

Contoh Senario 1: Perubahan kepada kaedah PdP dan pentaksiran, mengajar semua kandungan kursus (bab)

LECTURE PLAN																		
1	Course Name	DIGITAL SIGNAL PROCESSING																
	Course Code	BEB30503																
2	Synopsis	This course is to introduce the main concepts of digital signal processing, review of discrete signal and system, characteristic and operation, discrete convolution, sampling and quantization, discrete Fourier transform, z-transform and the implementation of digital filters.																
3	Name(s) of Academic Staff																	
4	Semester and Session Offered	Semester	2	Session	20192020													
5	Credit Value	3	Lecture (hour/week)	3														
			Tutorial (hour/week)	-														
			Laboratory (hour/week)	0														
			Others (hour/week)	0														
6	Preirequisite (if any)	none																
7	Course Learning Outcome(s) : At the end of this course the student will be able to:																	
	CLO 1	analyse digital signal and system characteristic using mathematical equations. (PLO11-PA-C4)																
	CLO 2	construct a digital system using electronic engineering tools. (PLO10-DS-P4)																
	CLO 3	demonstrate ethics and professionalism in producing written report and presentation according to appropriate standard. (PLO8-ET-A3)																
8	Mapping of the course/module to the Programme Learning Outcome																	
	CLOs	Programme Learning Outcomes (PLO)											Teaching Methods	Assess	50% student achieve 55%			
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11				PLO12	PLO13	
	CLO 1											√			Lecture/PBL, Online Learning	Test/ Quiz Final Exam		
	CLO 2											√			Project Instruction/ Simulation	Online Presentation		
	CLO 3							√							Project Instruction	Technical Report		
*Indicate the primary causal link between the CLO and PLO by Ticking "Ö" in the appropriate box.																		
9	Transferable Skills (if applicable)																	
	(Skills learned in the course of study which can be useful and utilised in other settings)		1	Communication skill														
			2	Digital Skill														
			3	Numeracy Skill														
			4															

Perubahan pada kaedah PdP dan pentaksiran dengan mengambilkira PdP secara dalam talian

Pilih pentaksiran yang boleh dinilai secara dalam talian/ jarak jauh

10 Content outline of the course/module and the student learning time (SLT) per topic

Week	Course Content	CLO	Teaching and Learning Activities						Total SLT
			Guided Learning (F2F)				Guided Learning (NF2F)	Independent Learning (NF2F)	
			Lecture	Tutorial	Practical	Others			
1-2	1.0 DISCRETE SIGNAL AND SYSTEM 1.1 Classification and Analysis of Discrete Systems 1.2 Linear Time-Invariant System 1.3 Frequency Domain Representation 1.4 Time Domain Description 1.5 Time Random Signal - Discrete 1.6 Basic Elements of DSP System	CLO1 CLO2 CLO3	5	0	0	1	0	8	14
3-5	2.0 DISCRETE CONVOLUTION 2.1 Convolution Process 2.2 Analytical Evaluation 2.3 Convolution of Finite Sequences 2.4 Periodic Convolution 2.5 Discrete Correlation	CLO1 CLO2 CLO3	7	0	0	1	0	8	16
6-7	3.0 SAMPLING AND QUNATIZATION 3.1 Ideal Sampling 3.2 Periodic Sampling 3.3 Interpolation and Signal Recovery 3.4 Quantization 3.5 Digital Processing of Continuous Time Signal 3.6 Digital Processing of Analogue Signal	CLO1 CLO2 CLO3	6 0	0	0	0	6	12	18
8-9	4.0 DISCRETE FOURIER TRANSFORM 4.1 Properties of The Discrete Fourier Series (DFS) 4.2 The DFT of Periodic Signal 4.3 DFT of Sampled Periodic Signal 4.4 Fourier Description of Finite Sequences Duration 4.5 Properties of The DFT 4.6 Linear Convolution Using DFT 4.7 Transfer Function 4.8 The Fast Fourier Transform (FFT) 4.9 Discrete Cosine Transform (DCT)	CLO1 CLO2 CLO3	6 0	0	0	0	6	12	18

Sebelum PJJ dilaksanakan

SLT asal (6) dipindah ke NF2F

Waktu KTA asal di pinda kepada NF2F (Guided dan/atau Unguided).

