

Indian Institute of Technology, Kanpur

Proposal for a New Course

1. Course No: DES xxx
2. Course Title: "Design Project: Product Interaction Design"
3. Per Week Lectures: 01 (L), Tutorial: 0 (T), Laboratory: 06 (P), Additional Hours [0-2]: 0 (A)
Credits (3*L+2*T+P+A): 9
Duration of Course: Full Semester
4. Proposing Department/IDP : Design
Other Departments/IDPs which may be interested in the proposed course: N.A.
Other faculty members interested in teaching the proposed course: N.A.
5. Proposing Instructor(s): Dr. Shoubhik Dutta Roy
6. Course Description:
 - A) Objectives:
 - To develop understanding of how humans interact with products, and to identify scope for improving those interactions.
 - To analyse different interaction approaches towards achieving similar product functions, thereby developing more effective, efficient and satisfactory methods for the same.
 - To learn standard terminology, tools and techniques for interaction analysis and interaction design.
 - B) Contents (*preferably in the form of 5 to 10 broad titles*):

S. No	Broad Title	Topics	No. of Lectures
1.	Introduction	Interaction design fundamentals, sample projects, topic selection	1
2.	Research	Research methods and tools, conducting desk research and field research, documenting and analysing field research	4
3.	Conceptualization	Introduction to ideation tools, idea selection, development of 3 low-fidelity concepts, concept comparison and selection	3
4.	High-fidelity Design	Heuristic principles, high-fidelity product design, high-fidelity interface design	2
5.	Concept Finalization	Prototyping, testing, design refinement, project documentation & presentation	3

C) Pre-requisites, if any:

Ability to sketch three-dimensional objects and model them in CAD are highly recommended skills, but not compulsory for every student as the project will be carried out in groups.

D) Short summary for including in the Courses of Study Booklet

Products have evolved by leaps and bounds in the last few decades, owing to technological innovations and lifestyle changes. This in turn has put the spotlight on interactions between humans and the products they use. The focus of this course is to develop capabilities to analyse and redesign the nuances of human-product interactions, so as to make tasks easier, more effective and more enjoyable for the target users. In this course, students work in groups to research and redesign a tangible product from a usability perspective. The product could be a home/personal product (washing machine, sewing machine, party speaker, DSLR, video camera, etc.), community/commercial product (treadmill, coffee machine, projector, photocopy machine, vending machine, DJ console, etc.), medical product (sonography machine, body composition analyser, ventilator, etc.) industrial product (paper cutting machine, book binding machine, laser cutting machine, etc.) or vehicle control panel (bus, excavator, road paving machine, etc.).

7. Reference books:

- Cooper, A. (2014). About Face: The Essentials of Interaction Design. Wiley.
- Karwowski, W. (2011). Human Factors and Ergonomics in Consumer Product Design: Methods and Techniques. CRC Press.
- Elbert, K.K., Kroemer, H.B., & Hoffman, A.D.K. (2018). Ergonomics: How to Design for Ease and Efficiency. Academic Press.
- Woodson, W. (1991). Human factors design handbook. McGraw-Hill Education.
- Chakrabarti, D. (1997). Indian anthropometric dimensions for ergonomic design practice. National Institute of Design.

8. Any other remarks: N.A.

Dated: 10.10.2026 Proposer: Dr. Shoubhik Dutta Roy

Dated: _____ DUGC/DPGC Convener: _____

The course is approved / not approved

Chairman, SUGC/SPGC

Dated: _____