KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

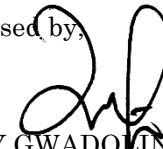| LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	1					
CHAPTER	Chapter 1: Physical Quantities And Measurements					
MODE	Lecture					
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics					
SLT	**F2F (hour):**	1	**NF2F (hour):**	1		

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 7/12/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	1.1a Define dimension. 1.2a Define scalar and vector quantities. 1.3a State the significant figures of a given number. 1.3e State the sources of uncertainty in the results of an experiment.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	6	
				ii	6	
				iii	6	
				iv	6	
				v	5	

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

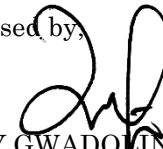| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	2				
CHAPTER	Chapter 2: Kinematics Of Motions				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 7/19/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	2.1a Define instantaneous velocity, average velocity, uniform velocity, instantaneous acceleration, average acceleration and uniform acceleration. 2.1b Interpret the physical meaning of displacement-time, velocity-time and acceleration-time graphs. Refer Equation 1.	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE i / 5 ii / 6 iii / 6 iv / 5 v / 6	All objectives achieved. Students are able to understand the materials of the topic.

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Date:

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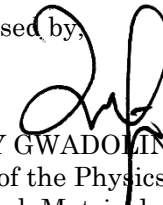| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	3				
CHAPTER	Chapter 2: Kinematics Of MotionsChapter 3: Dynamics Of Linear Motion				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 7/26/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	2.3a Describe projectile motion launched at an angle, as well as special cases when angle is zero 3.1a Define momentum and impulse, refer equation 2 3.2a State the principle of conservation of linear momentum.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	5	
				iii	5	
				iv	6	
				v	6	

Prepared by,

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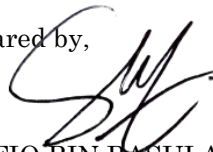Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date:

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	4						
CHAPTER	Chapter 3: Dynamics Of Linear Motion						
MODE	Lecture						
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 8/2/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	3.2c Differentiate elastic and inelastic collisions. (remarks: similarities & differences) 3.3a Identify the forces acting on a body in different situations: i. Weight, W; ii. Tension, T; iii. Normal force, N; iv. Friction, f; and v. External force (pull or push), F. 3.4a State Newton's laws of motion.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	6	
				iii	6	
				iv	5	
				v	5	

Prepared by,

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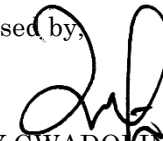# KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

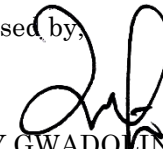| LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	5						
CHAPTER	Chapter 4: Work, Energy And Power						
MODE	Lecture						
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 8/9/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	4.1a State the physical meaning of dot (scalar) product for work, refer equation 4. 4.1b Define and apply work done by a constant force. 4.2a Define and use: i. Gravitational potential energy, ii. Elastic potential energy for spring, iii. Kinetic energy. (Refer Equation 5)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	6	
				ii	6	
				iii	5	
				iv	5	
				v	5	

Prepared by,

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LESSON PLAN
SEMESTER I SESSION 2024/2025

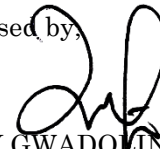| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	6				
CHAPTER	Chapter 4: Work, Energy And PowerChapter 5: Circular Motion				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 8/16/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	4.2b State the principle of conservation of energy. 4.2d State and apply work-energy theorem (Refer equation 5) 4.3a Define and use average power and instantaneous power (Refer Equation 6) 5.1a Define and use: i. angular displacement, θ ii. period, T iii. frequency, f iv. angular velocity, ω 5.2a Describe uniform circular motion.	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE: i — 6 ii — 5 iii — 5 iv — 5 v — 6	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

