PHYSICS 1 SP015 (SEMESTER 1) **KOLEJ MATRIKULASI SARAWAK** **RANCANGAN PENGAJARAN SEMESTER** **SESSION 2021/2022**

Week	Date	Topic	Lecture	Topic	Tutorial	Exp	Practical	UPS	Notes
26/07 –27/07/21		***STUDENTS' REGISTRATION & MPPB SESSION 2021/22***							
1	28/07 – 30/07/21	1	Physical Quantities and Measurements	1.1	Dimensions of physical quantities				
				1.2	Scalar and vectors				
				1.3	Significant figures and uncertainties analysis				
2	02/08 – 06/08/21	2	Kinematics of Linear Motion	2.1	Linear motion		Introduction to Laboratory Skills and Safety		
				2.2	Uniformly accelerated motion				
				2.3	Projectile motions				
3	09/08 – 13/08/21	2	Kinematics of Linear Motion	2.3	Projectile motions	1	Measurement and Uncertainty		***Maal Hijrah 10/08/2021 (Tuesday)***
				3.1	Momentum and impulse				
		3	Momentum and Impulse	3.2	Conservation of linear momentum				
4	16/08 – 20/08/21	4	Forces	4.1	Basic of forces and free body diagram	2	Free Fall and Projectile Motion		
		5	Work, Energy and Power	4.2	Newton's Laws of motion				
				4.2	Newton's Laws of motion				
5	23/08 – 27/08/21	5	Work, Energy and Power	5.1	Work				
				5.2	Energy and conservation of energy				
		6	Circular Motion	5.3	Power				
6	30/08 – 03/09/21	6	Circular Motion	6.1	Uniform circular motion	3	Energy		***National Day 31/08/2021 (Tuesday)***
		7	Gravitation	6.2	Centripetal force				
				7.1	Gravitational force and field strength				
7	06/09 – 10/09/21	8	Rotation of Rigid Body	7.2	Gravitational potential energy	4	Rotational Motion of Rigid Body	***UPS 1***	
				7.3	Satellite motion in a circular orbit				
				8.1	Rotational kinematics				
8	13/09 – 17/09/21	9	Simple Harmonic Motion	8.2	Equilibrium of a uniform rigid body				***Malaysia Day 16/09/2021 (Thursday)***
				8.2	Equilibrium of a uniform rigid body				
				8.3	Rotational dynamics				
9	20/09 –24/09/21	10	Mechanical and Sound Wave	8.3	Rotational dynamics	5	Simple Harmonic Motion		***Assignment Date set: 24/09/2021***
				8.4	Conservation of angular momentum				
				8.4	Conservation of angular momentum				
10	27/09 – 01/10/21	10	Mechanical and Sound Wave	9.1	Kinematics of simple harmonic motion				
				9.2	Graphs of simple harmonic motion				
				9.2	Graphs of simple harmonic motion				
11	04/10 – 08/10/21	10	Mechanical and Sound Wave	9.3	Period of simple harmonic motion	6	Standing Waves	***UPS 2***	***Assignment Due date: 08/10/2021***
				9.3	Period of simple harmonic motion				
				10.1	Properties of waves				

PHYSICS 1 SP015 (SEMESTER 1) **KOLEJ MATRIKULASI SARAWAK** **SESSION 2021/2022**

RANCANGAN PENGAJARAN SEMESTER

Week	Date	Topic	Lecture	Topic	Tutorial	Exp	Practical	UPS	Notes
9/10 – 17/10/21		***MID SEMESTER BREAK***							
12	18/10 – 22/10/21	10 11	Mechanical and Sound Wave Deformation Of Solids	10.1 10.2 10.2	Properties of waves Superposition of waves Superposition of waves		**Practical Test - Video**		***Maulidur Rasul 19/10/2021 (Tuesday)***
13	25/10 – 29/10/21	11	Deformation Of Solids	10.3 10.3 10.4	Sound intensity Sound intensity Application of standing waves		**Practical Test - Video**		
14	01/11 – 05/11/21	11	Deformation Of Solids	10.4 10.5 10.5	Application of standing waves Doppler effect Doppler effect		**Practical Test - Lab Report**		***Deepavali 04/11/2021 (Thursday)***
15	08/11 – 12/11/21	12	Heat Conduction and Thermal Expansion	11.1 11.2 11.2	Stress and strain Young's Modulus Young's Modulus			***UPS 3***	
16	15/11 – 19/11/21	13	Gas Laws and Kinetic Theory	12.1 12.2 13.1	Heat conduction Thermal expansion Ideal gas equations		Workshop		***Smart Physics Workshop 20/11/2021***
17	22/11 – 26/11/21	13	Gas Laws and Kinetic Theory	13.2 13.3 13.3	Kinetic theory of gases Molecular kinetic energy and internal energy Molecular kinetic energy and internal energy		Workshop		
18	29/11 – 03/12/21	14	Thermodynamics	14.1 14.2 14.3	First Law of thermodynamics Thermodynamic processes Thermodynamics work		Workshop		
04/12 – 08/12/21			**REVISION WEEK**						
09/12 – 16/12/21			**PEPERIKSAAN SEMESTER PROGRAM MATRIKULASI I (PSPM I)**						

Subject to changes

*Effective date: ***20/09/2021***

Prepared by:

(MOHD AIMAN BIN MOHD ADLI)
Ketua Unit Fizik
Kolej Matrikulasi Sarawak

Checked by:

