

1. Maklumat Kursus / Course Info

Nama Kursus: Course Name:	Elektronik / Electronics		
Kod Kursus: Course Code:	SFE3053	Nilai Kredit: Credit Value:	3

2. Sinopsis / Synopsis

Kursus ini mendedahkan kepada pengetahuan asas kepada cirian peranti semikonduktor, pengujian, aplikasi litar dan pengenalan kepada elektronik digital. Kursus ini memberikan pemahaman asas kepada operasi dan penyelesaian masalah litar elektronik. Penggunaan litar-litar praktikal dan latihan diagnosis kerosakan akan dilaksanakan sepanjang semester.

This course provides fundamental knowledge on semiconductor device characteristics, testing, their practical circuit applications, and an introduction to digital electronics. It establishes a foundation for understanding the operation and problem-solving in electronic circuits. Practical circuit examples and troubleshooting exercises are incorporated throughout the semester.

3. Nama Staff Akademik / Name(s) of Academic Staff

1. Ts. Dr. Mohd Norzaidi Mat Nawi

4. Semester dan Tahun / Semester and Year Offered

Semester: Semester:	2	Tahun: Year:	1
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5. Prasyarat (jika ada) / Prerequisite (if any)

Tiada / None

6. Hasil Pembelajaran Kursus / Course Learning Outcomes (CLO)

CLO1	Menerangkan konsep-konsep elektronik asas analog dan digital. (C2, PLO1) <i>Explain basic analogue and digital electronics concepts. (C2, PLO1)</i>	C2
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CLO2	Menganalisis litar elektronik analog dan digital untuk menyelesaikan masalah. (C4, PLO2) <i>Analyse analogue and digital electronics circuit to solve a problem. (C4, PLO2)</i>	C4
CLO3	Menulis laporan praktikal berdasarkan tugas amali. (P3, PLO3) <i>Write practical reports based on practical assignments. (P3, PLO3)</i>	P3
CLO4	Mengaplikasikan kemahiran numerasi dalam penyelesaian masalah berkaitan litar elektronik. (C3, PLO7) <i>Apply numeracy skills in problem solving related to electronic circuits. (C3, PLO7)</i>	C3

7. Pemetaan Hasil Pembelajaran Kursus kepada Hasil Pembelajaran Program / Mapping of the Course to the Programme Learning Outcomes

CLO	Program Learning Outcomes (PLO)											Teaching Methods	Assessment
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11		
CLO1	✓											• Kuliah / <i>Lecture</i>	• Kuiz Dalam Talian / <i>Online Quiz</i>
CLO2		✓										• Kuliah / <i>Lecture</i>	• Ujian / <i>Test</i> • Peperiksaan Akhir / <i>Final Examination</i>
CLO3			✓									• Praktikal / <i>Practical</i>	• Laporan Praktikal / <i>Practical Report</i>
CLO4							✓					• Perbincangan / <i>Discussion</i>	• Penulisan Laporan / <i>Report Writing</i>

(Deskripsi ini mesti dibaca bersama dengan Standard 2.1.2, 2.2.1 dan 2.2.2 di Area 2 - muka surat 16 & 18 / This description must be read together with Standards 2.1.2, 2.2.1 and 2.2.2 in Area 2 - pages 16 & 18)

Hasil Pembelajaran Program / Programme Learning Outcomes	
PLO1	Menerangkan pengetahuan teoretikal dan teknikal dalam bidang pendidikan dan fizik. [MQF1] <i>Describe theoretical and technical knowledge in education and physics [MQF1]</i>
PLO2	Mempamerkan keupayaan intelektual melalui aplikasi kemahiran berfikir berkaitan bidang pendidikan dan fizik. [MQF2] <i>Demonstrate intellectual ability through the application of thinking skills related to the field of education and physics . [MQF2]</i>
PLO3	Mengaplikasikan kaedah dan kemahiran praktikal yang sesuai bagi pelaksanaan tugas dalam bidang pendidikan dan fizik. [MQF3A] <i>Apply appropriate methods and practical skills for the implementation of tasks in the field of education and physics . [MQF3A]</i>
PLO4	Berinteraksi secara efektif dengan menggunakan kemahiran interpersonal yang berkesan. [MQF3B] <i>Interact effectively using effective interpersonal skills. [MQF3B]</i>
PLO5	Berkomunikasi secara bertulis dan lisan melalui pelbagai media penyampaian. [MQF3C] <i>Communicate in writing and orally through a variety of delivery media. [MQF3C]</i>

PLO6	Mengintegrasikan pelbagai sumber media dan teknologi digital bagi menyelesaikan tugas. [MQF3D] <i>Integrate various media sources and digital technologies to complete tasks. [MQF3D]</i>
PLO7	Mengaplikasikan kemahiran numerasi dalam penyelesaian masalah. [MQF3E] <i>Apply numeracy skills in problem solving. [MQF3E]</i>
PLO8	Menunjukkan kepimpinan, sikap berautonomi dan kebertanggungjawaban pada pelbagai peringkat pengurusan. [MQF3F] <i>Demonstrates leadership, autonomy and accountability at various levels of management. [MQF3F]</i>
PLO9	Mempamerkan kemajuan diri menerusi pembelajaran berterusan dan pembangunan profesional secara proaktif. [MQF4A] <i>Demonstrate self-improvement through continuous learning and professional development proactively. [MQF4A]</i>
PLO10	Mempamerkan pemikiran dan kemahiran keusahawanan dalam pengurusan projek. [MQF4B] <i>Demonstrate entrepreneurial thinking and skills in project management. [MQF4B]</i>
PLO11	Mematuhi kod etika dalam persekitaran sosial dan amalan profesional. [MQF5] <i>Adhere to a code of ethics in social environment and professional practice. [MQF5]</i>

