET or java based tools, C, C++.
   d) Code, implement and demonstrate.

6. Make-up Policy:
   Prior Permission of the Instructor-in-Charge is required to take a make-up for any component. A make-up test shall be granted only in genuine cases as per institute guidelines.
7. Chamber Consultation Hour: Tuesday, Thursday (4:00PM -5:00 PM)
8. All announcements and events shall be informed through Nalanda/Email.

Instructor-in-Charge-BITS F364