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Physics Lecturer
Sarawak Matriculation College
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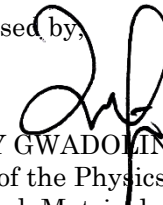| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	7				
CHAPTER	Chapter 5: Circular MotionChapter 6: Rotation Of Rigid Body				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 8/23/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	5.3a Explain centripetal acceleration and centripetal force (Refer equation 7) 6.1a Define and use: i.angular displacement, θ; ii. average angular velocity, ω_{av}, iii. instantaneous angular velocity, ω; iv. average angular acceleration, α_{av}; and v. instantaneous angular acceleration, α. 6.2a State the physical meaning of cross (vector) product for torque (Refer equation 9) 6.2b Define and apply torque. 6.2c State conditions for equilibrium of rigid body, $\Sigma F = 0$, $\Sigma\tau = 0$	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE: i — 5 ii — 6 iii — 6 iv — 6 v — 6	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
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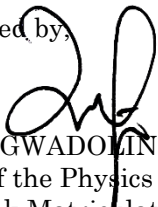Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	8						
CHAPTER	Chapter 6: Rotation Of Rigid Body						
MODE	Lecture						
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 8/30/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	6.3a Define and use moment of inertia (Refer equation 10) 6.3d State and use net torque (Refer equation 10) 6.4a Explain and use angular momentum (Refer equation 11) 6.4b State and use principle of conservation of angular momentum.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	5	
				iii	6	
				iv	6	
				v	6	

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LESSON PLAN
SEMESTER I SESSION 2024/2025

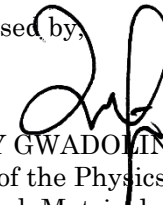| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	9				
CHAPTER	Chapter 7: Oscillations And Waves				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	F2F (hour):	1	NF2F (hour):	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 9/6/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	7.1a Explain SHM. 7.1d Emphasise the relationship between total SHM energy and amplitude.	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE i / 6 ii / 5 iii / 6 iv / 5 v / 6	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
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MARY GWADOLINE YUSUS
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

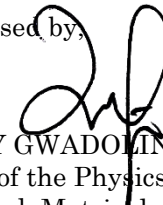| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	10				
CHAPTER	Chapter 7: Oscillations And Waves				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 9/13/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	7.4a Define wavelength. 7.4b Define and use wave number (Refer equation 14) 7.4d Distinguish between particle vibrational velocity and wave propagation velocity.	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE: i — 5 ii — 6 iii — 6 iv — 6 v — 6	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
Date:

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MARY GWADOLINE YUSUS
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
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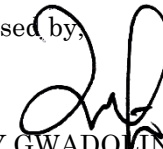| LECTURER	SHAFIQ BIN RASULAN
CODE / COURSE	SP015
WEEK	11
CHAPTER	Chapter 7: Oscillations And Waves
MODE	Lecture
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics

SLT	F2F (hour):	1	NF2F (hour):	1

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 9/27/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	7.5a State the principle of superposition of waves for the constructive and destructive interferences. 7.5c Compare between progressive waves and standing waves.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	6	
				iii	6	
				iv	6	
				v	5	

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LESSON PLAN
SEMESTER I SESSION 2024/2025

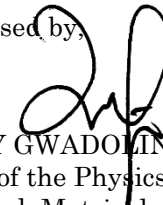| LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	12				
CHAPTER	Chapter 7: Oscillations And WavesChapter 8: Physics Of Matter				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	F2F (hour):	1	NF2F (hour):	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 10/4/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	7.7a State Doppler Effect for sound waves. 8.1c Explain elastic and plastic deformations.	Discussions Thought Experiments Activities	ITEM *Appendix	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
				i	6	
				ii	6	
				iii	5	
				iv	6	
				v	6	

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	13				
CHAPTER	Chapter 8: Physics Of Matter				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 10/11/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	8.2a Define and use Young's Modulus (Refer equation 19)	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE: i — 5 ii — 6 iii — 5 iv — 5 v — 5	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

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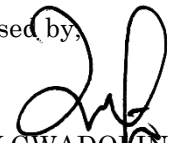Head of the Physics Unit
Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	14					
CHAPTER	Chapter 8: Physics Of Matter					
MODE	Lecture					
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics					
SLT	F2F (hour):	1	NF2F (hour):	1		

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 10/18/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	8.3a Define heat conduction.	Discussions Thought Experiments Activities	ITEM *Appendix*	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	5	
				iii	6	
				iv	5	
				v	5	

Prepared by,

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Date:

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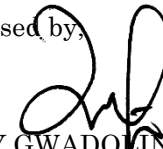## LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	15						
CHAPTER	Chapter 8: Physics Of Matter						
MODE	Lecture						
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 10/25/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	8.4a Define coefficient of linear expansion, α, area expansion, β and volume expansion, γ	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	5	
				ii	6	
				iii	6	
				iv	6	
				v	6	

