

**SECOND SEMESTER 2021-2022**

# Course Handout Part II

Date: 16-01-2021

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

# Design Justice: Community-Led Practices to Build the Worlds We Need – Sasha Costanza-Chock

1. Research Methods in Human-Computer Interaction - Jonathan Lazar
2. Interaction Design: Beyond Human Computer Interaction - Sharp, Preece Rogers
3. Social Research Methods – Alan Bryman
4. 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:**

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| --- | --- | --- | --- | --- |
| **Component** | **Duration** | **Weightage (%)** | **Date & Time** | **Nature of Component** |
| Comprehensive examination | 2 hours | 40% | 15/05 FN | Open material |
| Mid Semester Examination | 1.5 hours | 25% | 05/03 1.30 - 3.00PM | Open material |
| Course Project  (5% for mid-sem grading) | Rolling | 15% | - | Open, group |
| Assignments (2 nos.)  (10% for mid-semester grading) | Rolling | 20% | - | Open, group |

**Office Hours:** To be announced in class

**Notices:** To be circulated through CMS and an appropriate discussion forum

**Make-up Policy:**

* Late submission of assignments and project 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 mid-semester and comprehensive examinations, however *prior permission* of instructor is necessary.

**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**