Indian Institute of Technology, Kanpur
Proposal for a New Course

1. Course No. DES _____

2. Name of the Course: ***Design Project 1 - Product Design***
Course Type : **Elective (M.Des / PhD)**

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: **Design**
Other Departments/IDPs which may be interested in the proposed course:
Other faculty members interested in teaching the proposed course: **Asst. Prof. Shoubhik Dutta Roy**

5. Proposing Instructor(s): **Prof. Girish Lone**

Course Overview

This course introduces students to the profession of product design (industrial design), familiarising them with its history, universal principles, and typical process. They learn to use CAD to represent and detail out their concepts. They gain practical experience of executing a given problem or brief using the design process.

Course Learning Objectives

By the end of the course, students will be able to:

- Understand product design as a profession and how it has evolved over the years
- Develop appreciation for good design through universal design principles
- Visualize and develop industrial design concepts using CAD software
- Create simple design solutions for a given problem using the design process, involving research, conceptualization, prototyping and testing

6. Course Structure (13 Weeks of Lecture + Lab)

Sr. No.	Topic Description	Remark
Module 1: ***Introduction to Product Design***	**Week 1 Lecture**: What is Product Design + History + Famous designers	2 weeks
	Week 1 Lab: Creative activity involving famous designers	
	Week 2 Lecture: Principles of Good Design	
	Week 2 Lab: Observation & analysis-based activity on selected design principles	
	Assignment: Short presentation/ poster on the above 2 activities	
Module 2: ***CAD***	**Week 3 Lecture**: Basic tutorials to use conceptual 3D CAD software + Modelling simple forms	2 weeks

for Product Design	Week 3 Lab: Practice sessions with doubt clearing	
	Week 4 Lecture: Modelling complex forms + Rendering CAD models by manipulating materials, textures, environments etc.	
	Week 4 Lab: Modelling and rendering a given product	
	***Assignment**: Creating an accurate CAD model and renders of a given product*	
Module 3: *Simple Product Design*	**Week 5 Lecture**: Design process + Design research methods (primary and secondary research)	9 weeks
	Week 5 Lab: Topic selection + desk research	
	Week 6 Lecture: Guidelines for field/ user research	
	Week 6 Lab: Field/ user research	
	Week 7 Lecture: Design brief	
	Week 7 Lab: Research data analysis + formulating the design brief and design considerations	
	Week 8 Lecture: Ideation	
	Week 8 Lab: Idea exploration for the design brief	
	Week 9 Lecture: Concept development	
	Week 9 Lab: Idea selection + conceptualization	
	Week 10 Lecture: Concept Detailing	
	Week 10 Lab: Concept selection, refinement and detailing	
	Week 11 Lecture: Prototyping	
	Week 11 Lab: Prototype making using suitable materials and processes	
	Week 12 Lecture: Concept Testing	
	Week 12 Lab: Testing the prototype with users in context + design refinement	
	Week 13 Lecture: Documentation	
	Week 13 Lab: Visualization of the final concept + documentation of the complete design process	
	***Assignment**: Presentation of the Simple product design project*	
	Total Lectures	13

*Each module typically includes a lecture and an activity or assignment that requires practical application of the concepts learned.

Pre-requisites: Good observation skills, interest in problem-solving and a willingness to go through the rigour of the design process.

Assessment Scheme

Assignments - 50%
Mid-semester exam - 20%
End Semester exam - 30%

References (suggested readings):

1. Design: History, Theory and Practice of Product Design by Bernhard E. Bürdek
2. 300 years of Industrial Design by Adrian Heath, Ditte Heath & Aage Lund Jensen
3. Deconstructing Product Design by William Lidwell & Gerry Manacsa
4. A Short Course in Industrial Design by Eskild Tjalve
5. Universal Principles of Design by William Lidwell & Kritina Holden
6. Universal Methods of Design by Bella Martin & Bruce Hanington.
7. Design Thinking Research: Building Innovation Eco-Systems by Larry Leifer & Hasso Plattner
8. The Industrial Design Reference & Specification Book by Dan Cuffaro & Douglas Paige

Additional References

1. Basics Product Design – 1: Idea Searching by David Bramston
2. How to Have Great Ideas - A Guide to Creative Thinking by John Ingledew
3. Introduction to Three-Dimensional Design: Principles, Processes, and Projects by Kimberly Elam
4. Design for Society by Nigel Whiteley
5. Design Principles and Problems by Paul J. Zelanski & Mary Pat Fisher
6. Exploring Visual Design: The Elements and Principles by by Joseph A. Gatto & Albert W. Porter
7. Product Design (Portfolio) by Alex Milton & Paul Rodgers

Dated: 21.05.2026 Proposer: Prof. Girish Lone

Dated:_____ DUGC/DPGC Convener: _____

This Course is approved / not approved

Chairman, SUGC/SPGC

Dated_____