8. Kemahiran yang boleh dipindahkan (jika berkaitan) / *Transferable Skills (if applicable)*

1	Kemahiran Numerasi dalam menyelesaikan masalah <i>Numeracy skills in problem solving</i>
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9. Pengagihan Jam Pembelajaran Pelajar / *Distribution of Student Learning Time (SLT)*

Week	Course Content Outline	CLO				Conventional						Online				SLT
						Guided Learning (F2F)				Guided Learning (NF2F)	Independent Learning (NF2F)	Learning Material		Activities		
		CLO1	CLO2	CLO3	CLO4	L	T	P	O			Guided	Non Guided	Guided	Non Guided	
1-2	<u>Teori Litar</u> Sumber voltan, sumber arus, Teorem Kirchoff, Teorem Thevenin & Teorem Norton <u>Circuit Theory</u> <i>Voltage source, current source, Kirchoff's Theorem, Thevenin Theorem & Norton Theorem</i>	✓	✓	✓		0	0	2	0	0	2	0	4	0	4	12

3-4	Teori Diod Idea Asas, Diode Ideal, Pendekatan Kedua, Pendekatan Ketiga, Penyelesaian Masalah Diode Theory Basic Idea, Ideal Diode, Second Approximation, Third Approximation, Troubleshooting.	✓	✓	✓		2	0	2	0	0	6	0	2	0	2	14
5-7	Litar Diod Pemadat separuh gelombang, Pemadat gelombang penuh, Pemadat jambatan, Penapis Input Kondensator, Voltan Terbalik Puncak, Arus Lonjakan, Penyelesaian Masalah Diode Circuit Half-wave rectifier, Full-wave Rectifier, Bridge Rectifier, Capacitor Input Filter, Peak Inverse Voltage, Surge Current, Troubleshooting		✓	✓		5	0	2	2	0	9					18
8	Diode Khas Tujuan Diode Zener, Diode Schottky, LED & Penyelesaian Masalah Special Purpose Diodes Zener Diode, Schottky Diode, LED & Troubleshooting		✓			2	1	0	0	0	3					6
9-10	Transistor Bipolar Junction Transistor (BJT) Biasing, Transistor Current, Load Line, Titik Q, Penyelesaian Masalah Transistor Bipolar Junction Transistor (BJT) Biasing, Transistor Current, Load Line, Q-Point, Troubleshooting		✓		✓	3	1	0	2	0	6					12
11-12	Penguat Operasi (OPAMP) OPAMP Ideal, OPAMP Pemutarbalikan & Tidak Pemutarbalikan Operational Amplifier (OPAMP) Ideal OPAMP, Inverting & Non-Inverting OPAMPs		✓		✓	3	1	0	2	0	6					12

13-14	Pengenalan kepada Elektronik Digital Binari, Algebra Boolean, Gerbang Logik		✓			4	2	0	0	0	6					12
	<u>Introduction to Digital Electronics</u> <i>Binary, Boolean Algebra, Logic Gates</i>															
TOTAL						19	5	6	6	0	38	0	6	0	6	86
Continuous Assessment								Percentage (%)		Conventional		Online	SLT			
										F2F	NF2F					
1	Kuiz Dalam Talian (<i>Online Quiz</i>)							10		0	0	2	2			
2	Ujian (<i>Test</i>)							20		1	4	0	5			
3	Laporan Praktikal (<i>Practical Report</i>)							20		3	6	0	9			
4	Penulisan Laporan (<i>Report Writing</i>)							10		0	6	0	6			
TOTAL								60		4	16	2	22			
Final Assessment								Percentage (%)		Conventional		Online	SLT			
										F2F	NF2F					
1	Peperiksaan Akhir (<i>Final Examination</i>)							40		2	10	0	12			
TOTAL								40		2	10	0	12			
GRAND TOTAL														120		

10. Keperluan Khas / Special Requirement

Tiada

None

11. Rujukan / Reference

Main Reference:

Malvino, A. P. & Bates, D. J. (2016). Electronic Principles (8th ed.). New York:Mc Graw Hill.

Additional References:

Schuler, C.A. . (2018). Electronics: Principles and Applications. (9th. ed.) Singapore: Mc Graw Hill.

Tokheim, R.L. . (2014). Digital Electronics: Principles and Applications. (8th. ed.) Singapore:Mc Graw Hill.

12. Maklumat Tambahan Lain / Others Additional Information

Tiada / None

13. Pengesahan / Verification

	Disediakan/ Dikemaskini oleh: <i>Prepared/ Updated by:</i>	Disemak oleh: <i>Checked by:</i>
Nama: <i>Name:</i>	TS. DR. MOHD NORZAIDI MAT NAWI	DR. MOHD FAUDZI BIN UMAR
Jawatan: <i>Designation:</i>	Penyelaras Kursus <i>Course Coordinator</i>	KETUA JABATAN
Tarikh: <i>Date:</i>	01 APRIL 2024	03 APRIL 2024

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