JABATAN/ *DEPARTMENT OF* MECHANCAL ENGINEERING
RANGKA KURSUS/ *COURSE OUTLINE/SSG*

1.	NAME OF COURSE	ERGONOMICS *Version: 230419_1_Effective: June2019*
	COURSE CODE	DJJ41032
2.	SYNOPSIS	ERGONOMICS covers the introduction to ergonomics, human biomechanics, anthropometry, the design of controls and displays, ergonomics approach in product design and design applications. Students are made aware of human factors considerations in product design.
3.	CREDIT VALUE	2
4.	PREREQUISITE/ CO-REQUISITE (IF ANY)	None
5.	COURSE LEARNING OUTCOMES (CLO): Upon completion of this course, students should be able to:	
	CLO1	Analyze the ergonomics factors towards human biomechanics and anthopometry needed in work systems involving people and machine (C4, PLO2).
	CLO2	Illustare the ergonomics approaches on workstation, device or product design (C4, PLO3)
	CLO3	Justify the ergonomics approaches used on the proposed design (A3,PLO12)

PROGRAMME LEARNING OUTCOMES (PLO):

PLO2: identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4);

PLO3: design solutions for well-defined technical problems and assist with the design of systems, components or processes to meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations (DK5);

PLO12: recognize the need for, and have the ability to engage in independent updating in the context of specialized technical knowledge;

6. ASSESSMENT METHOD:

The course assessment consist of:

i. Continuous Assessment (CA) – 50%
ii. Final Examination (FE) – 50%

Assessment	Quantity	Percentage (%)
Quiz	2	5%
Test	1	15%
End Of Chapter	1	10%
Project	1	15%
Presentation	1	5%

7. TEACHING SCHEDULE:

Topic No.	Topic/Content	Recommended Contact Hours	Assessment Method	Week
1.0	INTRODUCTION TO ERGONOMICS 1.1 Define the development of ergonomics. 1.2 Classify the domains of ergonomics. 1.3 Determine the purposes of ergonomics in design. 1.4 Construct simple work systems on how people interact with machines. 1.5 Explain the ergonomics risk factors. 1.6 Distinguish three ergonomics control.	4 hours Lecture		W1- W2
2.0	HUMAN BIOMECHANICS 2.1 Explain some important terminology. 2.2 Interpret components of human body 2.3 Describe functions of the skeletal and muscular systems. 2.4 Construct the anatomy of the spine and pelvis. 2.5 Illustrate human posture and movement. 2.6 Describe the concept of low back pain.	4 hours Lecture	Test 1	W3 – W4
3.0	ANTHROPOMETRY 3.1 Define anthropometry. 3.2 Identify human variability. 3.3 Construct Anthropometric data. 3.4 Customize common approaches to the anthropometric solution of design problems. 3.5 Describe the Percentile of Human Engineering	4 hours Lecture	Quiz 1	W5 – W6
4.0	THE DESIGN OF CONTROLS AND DISPLAYS 4.1 Identify control device design. 4.2 Identify displays device design.	6 hours Lecture	Quiz 2	W7 – W9
5.0	ERGONOMICS APPROACH IN PRODUCT DESIGN 5.1 Explain the successive stages of a design. 5.2 Explain the purposes of using ergonomics checklist 5.3 Prepare ergonomics checklist related to the product design	3.75 hours Lecture	End Of Chapter	W10 – W11

	6.0	DESIGN APPLICATIONS This topic cover the design of man-machine systems, design of working environment and design of consumer goods and service systems. 6.1 Apply the Design of man-machine systems 6.2 Apply the Design of working environments. 6.3 Apply the Design of consumer goods and service systems 6.4 Propose the ergonomics approaches use on the design	5.25 hours Lecture	Project Presentation	W12 – W14

8.	REFERENCES	Main : 1. Lehto, M., Landry, S., (2017). Introduction to Human Factors and Ergonomics for Engineers (Fourth edition), CRC Press. (ISBN-13: 978-1-4987-9594-4) 2. Lehto, M., Landry, S., (2013). Introduction to Human Factors and Ergonomics for Engineers (second edition), CRC Press. (ISBN-13: 978-1-4398-5394-8) 3. Karwowski, Waldemar., Soares, M. Marcelo. and Stanton, A. Neville. (2011). Human Factors and Ergonomics in Consumer Product Design, CRC Press. (ISBN: 978-1-4200-4628- 1) Additional : 1. Lehto, Mark and Buck, James (2008). Introduction to Human Factors and Ergonomics for Engineers, CRC Press. (ISBN-13: 978-0-8058-5308-7) 2. Salvendy, Gavriel. (2012). Handbook of Human Factors and Ergonomics: 4th edition. Wiley. (ISBN-13: 978-0470528389) 3. Nursyazwi, M. M., and Jainal, G. F. (2013). Engineering Anthropometry and Workstation 4. Design: Ergonomics In Design: Engineering Anthropometry and Workstation Design. CreateSpace Independent Publishing Platform. (ISBN-13: 978-1491072615)

Prepared by:

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(ANIZA BINTI MD. LATIFF)

Date : 16/8/2022

Verified by :

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(Tandatangan dan Nama TPA/KJ/KPro/KK **)**

Date : 16/8/2022

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