POLITEKNIK BANTING SELANGOR

DEPARTMENT OF MECHANICAL ENGINEERING | **Page 1/4**

COURSE OUTLINE

Rev: 00 (hanya berubah jika ada perubahan silibus)

Coding: 230419_1_Effective: June2019

1.	NAME OF COURSE	PNEUMATIC & HYDRAULICS
	COURSE CODE	DJJ 40153
2.	SYNOPSIS	Pneumatic & hydraulics provides knowledge and understanding to the importance of pneumatics and hydraulics circuits, equipment and design along with its usage in the industry.
3.	CREDIT VALUE	3
4.	PREREQUISITE/ CO-REQUISITE (IF ANY)	None

5. COURSE LEARNING OUTCOMES (CLO):
Upon completion of this course, students should be able to:

CLO1	Apply the basic concept and function of pneumatics and hydraulics system. (C3, PLO1)
CLO2	Design pneumatic, electro-pneumatic and hydraulic circuit according to assigned tasks. (C5, PLO3)
CLO3	Perform experiment on pneumatic, electro-pneumatic and hydraulic circuit during practical session. (P4, PLO5)

PROGRAMME LEARNING OUTCOMES (PLO):

PLO 1: Apply knowledge of applied mathematics, applied science, engineering fundamentals and engineering specialization as specified in DK1 to DK4 respectively to wide practical procedures and practices.

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 5: apply appropriate techniques, resources, and modern engineering and IT tools to well-defined engineering problems, with an awareness of the limitations (DK6)

6. ASSESSMENT METHOD:

The course assessment consists of:

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

Assessment	Quantity	Percentage (%)
Quiz	1	5%
Test	2	15%
End of Chapter	2	10%
Report	4	20%

7. TEACHING SCHEDULE

Topic No.	Topic / Content	Students Learning Time (SLT)		Assessment Method	Assessment Week
		Guided Learning (F2F) (hours)	Independent Learning (NF2F) (hours)		
1.	INTRODUCTION TO PNEUMATIC SYSTEM This topic covers the basic pneumatic system, air generation and distribution system, symbols, valves and actuators.	Lecture: 2 Practical: 0	2.5	Quiz 1	W2
2.	PNEUMATICS CIRCUIT DESIGN This topic discusses about circuit design for one cylinder using direct and indirect control. Besides that, it covers circuit design using other control components and development of multiple cylinder circuits.	Lecture: 2 Practical: 0	2.7	Test 1	W3 - W7
3.	ELECTRO PNEUMATICS CIRCUIT DESIGN This topic cover electrical components such as relay, switches, and sensors and its function, electro pneumatic circuit design and PLC.	Lecture: 2 Practical: 0	2.7 Mini Project:3	Test 2	W8 – W10
4.	BENDING STRESS IN BEAM This topic introduces the determination of the neutral axis and second moment of area for a section and covers the calculation of the maximum value of bending stress and draw the distribution.	Lecture: 2 Practical: 0		Tutorial EOC 1	W10 - W13

F2F – Face to Face, NF2F – Non-Face to Face

Note: Rubrics need to be attached in Attachment 1

8.	REFERENCES	Main: 1. R. C. Hibbeler. 2013. *Mechanics of Materials*. 9th Edition: Pearson Education Inc. 2. Additional: 1. Ferdinand P. Beer. 2015, *Mechanics of Materials*. 7th Edition: McGraw-Hill International Edition. 2. R. C. Hibbeler. 2004. *Static and Mechanics of Materials*. 2nd Edition: Upper Saddle River, NJ, Prentice Hall. 3.

Prepared by:

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(Course Coordinator)

Date:

Verified by:

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(Head of Programme/ Head of Course/ Head of Department)

Date:

CLO 3: Demonstrate an understanding of professional ethics, responsibilities and norms of engineering practices according to the workshop safety regulation. (A3, PLO8)

FITTING

Domain Hasil Pembelajaran	Atribut	Subatribut	Tahap Guna Pakai	Pemberat	Sangat Lemah	Lemah	Memuaskan	Baik	Sangat Baik	Markah
					1-2	3-4	5-6	7-8	9-10	
LD 8 : Nilai, Sikap dan Profesionalisme	**Nilai dan Sikap**	**Moral**	**Fasa Awal Program Pengajian**	10%	Tidak mengamalkan nilai-nilai murni atau tidak berkelakuan baik sepertimana sepatutnya.	Mengamalkan nilainilai murni atau berkelakuan baik hanya dalam beberapa keadaan.	Mengamalkan nilai-nilai murni dan berkelakuan baik dalam banyak keadaan.	Mengamalkan nilai-nilai murni dan berkelakuan baik dalam hampir semua keadaan.	Sentiasa mengamalkan nilai-nilai murni danberkelakuan baik dalam apa jua keadaan.	
		Jati Diri	**Fasa Akhir Program Pengajian**	10%	Tidak menunjukkan minat untuk mempertahankan maruah bangsa, agama dan negara.	Menunjukkan sikap yang berbelah bagi dalam mempertahankan maruah bangsa, agama dan negara.	Menunjukkan sikap mahu mempertahankan maruah bangsa, agama dan negara dalam banyak keadaan.	Menunjukkan sikap mahu mempertahankan maruah bangsa, agama dan negara dalam hampir semua keadaan.	Sentiasa menunjukkan sikap mahu mempertahankan maruah bangsa, agama dan negara dalam apa jua keadaan.	
		Proaktif	**Fasa Awal Program Pengajian**	10%	Tidak dapat menunjukkan sikap aktif pada mana-mana keadaan.	Menunjukkan sikap aktif yang terhad dalam banyak keadaan.	Menunjukkan sikap aktif dan positif dalam banyak keadaan.	Menunjukkan sikap aktif dan positif dalam hampir semua keadaan.	Sentiasa menunjukkan sikap aktif dan positif dalam apa jua keadaan walaupun kritikal.	
Total Point										/60

Prepared by:

_____

(*Name)*

Course Coordinator

Course code and name

Date:dd/mm/yyyy

Approved by:

_____

(*Name)*

Head of Program / Course

Name of Program

Date:dd/mm/yy

Rubrics: DJJ5123 Pneumatic Hydraulic