10	5.0 REVIEW OF z-TRANSFORM 5.1 The z-Transform 5.2 Region of Convergence (ROC) 5.3 Properties of The z-Transform 5.4 The Inverse z-Transform 5.5 Transfer Function Realization 5.6 Its Application in DSP	CLO1 CLO2 CLO3	0	0	0	0	3	7	10
11-12	6.0 DIGITAL FILTER DESIGN 6.1 Introduction to IIR Filter 6.2 Techniques of IIR Filter Design 6.3 Basic Structure for IIR System 6.4 The Bilinear Transformation 6.5 Direct Analogue to Digital Transform 6.6 Realization of IIR Filter 6.7 FIR Filter Specifications 6.8 Window-based FIR Filter Design 6.9 Spectral Transformation 6.10 Realization of FIR Filter 6.11 Design Filter by Using MATLAB Software	CLO1 CLO2 CLO3	0	0	0	0	6	12	18
13-14	7.0 DSP ALGORITHM AND DSP PROCESSOR 7.1 Implementation of DSP Algorithm 7.2 DSP Hardware and Device 7.3 Application and Development by Using DSP Processor	CLO2 CLO3	0	0	0	0	6	14	21
TOTAL			12	0	0	2	27	73	114

Pentaksiran sebelum PKP dikekalkan, jika ianya telah dilakukan

Pentaksiran selepas PKP diubah kpd NF2F

Tiada perubahan pada masa pentaksiran

Continuous Assessment		CLO	Percentage (%)	F2F	NF2F	Total SLT
1	Test	CLO1	20	1	1	2
2	Quiz	CLO1	5	0	0.5	0.5
3	Tugasan	CLO1	10	0	1.5	1.5
4	Project	CLO1	5	0	1	1
		CLO2	5	0	0.5	0.5
		CLO3	5	0	0.5	0.5
TOTAL			50	1	5	6
Final Assessment		CLO	Percentage (%)	F2F	NF2F	Total SLT
1	Final Examination	CLO1	50	0	3	3
TOTAL			50	0	3	3
TOTAL						123

SLT bagi FE ialah anggaran tempoh sebenar yang diperlukan untuk menjawab soalan peperiksaan.

SLT asal 123 jam dikekalkan

11	Identify special requirement of resources to deliver the course (e.g., software, nursery, computer lab, simulation room)	MATLAB Software
12	Main references supporting the course and Additional references supporting the course	1 Digital Signal Processing: A modern Introduction, Ashok Ambardar, International Student Edition, Thomson, 2007. Call Number: TK5102.5.A43 2007 2 Digital Signal Processing: Principles, Algorithm and Applications, John G. Proakis, Dimitris G Manolakis, 4th Ed, Pearson Prentice Hall, 2007 3 Analog and Digital Signal Processing, Ashok Ambardar, 2nd Ed, Thomson, 1999. Call Number: TK5102.9.A43 1999 4 Digital signal processing with Matlab, Vinay K. Ingle, John G. Proakis, 3rd Ed, Cengage Learning, 2012. Call Number: TK5102.9.I53 2012 5 Understanding digital signal processing, Richard G. Lyons, 3rd Ed, Prentice Hall, 2011. Call Number: TK5102.9.L96 2011
13	Other additional information	
14	Course Attendance / Regulations	1 Students must attend not less than 80% of the contact hours for every course including Compulsory Attendance Course (Hadir Wajib – HW) and Attendance Only Course (Hadir Sahaja – HS). 2 Student who does not fulfill (1) of the above is not allowed to attend further lectures and is not allowed to sit for any further assessment. Zero mark (0) will be given to student who fails to comply with (1). As for Compulsory Attendance Course (Hadir Wajib – HW), student who fails to comply with (1) will be given Failure Attendance (Hadir Gagal – HG). 3 Student must follow and obey all the University dress rules and regulations and must discipline themselves to avoid any disciplinary action. 4 Student must obey safety regulations during the learning and teaching process.
15	Prepared by: Name : <input type="text"/> Position : <input type="text"/> Date : 04 February 2020	Verified by: Name : <input type="text"/> Position : <input type="text"/> Date : 04 February 2020

Tarikh dipinda kepada tarikh sebelum pelaksanaan PJJ (Cth: 19 April 2020).

