



UNIVERSITI TEKNOLOGI MARA

IDE400: INDUSTRIAL DESIGN I

Course Name (English)	INDUSTRIAL DESIGN I APPROVED
Course Code	IDE400
MQF Credit	3
Course Description	This studio-base course which is a semester long project will enhance students' capabilities to simulate understanding and practice of process of designing for human use. This course includes analysis of advance physical properties of ergonomics and applies information on human behavior, abilities, limitation, and other characteristics to the design of tools, machines, systems, tasks, jobs, and environments for productive, safe, comfortable, and effective human use. Project will explore the use of ergonomics on shape, structure, function of the product and the detailing of model making. Student will also learn basic skills of design, presentation, and research which enable students to produce three dimensional models from a range of different materials. The lecture topics will be carried weekly which include an exercise to determine student understanding where students are expected to collaborate the ergonomics knowledge with engineering factor and aesthetics value.
Transferable Skills	Presentation Techniques; Design Process; creative problem solving; Communication Skill;
Teaching Methodologies	Lectures, Studio, Demonstrations, Case Study, Practical Classes, Tutorial, Problem Based Learning (PBL), Presentation, Workshop
CLO	CLO1 Describe the importance of form, usability and aesthetics in product design development process CLO2 Provide evidence of creative problem solving through relevant design opportunities, based on human consideration CLO3 Effectively communicate the results of projects and other assignments in a written and oral format
Pre-Requisite Courses	No course recommendations
Topics	
1. INTRODUCTION TO DESIGN ERGONOMICS PROJECT 1.1) Introduction to course outline, objective and design project. 1.2) History of Industrial Design 1.3) Industrial Design Revolutions 1.4) Types of Design Deliverable s in Industrial Design 1.5) The form of design history, the beginnings of design culture, form follows function, the design movements. 1.6) Brief on Project/Research/ Theme Guideline	
2. INTRODUCTION TO DESIGN RESEARCH & STAGES IN THE DESIGN PROCESS 2.1) User Research, Personas, Story Boards, Market Research 2.2) Design Methodology 2.3) Understanding of the problem	
3. UNDERSTANDING AND ANALYZING CONTEXT 3.1) Designing Things: 3.2) 1. Visceral (Aesthetic) 3.3) 2. Behavioral (Function) 3.4) 3. Reflective (User) 3.5) Establish Research & Design Statement 3.6) Analysis on Data Finding 3.7) Propose Concept Generation	

4. PRODUCT ATTRIBUTES

- 4.1) Problem Identification & Solution
- 4.2) Understanding the Product:
- 4.3) i. Product Competition
- 4.4) ii. Product Differentiation
- 4.5) iii. Product Positioning
- 4.6) iv. Product Technical Information

5. CONCEPT DEVELOPMENT

- 5.1) Design Sketching, Verbal -visual communications:
- 5.2) Integrating Visual Sketch Idea and Design Consideration
- 5.3) Concept Sketching
- 5.4) Idea Generation & Concept Development

6. EVALUATION OF CONCEPTS, FINAL CONCEPT SELECTION

- 6.1) Usability studies
- 6.2) Ergonomics
- 6.3) Aesthetic
- 6.4) Critical Analysis Studies
- 6.5) Idea Development
- 6.6) Sketches Presentation
- 6.7) Idea Development

7. MATERIALS RESEARCH AND MOCK-UP CONSTRUCTION

- 7.1) Presentation of Progress Work
- 7.2) Final Design Proposal
- 7.3) Construction of Modelling
- 7.4) Material and Modelling Process selection

8. TESTING AND MANUAL HANDLING

- 8.1) Design/Ergonomics Consideration
- 8.2) Studies on Practicality, Functionality & Aesthetics Value
- 8.3) Construction of 3D Mock-up

9. MANUFACTURING PROCESS PLAN & TECHNICAL DRAWING

- 9.1) Technical Proposal of Final Design
- 9.2) Material and Modelling Process selection

10. PROTOTYPE / MODELING CONSTRUCTIONS

- 10.1) 3D Model / Form Prototype Development
- 10.2) Material selection
- 10.3) Finishing final design modelling

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	CRITIQUE SESSION (2): UNDERSTANDING AND ANALYZING CONTEXT (user studies & user observation)	10%	CLO2
	Assignment	CRITIQUE SESSION (3): CONCEPT DEVELOPMENT (ergonomics & form studies)	10%	CLO1
	Assignment	CRITIQUE SESSION (4): CONCEPT DEVELOPMENT (form studies & idea development)	10%	CLO2
	Assignment	CRITIQUE SESSION (5): TESTING AND MANUAL HANDLING (user & prototypes testing)	10%	CLO2
	Assignment	CRITIQUE SESSION (6): TESTING AND MANUAL HANDLING (material and production; model making progress)	10%	CLO3
	Assignment	CRITIQUE SESSION (1): UNDERSTANDING AND ANALYZING CONTEXT (product analysis & literature studies)	10%	CLO1
	Final Project	Final Product Design Presentation : Compilation of Research & Design Development	40%	CLO3

Reading List	Reference Book Resources
	<ul style="list-style-type: none"> • Kevin N. Otto, Kristin L. Wood 2001, <i>Product Design</i>, Pearson College Division [ISBN: 0130212717] • Artiom Dashinsky 2018, <i>Solving Product Design Exercises</i> [ISBN: 1977000428] • Gail G. Hannah 2002, <i>Elements of Design</i>, Princeton Architectural Press [ISBN: 1568983298] • William Lidwell, Kritina Holden, Jill Butler 2010, <i>Universal Principles of Design, Revised and Updated</i>, Rockport Pub [ISBN: 1592535879] • Sendpoints 2018, <i>Ergonomics in Product Design</i> [ISBN: 9887849375] • Eldad Eilam 2011, <i>Reversing</i>, John Wiley & Sons [ISBN: 9781118079768]
Article/Paper List	This Course does not have any article/paper resources
Other References	This Course does not have any other resources