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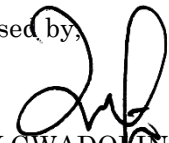Head of the Physics Unit
Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	16			
CHAPTER	Chapter 9: Kinetic Theory Of Gases And Thermodynamics			
MODE	Lecture			
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 11/1/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	9.1a State the assumptions of kinetic theory of gases. 9.1b Describe root mean square (rms) speed of gas molecules (Refer equation 22) 9.2a Explain and use translational kinetic energy of a molecule (Refer equation 23)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	6	
				ii	6	
				iii	6	
				iv	6	
				v	5	

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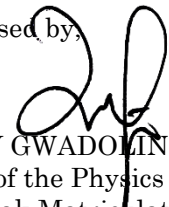Sarawak Matriculation College
Date:

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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	17				
CHAPTER	Chapter 9: Kinetic Theory Of Gases And Thermodynamics				
MODE	Lecture				
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
Friday 11/8/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	9.2b Define degree of freedom. 9.2c Identify number of degrees of freedom, ffor monoatomic, diatomic and polyatomic gas molecules. 9.2d State the principle of equipartition of energy. 9.2e Discuss internal energy of gas.	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
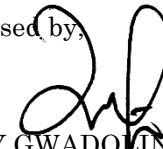## LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	18			
CHAPTER	Chapter 9: Kinetic Theory Of Gases And Thermodynamics			
MODE	Lecture			
CLO	CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
Friday 11/15/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	9.3a State the First Law of Thermodynamics (Refer equation 24) 9.4a Define the following thermodynamic processes: i. Isothermal; ii. Isochoric; iii. Isobaric and iv. Adiabatic. 9.4b Analyse P-V graph for all the thermodynamic processes.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
				i	6	
				ii	6	
				iii	6	
				iv	5	
				v	5	

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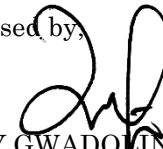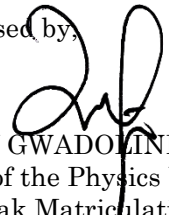**LESSON PLAN**
SEMESTER I SESSION 2024/2025

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	1			
CHAPTER	Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 09/07/2024(T5A); 09/07/2024(T5B); 10/07/2024(T6A); 10/07/2024(T6A)	1.1a) Define dimension. 1.1b) Determine the dimensions of derived quantities. 1.1c) Verify the homogeneity of equations using dimensional analysis.	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>6</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	1			
CHAPTER	Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):** 1		**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 11/07/2024(T5A); 10/07/2024(T5B); 11/07/2024(T6A); 11/07/2024(T6A)	1.2a) Define scalar and vector quantities. 1.2b) Resolve vector into two perpendicular components (x and y axes). 1.2c) Determine resultant of vectors. (remarks: limit to three vectors only).	Discussions Thought Experiments Activities	**ITEM *Appendix**	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	5	
			iv	6	
			v	6	

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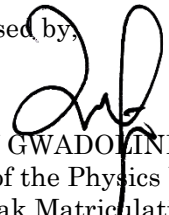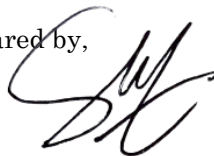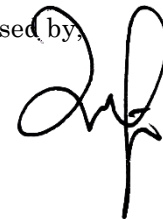Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	1			
CHAPTER	Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 11/07/2024(T5A); 12/07/2024(T5B); 12/07/2024(T6A); 12/07/2024(T6A)	1.3a) State the significant figures of a given number. 1.3b) Use the rules for stating the significant figures at the end of a calculation (addition, subtraction, multiplication or division). 1.3c) Determine the uncertainty for average value and derived quantities. 1.3d) Calculate basic combination (propagation) of uncertainties. 1.3e) State the sources of uncertainty in the results of an experiment. 1.3f) Draw a linear graph and determine its gradient, y-intercept and its respective uncertainties. (remarks: using Least Square Method LSM to determine uncertainties) 1.3g) Measure and determine the uncertainty of physical quantities. (Experiment 1: Measurement and uncertainty)	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>6</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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LESSON PLAN
SEMESTER I SESSION 2024/2025

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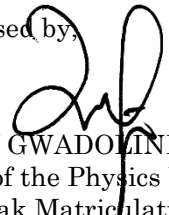Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	2			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 16/07/2024(T5A); 16/07/2024(T5B); 17/07/2024(T6A); 17/07/2024(T6A)	2.1a) Define instantaneous velocity, average velocity, uniform velocity, instantaneous acceleration, average acceleration and uniform acceleration. 2.1b) Interpret the physical meaning of displacement-time, velocity-time and acceleration-time graphs. 2.1c) Determine the distance travelled, displacement, velocity and acceleration from appropriate graphs.	Discussions Thought Experiments Activities	ITEM *Appendix i ii iii iv v	SCORE 5 6 5 6 5	All objectives achieved. Students are able to understand the materials of the topic.

