Birla Institute of Technology & Science, Pilani
Hyderabad Campus

FIRST SEMESTER 2020-2021

Course Handout Part II

Date: 11-08-2020

In addition to part-I (General Handout for all courses appended to the time table) this portion gives further specific details regarding the course.

Course No. : **BITS F364**
Course Title : **Human Computer Interaction**
Instructor-in-Charge : Dipanjan Chakraborty (CS&IS) (dipanjan@hyderabad.bits-pilani.ac.in)

Scope and Objective of the Course:

- This course is an introductory course to introduce students to the theories, practices and thumbrules of designing interfaces for humans to interact with machines, and to the design-prototype-evaluate cycles of HCI .
- The course will introduce students to the importance of keeping the users at the centre of the design process, including the capabilities and aspirations of the users, and managing other stakeholders.
- We will study the different communication media available for interface designing and the properties of each medium.
- Within each medium we will discuss on how to design, prototype and evaluate interfaces, with focus on usability.
- We will also cover additional topics like ethical concerns when dealing with human subjects.
- The course will bank heavily on hands-on components and reading of research papers and articles besides the chapters from the books.
- The delivery of the course will be through discussions and lectures.
- There will be small reading assignments in most weeks.
- Students will be expected to submit a brief review of the reading material on a portal (to be set up) before the in-class discussions on the reading materials.
- There will be non-evaluative in-class assignments throughout the semester. It is the students' responsibility to hand in their answers to the instructor(s).

Textbooks:

1. Human Computer Interaction - Alan Dix et al.
2. The Design of Everyday Things - Don Norman

Reference books

1. Geek Heresy: Rescuing Social Change from the Cult of Technology - Kentaro Toyama
2. Design Justice: Community-Led Practices to Build the Worlds We Need – Sasha Costanza-Chock
3. Research Methods in Human-Computer Interaction - Jonathan Lazar
4. Interaction Design: Beyond Human Computer Interaction - Sharp, Preece Rogers
5. Social Research Methods – Alan Bryman
6. Additional reading materials to be circulated during the course of the semester

Course Plan:

Lecture No.	Learning objectives	Topics to be covered	Chapter in the Text Book
1	To gain an overview of the course	• Overview and motivation for the course • Expectations of the students from the course • Expectations of the instructor from the course	-
2	To learn the history of HCI	Evolution of the field over time	R3 ch1
3-4	To learn about design Rules	We will cover usability, rules and heuristics, case studies	T1 ch7
5-6	To learn about Interaction Design	Which engineering models can be applied in interaction design	R3 ch6, T1 ch6
7-8	Peer learning	Class presentation on project proposals	-
9-11	To engage the users in the design process	• User Centred Design • Capturing requirements and user capabilities • Understanding the importance of user centred design through case studies	T1 ch1, R3 ch 9, T2 ch1
12-15	To engage the users in the design process	• Survey design • Types of questionnaires • Sampling. Quantitative, qualitative, mixed methods • Different ways to administer interviews (self, automated, manual), • Different biases • Case studies	R4 parts 2 and 3

16-18	To engage the users in the design process	• Analysing survey results
		• Secondary data sources
		• Formulating design findings
		  ○ User stories
		  ○ Storyboarding
			R4 parts 2 and 3

19-20	Learn how to design for marginalised communities and universal design	We will look into several case studies	Research papers and articles, R1
21	Learn about different kinds of errors	• Human errors and types • Designing for errors	T2 ch5
22-24	How to design for different media	• Web, mobile apps, visual, audio, text, etc. • Accessibility in different media	T2 ch2,3, external reading materials

25-26	Peer learning	Mid-semester projects class presentations	-

27-31	Learning about prototyping	• Prototyping tools and methods,
		  ○ Paper protyping
		  ○ Wizard of Oz
		  ○ A/B testing
		  ○ High fidelity prototyping
		• Case studies
			T1 ch 6, R3 ch 8, Research papers and articles

32-33	Learning how to evaluate systems	• Evaluation frameworks • Paradigms and techniques	R3 ch11, T1 ch 9
34	Learning how to evaluate systems	• User observation • Interviewing experts and users • Case studies,	R3 ch 12, R3 ch13, external reading materials
35	Learning how to evaluate systems	• Testing • task completion	R3, ch14
36	Learning about visual design	• Hiearchy, patterns and components • Material design and other design paradigms	External readings
37	Learning about typography	Theories and thumbrules on typography	T1 ch 5
38	Learning about colours	Theories of colour usage	T1 ch 5
39	Learning about Bias and Ethics in HCI	• Demographic differences between the designer and the users • Different biases • Countering bisases • Ethical concerns	External readings
40	Learning about research methods in HCI	Working with human subjects	R2 ch14
41-42	Peer learning	Final presentation of projects	-

Evaluation Scheme:

Component	Duration	Weightage (%)	Date & Time	Nature of Component
Comprehensive examination	-	30%	TBA	Open material
Test 1	-	10%	September 10 – September 20 (during scheduled class Hour)	Open material
Test 2	-	15%	October 9-October 20(during scheduled class hour)	Open material
Test 3	-	15%	November 10-November 20 during scheduled class hour)	Open material

Course Project	Rolling	20%	-	Open, group activity
Assignments (6%), Reading assignments (2%) and Peer Learning (2%)	Rolling	10%	-	Open, group and individual activities

Classes: M W F, 10 am. The classes will be conducted online. Please check CMS, Piazza and the Course Webpage for the modalities. Students will be sent calendar invites after the registration data is available.

Office Hours: To be announced in class

Notices: To be circulated through CMS and Piazza, both of these are official notice boards for this course. All students are compulsorily requested to enrol themselves on Piazza. The Piazza link and enrolment keys will be circulated when the registration data is available.

Make-up Policy:

- Late submission of non-real-time components will incur a penalty of 10% per day.
- No make up for missing non-real-time components or peer gradings
- Institute rules apply for make up of tests and comprehensive examination.

Academic Honesty and Integrity Policy: Academic honesty and integrity are to be maintained by all the students throughout the semester and no type of academic dishonesty is acceptable.

INSTRUCTOR-IN-CHARGE