


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

1.	NAME OF COURSE	JIG AND FIXTURE DESIGN																
	COURSE CODE	DJF51072 <i>Version: 230419 1 Effective: June 2019</i>																
2.	SYNOPSIS	JIG AND FIXTURE DESIGN covers basic production needs in industry. The topics taught includes types and functions of jigs and fixtures, supporting and locating, clamping and work holding principles, design economics, designing and constructing plate jig and plate fixtures. This course also provides knowledge in management, sustainability and manufacturing systems.																
3.	CREDIT VALUE	2																
4.	PREREQUISITE/ CO-REQUISITE (IF ANY)	None																
COURSE LEARNING OUTCOMES (CLO): Upon completion of this course, students should be able to:																		
	CLO1	Apply the concepts and principles of jigs and fixtures in design. (C3, PLO2)																
	CLO2	Calibrate the 3D design by using CAD/CAM software to plan and devise mini project. (P4, PLO3)																
	CLO3	Demonstrate convictions towards environment and sustainability to complete assigned tasks during mini project sessions. (A3, PLO7)																
PROGRAMME LEARNING OUTCOMES (PLO):																		
5.	PLO 2 : Identify and analyse well-defined engineering problems reaching substantiated conclusions using codified methods of analysis specific to their field of activity (DK1 to DK4)																	
	PLO 3 : 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)																	
	PLO 7: understand and evaluate the sustainability and impact of engineering technician work in the solution of well-defined engineering problems in societal and environmental contexts (DK7)																	
ASSESSMENT METHOD:																		
The course assessment consists of:																		
	i. Continuous Assessment (CA) – 100%																	
	ii. Final Examination (FE) – NONE																	
6.	<table border="1"> <thead> <tr> <th>Assessment</th> <th>Quantity</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Quiz</td> <td>1</td> <td>10%</td> </tr> <tr> <td>Test</td> <td>1</td> <td>30%</td> </tr> <tr> <td>Mini Project</td> <td>2</td> <td>40%</td> </tr> <tr> <td>Presentation</td> <td>2</td> <td>20%</td> </tr> </tbody> </table>			Assessment	Quantity	Percentage (%)	Quiz	1	10%	Test	1	30%	Mini Project	2	40%	Presentation	2	20%
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TEACHING SCHEDULE:				
Topic No.	Topic/Content	Recommended Contact Hours	Assessment Method	Week
7.	1.0 INTRODUCTION TO JIG AND FIXTURE 1.1 Explain the purpose of tool design in manufacturing 1.2 Explain types and functions of jigs and fixtures 1.3 Solve the analysis for economic	2.6 hour Lecture		W1
	2.0 SUPPORTING AND LOCATING 2.1 Explain the supporting and 2.2 Sketch the types of locating. 2.3 Sketch the types of ejector devices	5.6 hours Lecture	Quiz 1	W2 – W3
	3.0 CLAMPING AND WORKHOLDING 3.1 Sketch the clamping and workholding devices 3.2 Explain the Non-Mechanical 3.3 Sketch the types of clamping in special clamping operation 3.4 Explain the clamping accessories to make the job easier	3.3 hours Lecture	Test 1	W4
	4.0 DESIGNING JIG 4.1 Complete the part data to perform specified task 4.2 Complete jig designing based on design procedures 4.3 Justify the relationship between jig design with sustainable manufacturing	0.75 hours Lecture 14 hours practical	Mini Project 1 Presentation	W5– W9
	5.0 DESIGNING FIXTURE 5.1 Complete the part data to perform specified task 5.2 Complete fixture designing based on design procedures 5.3 Justify the relationship between fixture design with sustainable manufacturing	0.75 hours Lecture 14 hours practical	Mini Project 2 Presentation	W10 – W14
8.	REFERENCES	Main : 1. Venkataraman, K. (2015). Design of Jigs, Fixtures and Press Tools. Chichester, West Sussex: Wiley Blackwell. Additional : 1. Kibbe, R. R., Meyer, R. O., Stenerson, J., & Curran, K. (2019). Machine Tool Practices. Upper Saddle River: Pearson. 2. Joshi, P. H. (2010). Jigs and Fixtures. New Delhi: Tata McGraw-Hill Education. 3. Hoffman, E. G. (2004). Jig and Fixture Design. Australia: Thomson/Delmar Learning.		

Prepared by:


 (Tandatangan dan Nama Penyelaras Kursus)

Dr. AZLAN BIN RAMLI

Date : **Pensyarah**
Politeknik Muadzam Shah
Pahang Darul Makmur,
25/08/2023

Verified by :


 (Tandatangan dan Nama TPA/K/JK/Pro/KK)
KHAIRIL BIN CHE MAT
 Ketua Program

Diploma Kejuruteraan Mekanikal (Pembuatan)
Jabatan Kejuruteraan Mekanikal
Politeknik Muadzam Shah
Pahang Darul Makmur

Date : **25/08/2023**