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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	2			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 18/07/2024(T5A); 17/07/2024(T5B); 18/07/2024(T6A); 18/07/2024(T6A)	2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1)	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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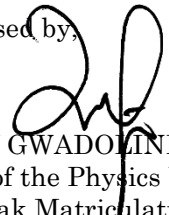Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	2			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 18/07/2024(T5A); 19/07/2024(T5B); 19/07/2024(T6A); 19/07/2024(T6A)	2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1)	Discussions Thought Experiments Activities	ITEM *Appendix	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	5	
			iii	5	
			iv	6	
			v	6	

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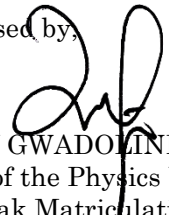Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	3			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 23/07/2024(T5A); 23/07/2024(T5B); 24/07/2024(T6A); 24/07/2024(T6A)	2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1)	Discussions Thought Experiments Activities	ITEM *Appendix	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
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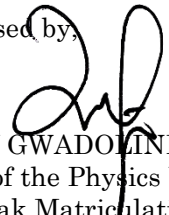Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	3			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 25/07/2024(T5A); 24/07/2024(T5B); 25/07/2024(T6A); 25/07/2024(T6A)	2.3a) Describe projectile motion launched at an angle, O as well as special cases when 0=0° 2.3b) Solve problems related to projectile motion. 2.3c) Determine the acceleration due to gravity, g using free fall and projectile motion. (Experiment 2: Free fall and projectile motion)	Discussions Thought Experiments Activities	ITEM *Appendix	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	6	
			iii	6	
			iv	6	
			v	5	

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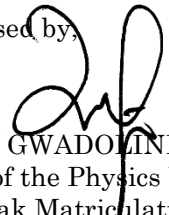Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	3			
CHAPTER	Chapter: 2: KINEMATICS OF MOTIONS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 25/07/2024(T5A); 26/07/2024(T5B); 26/07/2024(T6A); 26/07/2024(T6A)	2.3a) Describe projectile motion launched at an angle, O as well as special cases when 0=0° 2.3b) Solve problems related to projectile motion. 2.3c) Determine the acceleration due to gravity, g using free fall and projectile motion. (Experiment 2: Free fall and projectile motion)	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE i / 5 ii / 5 iii / 6 iv / 6 v / 6	All objectives achieved. Students are able to understand the materials of the topic.

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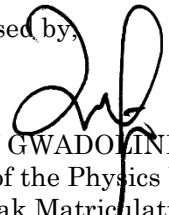Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	4			
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 30/07/2024(T5A); 30/07/2024(T5B); 31/07/2024(T6A); 31/07/2024(T6A)	3.1a) Define momentum and impulse (Refer Equation 2) 3.1b) Solve 1D problems related to impulse and impulse-momentum theorem (Refer Equation 2)	Discussions Thought Experiments Activities	<table><tr><th>ITEM *Appendix</th><th>SCORE</th></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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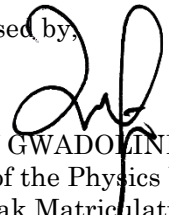Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	4						
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 01/08/2024(T5A); 31/07/2024(T5B); 01/08/2024(T6A); 01/08/2024(T6A)	3.1c) Use F-t graph to determine impulse.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	5	
			iv	5	
			v	6	

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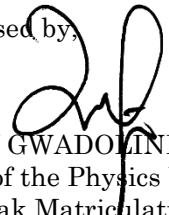Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	4						
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 01/08/2024(T5A); 02/08/2024(T5B); 02/08/2024(T6A); 02/08/2024(T6A)	3.2a) State the principle of conservation of linear momentum. 3.2b) Apply the principle of conservation of momentum in elastic and inelastic collisions in 2D collisions. 3.2c) Differentiate elastic and inelastic collisions. (remarks: similarities & differences)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
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			iv	5	
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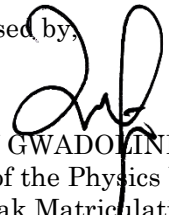Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN
CODE / COURSE	SP015
WEEK	5
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION
MODE	TUTORIALS
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.

SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 06/08/2024(T5A); 06/08/2024(T5B); 07/08/2024(T6A); 07/08/2024(T6A)	3.3a) Identify the forces acting on a body in different situations – Weight, W; Tension, T; Normal force, N; Friction, f; and External force (pull or push), F. 3.3b) Sketch free body diagram. 3.3c) Determine static and kinetic friction (Refer Equation 3)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	5	
			v	5	

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
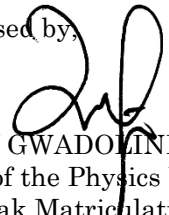Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	5			
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 08/08/2024(T5A); 07/08/2024(T5B); 08/08/2024(T6A); 08/08/2024(T6A)	3.4a) State Newton's laws of motion. 3.4b) Apply Newton's laws of motion – Include static and dynamic equilibrium for Newton's first law motion	Discussions Thought Experiments Activities	**ITEM *Appendix**	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	6	
			iv	6	
			v	5	

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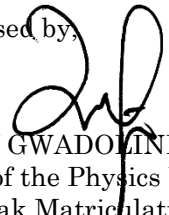Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	5			
CHAPTER	Chapter: 3: DYNAMICS OF LINEAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 08/08/2024(T5A); 09/08/2024(T5B); 09/08/2024(T6A); 09/08/2024(T6A)	3.4a) State Newton's laws of motion. 3.4b) Apply Newton's laws of motion – Include static and dynamic equilibrium for Newton's first law motion	Discussions Thought Experiments Activities	**ITEM** *Appendix* / **i** / **ii** / **iii** / **iv** / **v**	**SCORE** / 6 / 5 / 6 / 5 / 6	All objectives achieved. Students are able to understand the materials of the topic.

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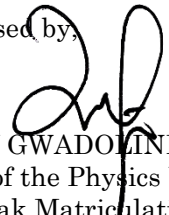Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	6						
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 13/08/2024(T5A); 13/08/2024(T5B); 14/08/2024(T6A); 14/08/2024(T6A)	4.1a) State the physical meaning of dot (scalar) product for work (Refer Equation 4) 4.1b) Define and apply work done by a constant force. 4.1c) Determine work done from a force-displacement graph.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	5	
			iii	6	
			iv	5	
			v	6	

