

NIRMA UNIVERSITY
INDUSTRIAL DESIGN PROGRAMME
Bachelor of Design, Department of Design
Year III, Semester VI

L	T	P	C
		12	8

Course Code	IDPR 321
Course Title	Design Project: Technically Complex Device

Course Learning Outcomes (CLO):

At the end of the course the student will:

1. Design a technically complex device
2. Develop a prototype of a working product
3. Create design concepts based on conventional needs and create unconventional and contextually new ideas
4. Develop understanding of user needs and functionality of products based on experiential and qualitative user research

Syllabus:

Total Teaching hours: 180

Unit 1: Identification of Opportunity Areas and Product Intervention:

Teaching hours: 12

- 1.1 Study of **conventional products**, locating opportunities that are new responses to emerging context
- 1.2 Study of unconventional products whose function is cultural/symbolic: locating potential for redefinition of the product for new age User/Consumer
- 1.3 Study and locate a need through personal experiential situations or through Qualitative Users' survey to identify needs areas that have potential for defining new product Category

Unit 2: Study of Smart Technology in everyday products/devices/appliances:

Teaching hours: 12

- 2.1 Understand Mechanisms involved
- 2.2 Understand Electronics (Sensors, Actuators, Frequencies) involved

Unit 3: Selection of Opportunity Area and articulation of Design brief:

Teaching hours: 24

- 3.1 Articulation of need/aspiration (Unmet and unarticulated needs)
- 3.2 Defining attributes and functional requirements
- 3.3 User persona and profile
 - Stakeholder analysis
 - Final design brief

Unit 4: Concept Development of Smart Product:**Teaching hours: 42**

- 4.1 Ideation and iterations based on User needs and functionality
- 4.2 Quick prototyping using appropriate materials and technology for concept
- 4.3 validation

Unit 5: Product finalization and Product detailing:**Teaching hours: 30**

- 5.1 Product detailing
- 5.2 Product renders
- 5.3 Design Drawings

Unit 6: Prototyping:**Teaching hours: 60**

- 6.1 Scaled working prototype in actual/simulated materials
- 6.2 User product trials

Suggested Readings:

1. *Smart Products, Smarter Services: Strategies for Embedded Control*, Author: Mary J. Cronin, Publisher: Cambridge University Press, 2010
2. *Smarter Homes: How Technology Will Change Your Home Life (Design Thinking)*, Author: Alexandra Deschamps-Sonsino, Publisher: Apress, 2018
3. *Customer Centered Products: Creating Successful Products Through Smart Requirements Management*, Author: Ivy F. Hooks, Kristin A. Farry, Publisher: AMACOM, 2000
4. *Material Value: More Sustainable, Less Wasteful Manufacturing of Everything from Cell Phones to Cleaning Products*, Author: Julia L F Goldstein, Bebo Press, 2019

w.e.f. Academic year _2019 and onwards

Key: L= Lecture, T= Tutorial, P= Practical, C= Credit