Nota:

1. Contoh Senario 1 dengan anggapan pensyarah mengekalkan 100% kandungan kursus. Pindaan hanya dibuat kepada SLT kaedah PdP dan pentaksiran, iaitu dari secara F2F kepada secara NF2F (dalam talian).
2. Jam SLT yang diperuntukkan bagi tujuan pentaksiran dikekalkan pada tempoh yang sama seperti sebelum pindaan dibuat. Walau bagaimanapun, semua pentaksiran perlu dilaksanakan secara dalam talian.

Contoh Senario 2: Perubahan melibatkan pengurangan kandungan kursus, kaedah PdP dan pentaksiran.

LECTURE PLAN																									
1	Course Name	DIGITAL SIGNAL PROCESSING																							
	Course Code	BEB30503																							
2	Synopsis	This course is to introduce the main concepts of digital signal processing, review of discrete signal and system, characteristic and operation, discrete convolution, sampling and quantization, discrete Fourier transform, z-transform and the implementation of digital filters.																							
3	Name(s) of Academic Staff																								
4	Semester and Session Offered	Semester	2	Session	20192020																				
5	Credit Value	3	Lecture (hour/week)	3																					
			Tutorial (hour/week)	-																					
			Laboratory (hour/week)	0																					
			Others (hour/week)	0																					
6	Pre-requisite (if any)	none																							
7	Course Learning Outcome(s) : At the end of this course the student will be able to:																								
CLO 1	analyse digital signal and system characteristic using mathematical equations. (PLO11-PA-C4)																								
CLO 2	construct a digital system using electronic engineering tools. (PLO10-DS-P4)																								
CLO 3	demonstrate ethics and professionalism in producing written report and presentation according to appropriate standard. (PLO8-ET-A3)																								
8	Mapping of the course/module to	<div style="border: 1px solid red; background-color: #e0ffe0; padding: 5px; display: inline-block;">Perubahan pada kaedah pengajaran dan pentaksiran dengan mengambilkira PdP secara dalam talian</div>																							
		Programme Learning Outcomes (PLO)											Teaching Methods	Assessment	KPI										
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12	PLO13											
CLO 1											√				Lecture/PBL, Online Learning Group	Test/ Assignment Quiz	50% student achieve 55%								
CLO 2										√					Demonstration	Project Demonstration									
CLO 3								√							Group Presentation	Report Presentation									
*Indicate the primary causal link between the CLO and PLO by Ticking "Ö" in the appropriate box.																									
9	Transferable Skills (if applicable)	<table border="1"> <tr> <td>1</td> <td>Communication skill</td> </tr> <tr> <td>2</td> <td>Digital Skill</td> </tr> <tr> <td>3</td> <td>Numeracy Skill</td> </tr> <tr> <td>4</td> <td></td> </tr> </table>																1	Communication skill	2	Digital Skill	3	Numeracy Skill	4	
1	Communication skill																								
2	Digital Skill																								
3	Numeracy Skill																								
4																									
		(Skills learned in the course of study which can be useful and utilised in other settings)																							

Dalam talian termasuk synchronous dan asynchronous.
Masa yang diperlukan untuk mempelajari topik melalui bahan yang disediakan

Termasuk pembelajaran sendiri dan persediaan pentaksiran

10

Week	Course Content	CLO	Teaching and Learning Activities						Total SLT
			Guided Learning (F2F)				Guided Learning (NF2F)	Independent Learning (NF2F)	
			Lecture	Tutorial	Practical	Others			
1-2	1.0 DISCRETE SIGNAL AND SYSTEM 1.1 Classification and Analysis of Discrete Systems 1.2 Linear Time-Invariant System 1.3 Frequency Domain Representation 1.4 Time Domain Description 1.5 Time Random Signal - Discrete 1.6 Basic Elements of DSP System	CLO1	5	0	0	1	0	10	16
3-5	2.0 DISCRETE CONVOLUTION 2.1 Convolution Process 2.2 Analytical Evaluation 2.3 Convolution of Finite Sequences 2.4 Periodic Convolution 2.5 Discrete Correlation	CLO1	5	0	0	1	0	10	16
6-8	3.0 SAMPLING AND QUANTIZATION 3.1 Ideal Sampling 3.2 Periodic Sampling 3.3 Interpolation and Signal Recovery 3.4 Quantization 3.5 Digital Processing of Continuous Time	CLO1	9	0	0	0	9	12	21
9-11	4.0 DISCRETE FOURIER TRANSFORM 4.1 Properties of The Discrete Fourier Series (DFS) 4.2 The DFT of Periodic Signal 4.3 DFT of Sampled Periodic Signal 4.4 Fourier Description of Finite Sequences Duration 4.5 Properties of The DFT 4.6 Linear Convolution Using DFT 4.7 Transfer Function 4.8 The Fast Fourier Transform (FFT) 4.9 Discrete Cosine Transform (DCT)	CLO1	9	0	0	0	9	12	21

