NIRMA UNIVERSITY
INDUSTRIAL DESIGN PROGRAMME
Bachelor of Design, Institute of Design
Year IV, Semester VIII

L	T	P	C
		30	18

Course Code	**IDDP 423**
Course Title	**Degree / Major Research Project**

Course Learning Outcomes (CLO):

At the end of the course, the student will be able to:

1. Apply design learning and demonstrate proof of design competencies through creation of appropriate design solutions towards the professional/self-initiated design brief.
2. Analyse contextual scenarios, users' and stakeholders' needs through the application of design research methods.
3. Demonstrate good conceptual skills in developing a sharper design brief, using opportunity-mapping abilities to understand context, customer, client and commercial requirements.
4. Create new design solutions, through prototyping, testing and evaluation of the design product/service, and further refinement, if necessary.

Syllabus   **Total Time Duration: 18 Weeks**

UNIT 1: Selection of Organization and Design Brief   **Time Duration: 1 Week**

   i. Project Articulation: Understanding the Company/Organization's requirements
   ii. Project Brief: Articulating the requirements as stated by the company of goals/objectives, market and user segment profile, product-service to be created, expected outcomes
   iii. Project Time line: Broad articulation of phases of the design process in synchronization with Company/self-initiated project's design brief requirements
   iv. Project Plan Articulation: Identification of partners, service providers, budgets, regulations

UNIT 2a: Secondary & Primary Research   **Time Duration: 4 Weeks**

   i. AEIOU Analysis: Activity, Environment, Interactions, Objects and Users
   ii. Secondary Research: Research to be initiated, related to the subject selected of similar design initiatives, competitor brands, media strategies, literature review
   iii. Primary Research: Inquiry and Observation of Users-Consumers and the service or product; Contextual study

    iv. Stakeholder Study: Understanding the requirements of each significant player in the service that could impact the design offering
    v. Survey of current/existing Product
    vi. 7C analysis: Cause, Context, Comprehension (Use only 3C in Unit 2)

UNIT 2b: Ideation and Iterations   Time Duration: 5 Weeks

    i. Empathy mapping - capturing what people do, say, think, and feel in the context of the problem
    ii. Synthesize User Needs (Self-esteem, Psychological needs, Safety Needs, Belonging needs, self-actualized needs etc.)
    iii. Creating Story Boarding: Happy Stories and Sad Stories
    iv. Creating Customer Journey Maps, Scenario Building, User Persona
    v. Ideation: Creative Pause, Crowd storming, Brain Storming, visualization, provocation and sketching

UNIT 3: Prototyping and User feedback (where applicable)   Time Duration: 6 Weeks

    i. Development of a low fidelity model with paper, clay, thermocol or any other medium
    ii. Material and Process selection for the Prototyping
    iii. Mechanical, Electrical, Electronic Assembly as per requirement
    iv. Programming, Validation and testing of mock up model
    v. Development of a high-fidelity model using additive manufacturing, vacuum foaming, sheet metal bending, resin printing, turning / milling machine etc.
    vi. 7C Analysis: Crafting and Connections (User Feedback)

UNIT 4: Degree Project Documentation   Time Duration: 1 Week

    i. Title, Abstract and Acknowledgement
    ii. Table of Contents
    iii. Introduction and Initial Degree Project Brief
    iv. Profile of Industry/client and Design brief
    v. Research Phase: Secondary Research, Primary Research
    vi. Empathy Process
    vii. Ideation Process
    viii. Prototyping, Proof of Concept, Manufacturing Process and Material Selection
    ix. User Feedback and Final Design Brief
    x. The Design Process
    xi. Learning and Reflection
    xii. Certificate of Completion

UNIT 5: Degree Project Jury & Presentation (On campus)

    i.   Jury/Viva to a team consisting of External Reviewer, Internal Faculty mentor and Industry mentor or a faculty member
   ii.   In the case of a self-initiated project, an internal senior faculty/HoD/Dean will take the place of the Industry mentor
  iii.   Presentation to the community

In the 18-week project, there will be 3 Reviews.
    i.   The 1st Review will be at the end of the 5th week,
   ii.   The 2nd Review will be at the end of the 11th week and
  iii.   The 3rd Review will be at the end of the 18th week.

The same team comprising the External Reviewer, Internal Faculty mentor and a faculty member will review and evaluate the student.

Note: The above Units/stages (from 1 to 5) are not linear; many of them are simultaneous and may move laterally.

