



UNIVERSITI TEKNOLOGI MARA

IDE555: HUMAN FACTORS IN DESIGN

Course Name (English)	HUMAN FACTORS IN DESIGN APPROVED
Course Code	IDE555
MQF Credit	2
Course Description	This course will focus on understanding the balance of various influences and factors between human and their physical and emotional surrounding. Course input is relevant in the practice of contemporary design problem solving. It is vital to instill an understanding of designs that are driven by consumer needs to ensure greater product acceptance and longevity. Such knowledge will allow student to apply its findings to research prior to the design phase to uncover the unarticulated needs and tacit knowledge that drive patterns of behavior and values. The course will involve fieldwork assignments and assigned readings as a means to combine of theory with research practice to allow better understanding of design problems, design challenges and opportunities.
Transferable Skills	Student can analyze current and ongoing issues in human using product and choose the most suitable Human Factors approach to solve design problem
Teaching Methodologies	Lectures, Blended Learning, Case Study, Presentation, Industrial Talk
CLO	CLO1 Analyze current and ongoing issues in human using product and choose the most suitable Human Factors approach to solve design problem. CLO2 Recognize areas within human factors in design that is related to the issue of product usage, and create an approach to identify improvement to the design. CLO3 Acquire specific understanding on why human aspect should be taken into account in designing a product / facility / procedure for human user.
Pre-Requisite Courses	No course recommendations
Topics	
1. Introduction to Human Factors and Design 1.1) Basic understanding on Human Engineering.	
2. The Science of Comfort-1 2.1) Physical Comfort: Human Body Systems	
3. The Science of Comfort-2 3.1) Physical Comfort: Human Sensory Systems	
4. Cognitive Aspects in Design 4.1) 1. Information processing 4.2) 2. Human Perception and Decision-making process 4.3) 3. Cognitive Workload	
5. Human Factors and Handheld products 5.1) 1. Hand Tools & Handheld products 5.2) 2. Hand Anatomy & Physiology 5.3) 3. Health issues in Hand Tools usage 5.4) 4. Anatomy of good Hand Tools and handheld product design	
6. Human Factors aspects in Physical Works and Manual Handling. 6.1) Effects of physical work and manual handling to the design of everyday tools	
7. Applied Human Factors: Principles of Man-Machine Interface Design 7.1) 1. Control Systems Design 7.2) 2. Display Systems Design	

8. Applied Human Factors: Workstation Design

- 8.1) 1. Introduction to Workstation Design
- 8.2) 2. Human Dimension & Space Planning
- 8.3) 3. Job Analysis & Design
- 8.4) 4. Workstation design guidelines

9. Applied Human Factors: Workplace Design and Arrangements

- 9.1) 1. Work Organization
- 9.2) 2. Function allocation
- 9.3) 3. Safety & Environmental factors
- 9.4) 4. Design of ergonomics workplace

10. Human Factors Evaluation

- 10.1) 1. The purpose of performing Human Factors evaluation
- 10.2) 2. Methods used in Human Factors evaluation
- 10.3) 3. Planning for a design improvement

11. Human Factors Project Case Study-Preparation

- 11.1) Selecting a project of the semester to be proposed for object of human factors evaluation on design improvement.

12. Human Factors Project Case Study-Proposal

- 12.1) Presenting a Design improvement plan over the semester's project based on the approach from Human Factors consideration in Design.

13. Human Factors Project Case Study - Final Preparation

- 13.1) Individual Preparation of Implementation over Human Factors approach into the design of Final Semester Project's Major Product.

14. Human Factors Project Case Study - Final Presentation

- 14.1) Presenting the related Human Factors implementation into the Final Design of The semester's Major Project.

Assessment Breakdown	%
Continuous Assessment	100.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Assignment	Literature Study on Physical Comfort: Finding articles on case study from interface between human and product/facility/procedure.	10%	CLO1
	Assignment	Quiz on "The Science of Comfort"	10%	CLO2
	Assignment	Direct observation on Man-Machine Interface Design: Analyzing Human Factors problems in daily used public facilities	10%	CLO2
	Case Study	Practicing Case study of Human Factors analysis on Workstation Design that incorporates manual and digital systems interfacing with user on work bases. Report and Presentation are required for Marking purposes.	20%	CLO3
	Final Project	Project Case Study 1: Design Project and Report Submission.	25%	CLO3
	Individual Project	Project Case Study : Design and Usability testing	25%	CLO3

Reading List	Recommended Text	<ul style="list-style-type: none"> • Norman, D.A 2002, <i>Design of Everyday Things.</i>, Basic Books. • Anderson, U.L. 1999, <i>Humanware: practical usability engineering</i>, Trafford Publishing USA • Dreyfuss, H 2003, <i>Designing for People: The Classic of Industrial Design</i>, Allworth Press USA • Leventhal, L.M., Barnes, J.A. 2008, <i>Usability Engineering: Process, Products, and Examples</i>, Pearson/Prentice Hall. USA • Alvin R. Tilley, Henry Dreyfuss Associates 2001, <i>The Measure of Man and Woman</i>, John Wiley & Sons [ISBN: 9780471099550]
	Reference Book Resources	<ul style="list-style-type: none"> • Sendpoints 2018, <i>Ergonomics in Product Design</i> [ISBN: 9887849375] • Wickens, C.D., Gordon, S.E., Lui, Y.D. 2004, <i>An Introduction to Human Factors Engineering</i>, Pearson/Prentice Hall USA. • Peggy Tillman 2016, <i>Human Factors and Ergonomics Design Handbook</i>, 3rd Ed., McGraw-Hill Education [ISBN: 97800717028]
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	