Sebelum pelaksanaan PJJ. Total SLT = 32/123 jam = 26%

SLT asal 9 dipindahkan ke NF2F

PJJ selepas minggu ke 5. SLT (minggu 6-7) = 21/123 = 17.1%
Tempoh SLT PdP perlu dinaikkan bagi Pembelajaran Dalam Talian kerana terdapat lebih masa apabila 2 bab telah dibuang

Nilai asal 10 jam SLT(NF2F) ditukarkan kpd 12.

Revision + preparation for assessment eg. assignment

SLT terkini = 21/123 = 17.1%
SLT sebelum PJJ = 17/123 = 13.8%.

Nota:
 -Pengurangan isi kandungan atau bab dibuat atas tanggung jawab pensyarah dan kekangan pelajar yang memerlukan lebih banyak masa untuk mencapai hasil pembelajaran yang dikehendaki disebabkan oleh perubahan kepada kaedah PdP dalam talian.
 -Tempoh kuliah dikekalkan selama 14 minggu

12-14	5.0 REVIEW OF z-TRANSFORM 5.1 The z-Transform 5.2 Region of Convergence (ROC) 5.3 Properties of The z-Transform 5.4 The Inverse z-Transform 5.5 Transfer Function Realization	SLT selepas PJJ = $20/123 = 16.3\%$ SLT sebelum PJJ = $16/123 = 13\%$							
		CLO1	9	0	0	0	9	11	20
		CLO2							
		CLO3	0						
Bab 6 dan 7 dalam silibus telah dikeluarkan (SLT asal = $36/123 = 29.3\%$). SLT bagi bab 6 dan 7 dipindah masuk ke dalam bab 3, 4, 5 dan pentaksiran. Bab 1 dan 2 bukan kategori PJJ.									
TOTAL			10	0	0	2	27	55	94

Continuous Assessment		CLO	Percentage (%)	F2F	NF2F	Total SLT
1	Test	CLO1	20	0	4	4
2	On Line Quiz	CLO1	5	0	2	2
3	Tugasan 1	CLO1	5	0	2	2
4	Tugasan 2	CLO1	5	0	2	2
5	Project	CLO1	5	0	2	2
		CLO2	5	0	3	3
		CLO3	5	0	5	5
Sumatif		TOTAL	50	0	20	20
Final Assessment		CLO	Percentage (%)	F2F	NF2F	Total SLT
1	Final Examination			0	9	9
TOTAL			50	0	9	9
TOTAL SLT						123

Contoh disini adalah FE dibuat secara take home open book, dengan anggapan pelajar memerlukan selama 9 jam untuk menjawab dan membuat penghantaran.

Note:

1. Bagi pembelajaran secara online, 'rule of thumb' ialah 40% (isi kandungan) + 40% (aktiviti) + 20% (pentaksiran). Bagi Senario 2, SLT pentaksiran sebanyak 29 jam ~ 23.6% (rujuk GPP Pembelajaran Teradun Secara dalam Talian, JPT, 2020) .
2. Pensyarah perlu memastikan sebarang perubahan kandungan yang dicadangkan MESTI mencapai hasil pembelajaran kursus yang telah ditetapkan.
3. Bagi Senario 2, kursus ini hanya mengambil kira 70% dari kandungan asal yang telah diluluskan pada awal semester iaitu 5 bab daripada 7 bab yang asal dengan jumlah SLT 123 jam.
4. Perlu diingatkan bahawa pembelajaran secara NF2F memerlukan lebih masa untuk mencapai hasil pembelajaran kursus yang diinginkan.
5. Kursus perlu melaksanakan sekurang-kurangnya 70% - 80 % keperluan SLT bagi pembelajaran dan pentaksiran yang telah ditetapkan dalam Perancangan Kuliah yang asal dan semua hasil pembelajaran kursus MESTI dinilai.

