UNIVERSITI TEKNOLOGI MARA

IDE413: ERGONOMICS

Course Name (English)	ERGONOMICS APPROVED
Course Code	IDE413
MQF Credit	2
Course Description	This course will focus on how human interact with products within the usage environment and build an understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance. 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. At the end of the course, a class presentation session will be held in group of students, presenting their ergonomics in design case of choice.
Transferable Skills	Adaptable, Resourceful and Responsible, Responsive.
Teaching Methodologies	Lectures, Blended Learning, Reading Into Writing Task
CLO	CLO1 Develop better understanding on why human should be accommodated properly to its capabilities and limitations, in terms of creating product for human use. CLO2 Develop a point of view of how human as a user, would behave and react towards the introduction of new product. CLO3 Demonstrate analytic thinking in recognizing design opportunities, based on human consideration.
Pre-Requisite Courses	No course recommendations

Topics
1. Introduction to Ergonomics 1.1) 1.1. Term of Ergonomics / Human Factors 1.2) 1.2. Ergonomics in daily life 1.3) 1.3. Common understanding and misperception of ergonomics 1.4) 1.4. Scope of study in Ergonomics subject
2. History of Ergonomics-1 2.1) 2.1. Ergonomics and history of mankind 2.2) 2.2. The first emergence of Ergonomics view 2.3) 2.3. The Industrial Revolution 2.4) 2.4. The World War
3. History of Ergonomics-2 3.1) 2.5. The invention of computer system 3.2) 2.6. The invention of automatic system 3.3) 2.7. The invention of SMART technology
4. Elements of Ergonomics 4.1) 3.1. Physiology 4.2) 3.2. Psycho-Social 4.3) 3.3. Cognitive
5. Main Goals of Ergonomics 5.1) 4.1. Safety 5.2) 4.2. Comfortability 5.3) 4.3. Productivity 5.4) 4.4. Performance 5.5) 4.5. Pleasure

6. Related Fields of Application in Ergonomics 6.1) 5.1. Engineering (Mechanical, Safety, Industrial) 6.2) 5.2. Design (Industrial, Graphic/Visual Communication) 6.3) 5.3. Architecture / Interior 6.4) 5.4. Medical / Health 6.5) 5.5. Transportation System
7. Human-Computer Interface 7.1) n/a
8. Application of Ergonomics on Industrial Design 8.1) 7.1. Furniture Design 8.2) 7.2. Transportation Design 8.3) 7.3. Medical Equipments 8.4) 7.4. Consumers Product Design 8.5) 7.5. Footwear Design
9. Design for Disabled and Elderly People 9.1) n/a
10. International Standards in Ergonomics 10.1) n/a
11. Ergonomics Design Project 11.1) 10.1. Case study selection 11.2) 10.2. Early identification of ergonomics problem 11.3) 10.3 Preparing ergonomics improvement plan 11.4) 10.4 Implementing ergonomics design development

Assessment Breakdown	%
Continuous Assessment	40.00%
Final Assessment	60.00%

Details of Continuous Assessment

Assessment Type	Assessment Description	% of Total Mark	CLO
Assignment	Literature review on the evolution of product designed for human use from the early years, and produce comparison with the current state of the product, to understand the direction of improvement made on the usability.	10%	CLO1
Assignment	Quiz on the Implementation of physical aspects from ergonomics into designing a product, with particular emphasis on case study from daily products used by human.	10%	CLO1
Assignment	Human-Machine Interface: Conduct field observation over a own-chosen public facility that has man-machine interface element, and report the user behavior and problems that was encountered during the usage.	10%	CLO1 , CLO2
Assignment	Propose a design concept based on the ongoing studio project, and learn to identify the related ergonomics aspects to be considered in the design improvement of the product.	10%	CLO1 , CLO2 , CLO3

Reading List

Recommended Text

- **Dul, J., Weerdmeester, B. 2008, *Ergonomics for Beginners: A quick reference g*, CRC Press England**

Reference Book Resources

- **Norman, D.A. 2002, *Design of Everyday Things.*, Basic Books.**
- **Wilson, John R. & Corlett, E. Nigel. 2005, *Evaluation of Human Work, A practical ergonom*, CRC Press**
- **Sanders, Mark S.,and McCormick, Ernest J. 1993, *Human Factors in Engineering and Design*, McGraw-Hill**

Article/Paper List: This Course does not have any article/paper resources

Other References: This Course does not have any other resources