Suggested Readings:

1. *The Ultimate Guide to Internships: 100 Steps to Get a Great Internship and Thrive in it,* Eric Woodard, Publisher: Allworth 2015
2. *Research for Designers : A guide to methods and practice*, by Gjoko Muratovski, SAGE Publisher, 2015
3. *Doing research in Design,* by Christopher Crouch and Jane Pearce, Bloomsbury Publishers, 2013
4. *Design Research Methods and Perspectives*, by Brenda Laurel, Tit Press Publishers, 2003
5. *Design for Inclusivity*, by Roger Coleman and John Clarkson, Taylor & Francis Publishers, 2016
6. *Research Methodology,* C.R. Kothari, New Age Publishers Pvt. Ltd., 2018
7. *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation,* Tim Brown with Barry Katz, Harper Collins e-books, 2009
8. *Design Thinking: Understanding How Designers Think and Work,* Nigel Cross, Bloomsbury Academic - An imprint of Bloomsbury Plc, 2011

w.e.f. Academic year_ 2023-24 and onwards
Key: L= Lecture, T= Tutorial, P= Practical, C= Credits

EVALUATION POLICY

The industry sponsored/self-sponsored project of 18 weeks duration will be based on the pre-approved project proposal by the internal faculty team. Students will need to register, once the Design project and sponsor is accepted by the Department's Degree/major Research Project Committee.

1. Schedules & norms:

The Project will be of 18 weeks duration, which is the assigned period of a semester.

Each student will have a Mentor, who is a full time/contract/invitee visiting faculty in the programne.
1. Each mentor will devote 1 hour per week to the student, over the 18-week period.
2. Each mentor will take on maximum of 6 students and a minimum of 2 students, for guidance.
3. Each mentor has specific interests and competencies. These are articulated/shared with the students. Students select the mentor of their choice; mentors have the authority to shuffle the students if the project requires another kind of expertise.

The total hours spent by the mentor on Degree/Major Research Project will be a total of 108 hours with 6 students or 90 hours with 5 students or 36 hours with 2 students, totally, through the project.
- 6 hours/18 weeks/6 students: 108 hours
- 5 hours/18 weeks/5 students: 90 hours
- 3 hours/18 weeks/3 students: 54 hours
- 2 hours/18 weeks/2 students: 36 hours

2. Academic reviews

1. In the 18-week project, there will be 3 Reviews. The 1st review will be at the of the 5th week, the 2nd will be at the end of the 11th week and the last will be at the end of the 18th week.
2. The last review will be the Final Jury.
3. The Mentor to a student will be one of the Reviewers.
4. There will be an External Reviewer, who will remain constant through the 3 Reviews.
5. Industry mentor may be present; if not they may send in their evaluation report.
6. In case of a self-initiated project, a senior faculty member/HoD/Dean may fill the space of an Industry mentor for review and evaluation.

3. Constitution of the Review Committee

1. Internal Mentor/Invitee Mentor
2. External Reviewer
3. Industry Mentor/Faculty member

This team will oversee each Review and evaluate students' performance and time management of the project.

4. Evaluation & Distribution of Marks:

1. Internal Mentor/Invitee Mentor: 40%
2. External Reviewer 40%
3. Industry Mentor: 20%

5. Distribution of marks as per Reviews:

a. 1st Review: 20 Marks
b. 2nd Review: 30 Marks
c. Final Review: 50 Marks

Review 1: Articulation of Design brief - 20 marks

1. Understanding Organization's Design philosophy, articulated targets & intended outcomes- 5 marks
2. Quality of Research & building the details of the Design Brief; Defining Market-User groups and Context of Use- 5 marks
3. Mapping of User persona and understanding need of the user/ community - 5 marks
4. Existing product analysis/ benchmarking - 5marks

Review 2: Ideation and Iterations - 30 marks

1. Iterations and concept generation - 15 marks
2. Low fidelity models with ergonomic considerations- 15 marks

Review 3: Prototyping and testing - 50 marks

1. Integration of form and function - 10 marks
2. Material and Manufacturing viability -10 marks
3. Quality of the prototype and functionality -10 marks
4. User testing/ feedback from the stakeholders -10 marks
5. Presentation & Documentation-10 marks

6. Schedule/Day of Mentorship:

1. A day/hours per week are fixed for mentorship and timetable is to be shared with students.
2. Mentors will be assigned an email id to facilitate use of NU Online video platforms, if possible.

w.e.f. Academic Year_ 2023-24 and onwards