11	Identify special requirement of resources to deliver the course (e.g., software, nursery, computer lab, simulation room)	MATLAB Software
12	Main references supporting the course and Additional references supporting the course	1 Digital Signal Processing: A modern Introduction, Ashok Ambardar, International Student Edition, Thomson, 2007. Call Number: TK5102.5.A43 2007 2 Digital Signal Processing: Principles, Algorithm and Applications, John G. Proakis, Dimitris G Manolakis, 4th Ed, Pearson Prentice Hall, 2007 3 Analog and Digital Signal Processing, Ashok Ambardar, 2nd Ed, Thomson, 1999. Call Number: TK5102.9.A43 1999 4 Digital signal processing with Matlab, Vinay K. Ingle, John G. Proakis, 3rd Ed, Cengage Learning, 2012. Call Number: TK5102.9.I53 2012 5 Understanding digital signal processing, Richard G. Lyons, 3rd Ed, Prentice Hall, 2011. Call Number: TK5102.9.L96 2011
13	Other additional information	
14	Course Attendance / Regulations	1 Students must attend not less than 80% of the contact hours for every course including Compulsory Attendance Course (Hadir Wajib – HW) and Attendance Only Course (Hadir Sahaja – HS). 2 Student who does not fulfill (1) of the above is not allowed to attend further lectures and is not allowed to sit for any further assessment. Zero mark (0) will be given to student who fails to comply with (1). As for Compulsory Attendance Course (Hadir Wajib – HW), student who fails to comply with (1) will be given Failure Attendance (Hadir Gagal – HG). 3 Student must follow and obey all the University dress rules and regulations and must discipline themselves to avoid any disciplinary action. 4 Student must obey safety regulations during the learning and teaching process.
15	Prepared by: Name : <input type="text"/> Position : <input type="text"/> Date : 02 April 2020	Verified by: Name : <input type="text"/> Position : <input type="text"/> Date : 02 April 2020

Tarikh sebelum pelaksanaan PJJ (19/04/2020). Pra PJJ tidak perlu dinyatakan dlm RPP04 yang baharu. RPP perlu di simpan bersama RPP04 yang asal (sebelum semester bermula).

LECTURE PLAN

1	Course Name	Electronics Engineering Laboratory II																
	Course Code	BEJ 20801																
2	Synopsis	This course comprises of practical implementation for the subject of Power System and Control System Theory. Various experiments are covered such as generator and transformer, overhead line, short circuits asymmetrical analysis, protection system, power factor correction, position control system, speed control system and servo system.																
3	Name(s) of Academic Staff																	
4	Semester and Session Offered	Semester	1	Session	2019/2020													
5	Credit Value	1	Lecture (hour/week)	-														
			Tutorial (hour/week)	-														
			Laboratory (hour/week)	2														
			Others (hour/week)	-														
6	Preirequisite (if any)	BEH 30603 CONTROL SYSTEM THEORY BEF 25503 POWER SYSTEMS																
Course Learning Outcome(s) : At the end of this course the student will be able to:																		
7	CLO 1	Solve and analyze various protection scheme, power factor and control system. (PLO1-K-C4)																
	CLO 2	Measure efficiently different parameters using different measurement tools and equipment. (PLO2-PS-P5)																
	CLO 3	Demonstrate good leadership skill during laboratory experiment. (PLO9-LS-A4)																
8	Mapping of the course/module to the Programme Learning Outcome																	
		Programme Learning Outcomes (PLO)											Teaching Methods	Assessment	KPI			
CLOs		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11				PLO12	PLO13	
CLO 1		√														Laboratory experiment/ Simulation	Lab report	50% student achieved 55% marks and above
CLO 2			√													Laboratory experiment/ Simulation	Video Demonstration of Simulation	
CLO 3										√						Laboratory experiment/ Simulation	Evidence of group discussion	

Pindaan kepada kaedah
 1) Penyampaian - simulasi atau yang bersesuaian
 2) Pentaksiran - Demonstrasi, laporan makmal dan lain-lain yang bersesuaian

*Indicate the primary causal link between the CLO and PLO by Ticking "Ö" in the appropriate box.

