

NIRMA UNIVERSITY

Institute:	INSTITUTE OF DESIGN
Name of Programme:	BACHELOR OF DESIGN
Course Code:	3DD104ME26
Course Title:	Introduction to Interaction Design
Course Type:	<input type="checkbox"/> Core/ <input type="checkbox"/> Value Added Course/Departmental Elective/ <input checked="" type="checkbox"/> Institute Elective / University Elective/Open Elective/ Any other
Year of introduction:	Academic Year 2026-27

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Course Learning Outcomes (CLO):

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

1. Analyse core interaction design models to deconstruct and design everyday smart objects. **BL4**
2. Translate user insights into tangible interaction concepts, moving beyond screen-based solutions to physical affordances. **BL3**
3. Create functional "phygital" prototypes by integrating microcontrollers, sensors, and actuators, bridging the gap between product form and digital behaviour. **BL6**
4. Evaluate user experiences through rapid prototyping techniques to validate interaction logic. **BL5**

Content:

Total Teaching hours: 120 Hrs

Units	Content	Teaching hours
Unit 1	Introduction to Interaction Design <ul style="list-style-type: none"> • What is Interaction Design? • Interaction beyond screens (products, spaces, systems) • Basics of human-object interaction • Affordances, feedback, mapping and constraints • Simple interaction model: Input → Process → Output • Observation and analysis of everyday interactive objects 	18 Hrs
Unit 2	Case Studies and Real-Life Examples <ul style="list-style-type: none"> • Study of everyday interactive products (automatic taps, smart lighting, wearable devices, toys etc.) • Good vs poor interaction examples • Mapping user intention to system response • Identifying breakdowns and failure points • Group case study presentations 	24 Hrs

Unit 3	Introduction to Hardware for Interaction <ul style="list-style-type: none"> • Basics of electronics (voltage, current, resistance – conceptual level) • Introduction to microcontrollers (e.g., Arduino, ESP32 etc.) • Inputs: buttons, LDR, ultrasonic sensor, touch sensor • Outputs: LED, buzzer, servo motor • Basic coding logic: digital I/O, If-Else, loops • Safe circuit building practices 	24 Hrs
Unit 4	Guided Hardware Exercises and Mini Prototypes <ul style="list-style-type: none"> • LED control exercises • Sensor-triggered output systems • Distance-based alert system • Servo-based movement interaction • Final mini project (simple interactive object using limited sensors and outputs) • Interaction flow diagram and prototype documentation • Basic user testing and refinement 	54 Hrs

Self-Study	
Suggested Readings/References	Books <ol style="list-style-type: none"> 1. Preece, J., Rogers, Y., & Sharp, H. (2019). <i>Interaction Design: Beyond Human-Computer Interaction</i>. Wiley. 2. Norman, D. A. (2013). <i>The Design of Everyday Things</i> (Revised Edition). Basic Books. 3. Moggridge, B. (2007). <i>Designing Interactions</i>. MIT Press. 4. O'Sullivan, D., & Igoe, T. (2004). <i>Physical Computing: Sensing and Controlling the Physical World with Computers</i>. Course Technology Press. (The bible for Arduino/Hardware). Online Resources <ol style="list-style-type: none"> 1. Copenhagen Institute of Interaction Design (CIID) – Interaction Design Programme archives 2. IDEO Design Kit – Human-Centered Design resources Arduino Documentation – Physical Computing fundamentals
Suggested field visits	Not mandatory. Case-study-based learning supplemented by optional industry or agency talks depending on project focus.