(MISINAH BINTI MAHAMAD FADZIL)
Ketua Jabatan Sains
Kolej Matrikulasi Sarawak

KOLEJ MATRIKULASI SARAWAK

PHYSICS 2 SP025 (SEMESTER 2) **RANCANGAN PENGAJARAN SEMESTER** **SESSION 2021/2022**

Week	Date	Topic	Lecture	Topic	Tutorial	Exp	Practical	Assessment	Notes
1	03/01 – 07/01/22	4	Magnetism	4.1	Magnetic field	4	Magnetic Field (A)		***PdP ditangguhkan. Akan diganti pada 15/1, 5/2, 19/3, 2/4, 9/4/2022.***
				4.2	Resultant magnetic field produced by current-carrying conductor				
				4.3	Force on a moving charged particle in a uniform magnetic field				
2	10/01 – 14/01/22	1	Electrostatics	4.4	Force on a current-carrying in a uniform magnetic field	4	Magnetic Field (B)		
				4.5	Force between two parallel current-carrying conductors				
				4.6	Torque on a coil				
3	17/01 – 21/01/22	1	Electrostatics	4.7	Application of motion of charged particle	1	Capacitor (A)		
				1.1	Coulomb's law				
				1.2	Electric field				
4	24/01 – 28/01/22	2	Capacitor and Dielectrics	1.3	Electric potential	1	Capacitor (B)	Individual Assignment (Chapter 4)	
				1.4	Charge in a uniform electric field				
				2.1	Capacitance and capacitors in series and parallel				
5	31/01 – 04/02/22	3	Electric Current and Direct-Current Circuits	2.2	Charging and discharging of capacitors	2	Ohm's Law (A)	Individual Assignment (Chapter 4)	***Chinese New Year 01 - 02/02/2022***
				2.3	Capacitors with dielectrics				
				3.1	Electrical conduction				
6	07/02 – 11/02/22	3	Electric Current and Direct-Current Circuits	3.2	Ohm's law and resistivity	2	Ohm's Law (B)		***Individual Assignment due: 07/02/2022***
				3.3	Variation of resistance with temperature				
				3.4	Electromotive force (emf), internal resistance and potential difference				
7	14/02 – 18/02/22	5	Electromagnetic Induction	3.4	Electromotive force (emf), internal resistance and potential difference	3	Potentiometer (A)	***UPS 1***	
				3.5	Resistors in series and parallel				
				3.6	Kirchhoff's rules				
8	21/02 – 25/02/22	5	Electromagnetic Induction	3.6	Kirchhoff's rules	3	Potentiometer (B)		
				3.7	Electrical energy and power				
				3.8	Potential divider				
9	28/02 – 04/03/22	6	Alternating Current	3.9	Potentiometer	5	Geometrical Optics (A)		
				5.1	Magnetic flux				
				5.2	Induced emf				
	07/03 – 13/03/22	***MID SEMESTER BREAK***							
10	14/03 – 18/03/22	6	Alternating Current	5.3	Self-inductance	5	Geometrical Optics (B)		
				5.4	Energy stored in inductor				
				5.5	Mutual inductance				

KOLEJ MATRIKULASI SARAWAK

PHYSICS 2 SP025 (SEMESTER 2) **RANCANGAN PENGAJARAN SEMESTER** **SESSION 2021/2022**

Week	Date	Topic	Lecture	Topic	Tutorial	Exp	Practical	Assessment	Notes
11	21/03 – 25/03/22	7	Geometrical Optics	6.1	Alternating current	6	Diffraction Grating (A)	***UPS 2***	
				6.2	Root mean square (rms)				
				6.3	Resistance, reactance and impedance				
12	28/03 – 01/04/22	8	Physical Optics	6.4	Power and power factor	6	Diffraction Grating (B)		
				7.1	Reflection at a spherical surface				
				7.2	Refraction at a spherical surface				
13	04/04 – 08/04/22	8	Physical Optics	7.3	Thin lenses			**Practical Test**	
				8.1	Huygens's principle				
				8.2	Constructive and destructive interferences				
14	11/04 – 15/04/22	9	Quantization of Light	8.3	Interference of transmitted light through double-slits			**Practical Test**	***Good Friday 15/04/2022***
				8.3	Interference of transmitted light through double-slits				
				8.4	Interference of reflected light in thin films				
15	18/04 – 22/04/22	9	Quantization of Light	8.4	Interference of reflected light in thin films			***UPS 3***	
				8.5	Diffraction by a single slit				
				8.6	Diffraction grating				
16	25/04 – 29/04/22	10	Wave Properties of Particle	9.1	Plank's quantum theory		Workshop		
				9.1	Plank's quantum theory				
				9.2	Photoelectric effect				
17	02/05 – 06/05/22	11	Nuclear and Particle Physics	10.1	de Broglie wavelength		Workshop		***Hari Pekerja 02/05/2022 Hari Raya Aidilfitri 03 - 06/05/2022***
				10.2	Electron diffraction				
				11.1	Binding energy and mass defect				
18	09/05 – 13/05/22	11	Nuclear and Particle Physics	11.2	Radioactivity		Workshop		***Smart Physics Workshop 14/05/2022***
				11.2	Radioactivity				
				11.3	Introduction to particles physics				
14/05 – 18/05/22			**REVISION WEEK**						
19/05 – 26/05/22			**PEPERIKSAAN SEMESTER PROGRAM MATRIKULASI II (PSPM II)**						

Subject to changes

*Effective date: ***03/01/2022***

Prepared by:

MOHD AIMAN BIN MOHD ADLI
KETUA UNIT FIZIK
KOLEJ MATRIKULASI SARAWAK
KEMENTERIAN PENDIDIKAN MALAYSIA

Endorsed by:

MISINAH BT MAHAMAD FADZIL
KETUA JABATAN SAINS
KOLEJ MATRIKULASI SARAWAK
KEMENTERIAN PENDIDIKAN MALAYSIA