9 Transferable Skills (if applicable) (Skills learned in the course of study which can be useful and utilised in other settings)	1	Leadership, Autonomy and Responsibility
	2	
	3	
	4	

Week	Course Content	CLO	Teaching and Learning Activities						Total SLT
			Guided Learning (F2F)				Guided Learning (NF2F)	Independent Learning (NF2F)	
			Lecture	Tutorial	Practical	Others			
1	1.0 Experiment 1 Generator and Transformer	CLO1 CLO2 CLO3	Kaedah NF2F simulasi atau yang bersesuaian bagi menggantikan PdP praktikal amali secara F2F.						
2	2.0 Experiment 2 Overhead Line	CLO1 CLO2 CLO3							
3	3.0 Experiment 3 Short Circuit Asymmetrical Analysis	CLO1 CLO2 CLO3					14	3	17
4-5	4.0 Experiment 4 Protection System	CLO1 CLO2 CLO3							
6-7	5.0 Experiment 5 Power Factor Correction	CLO1 CLO2 CLO3							
8	6.0 Experiment 6 Position control system	CLO1 CLO2 CLO3							
9	7.0 Experiment 7 Speed control system	CLO1 CLO2 CLO3							
10-11	8.0 Experiment 8 Servo system parameters determination	CLO1 CLO2 CLO3					14	3	17
12	9.0 Experiment 9 Introduction to Simulink for control system	CLO1 CLO2 CLO3							
13-14	10.0 Experiment 10 Design P, PI, PD and PID control system using Simulink	CLO1 CLO2 CLO3							
TOTAL			0	0	0	0	28	6	34

Nota:
 Contoh yang ditunjukkan tidak melibatkan pengurangan bilangan eksperimen. Walau bagaimanapun, pensyarah boleh mengurangkan bilangan eksperimen sehingga maksimum 30%.

Continuous Assessment		CLO	Percentage (%)	F2F	NF2F	Total SLT
1	Lab report	CLO1	50	0	4	4
2	Simulation video	CLO2	30	0	3	3
3	Evidence of group discussion	CLO3	20	0	1	1
TOTAL			100	0	8	8
TOTAL						42

*F2F = face to face, NF2F=Non Face to Face

11	Identify special requirement of resources to deliver the course (e.g., software, nursery, computer lab, simulation room)	none
12	Main references supporting the course and Additional references supporting the course	1 S. L. Herman, The complete laboratory manual for electricity, Clifton Park, NY: Delmar, 2009. 2 D. V. Richardson, Laboratory operations for rotating electric machinery and transformer technology 3 R. L. Boylestad, Electronic devices and circuit theory. Pearson 2006. Call number: TK7868.B69/2006. 4 N. S. Nise. Control Systems Engineering, 6th Edition. John Wiley, 2011. Call number: TJ213 .N57 5 M. Gopal. Control Systems: Principle and Design, 2nd Edition. Tata McGraw Hill, 2002. Call number:
13	Other additional information	none
14	Course Attendance / Regulations	1 Students must attend not less than 80% of the contact hours for every course including Compulsory Attendance Course (Hadir Wajib – HW) and Attendance Only Course (Hadir Sahaja – HS). 2 Student who does not fulfill (1) of the above is not allowed to attend further lectures and is not allowed to sit for any further assessment. Zero mark (0) will be given to student who fails to comply with (1). As for Compulsory Attendance Course (Hadir Wajib – HW), student who fails to comply with (1) will be given Failure Attendance (Hadir Gagal – HG). 3 Student must follow and obey all the University dress rules and regulations and must discipline themselves to avoid any disciplinary action. 4 Student must obey safety regulations during the learning and teaching process.
15	Prepared by:	Verified by:
	Name : Position : Date : 2/2/2020	Name : Position : Date : 2/2/2020

 Tarikh dipinda kepada
 sebelum PJJ (19/4/2020)