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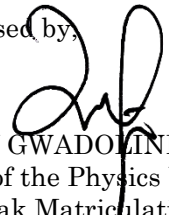Head of the Physics Unit
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	6			
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 15/08/2024(T5A); 14/08/2024(T5B); 15/08/2024(T6A); 15/08/2024(T6A)	4.2a) Define and use: Gravitational potential energy, Elastic potential energy for spring, Kinetic energy (Refer Equation 5) 4.2b) State the principle of conservation of energy. 4.2c) Apply the principle of conservation of mechanical energy. d) State and apply work-energy theorem (Refer Equation 5)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
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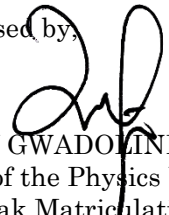Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	6			
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 15/08/2024(T5A); 16/08/2024(T5B); 16/08/2024(T6A); 16/08/2024(T6A)	4.2a) Define and use: Gravitational potential energy, Elastic potential energy for spring, Kinetic energy (Refer Equation 5) 4.2b) State the principle of conservation of energy. 4.2c) Apply the principle of conservation of mechanical energy. d) State and apply work-energy theorem (Refer Equation 5)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
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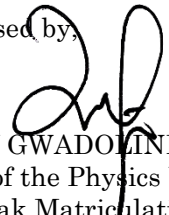Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	7						
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 20/08/2024(T5A); 20/08/2024(T5B); 21/08/2024(T6A); 21/08/2024(T6A)	4.3a) Define and use average power, and instantaneous power (Refer Equation 6) 4.3b) Verify the law of conservation of energy. (Experiment 3: Energy)	Discussions Thought Experiments Activities	**ITEM *Appendix**	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	5	
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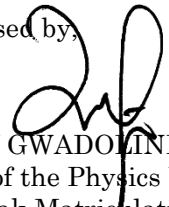Head of the Physics Unit
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	7			
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 22/08/2024(T5A); 21/08/2024(T5B); 22/08/2024(T6A); 22/08/2024(T6A)	4.3a) Define and use average power, and instantaneous power (Refer Equation 6) 4.3b) Verify the law of conservation of energy. (Experiment 3: Energy)	Discussions Thought Experiments Activities	<table><tr><td>**ITEM** *Appendix*</td><td>**SCORE**</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>5</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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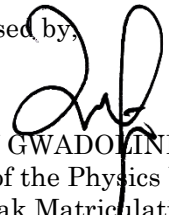Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	7			
CHAPTER	Chapter: 4: WORK, ENERGY AND POWER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 22/08/2024(T5A); 23/08/2024(T5B); 23/08/2024(T6A); 23/08/2024(T6A)	4.3a) Define and use average power, and instantaneous power (Refer Equation 6) 4.3b) Verify the law of conservation of energy. (Experiment 3: Energy)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
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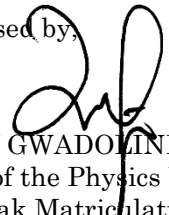Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	8			
CHAPTER	Chapter: 5: CIRCULAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 27/08/2024(T5A); 27/08/2024(T5B); 28/08/2024(T6A); 28/08/2024(T6A)	5.1a) Define and use – angular displacement, period, frequency, angular velocity	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appe ndix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>5</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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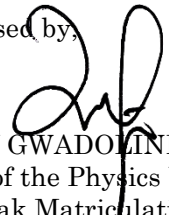Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	8			
CHAPTER	Chapter: 5: CIRCULAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 29/08/2024(T5A); 28/08/2024(T5B); 29/08/2024(T6A); 29/08/2024(T6A)	5.2a) Describe uniform circular motion. 5.2b) Convert units between degrees, radian, and revolution or rotation.	Discussions Thought Experiments Activities	**ITEM** *Appendix* i ii iii iv v	**SCORE** 5 5 5 5 5	All objectives achieved. Students are able to understand the materials of the topic.

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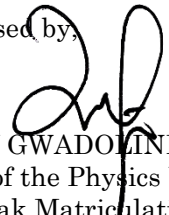Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	8			
CHAPTER	Chapter: 5: CIRCULAR MOTION			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 29/08/2024(T5A); 30/08/2024(T5B); 30/08/2024(T6A); 30/08/2024(T6A)	5.3a) Explain centripetal acceleration and centripetal force (Refer Equation 7) 5.3b) Solve problems related to centripetal force for uniform circular motion cases: horizontal circular motion, vertical circular motion and conical pendulum, exclude banked curve	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	6	
			iii	6	
			iv	6	
			v	5	

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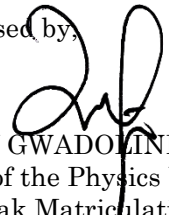Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	9			
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 03/09/2024(T5A); 03/09/2024(T5B); 04/09/2024(T6A); 04/09/2024(T6A)	6.1a) Define and use – angular displacement, average angular velocity, instantaneous angular velocity, average angular acceleration, instantaneous angular acceleration. (Refer Equation 8) 6.1b) Analyse parameters in rotational motion with their corresponding quantities in linear motion (Refer Equation 8) 6.1c) Solve problem related to rotational motion with constant angular acceleration (Refer Equation 8)	Discussions Thought Experiments Activities	**ITEM *Appendix**	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
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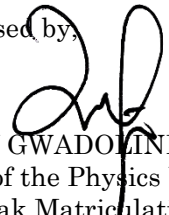Sarawak Matriculation College
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LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	9						
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
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			i	6	
			ii	5	
			iii	6	
			iv	5	
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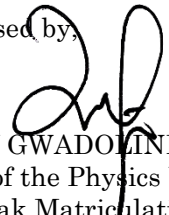Head of the Physics Unit
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LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	9					
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY					
MODE	TUTORIALS					
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.					
SLT	F2F (hour):	1	NF2F (hour):	1		

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 05/09/2024(T5A); 06/09/2024(T5B); 06/09/2024(T6A); 06/09/2024(T6A)	6.2a) State the physical meaning of cross (vector) product for torque, (Refer Equation 9) 6.2b) Define and apply torque. 6.2c) State conditions for equilibrium of rigid body 6.2d) Solve problems related to equilibrium of a uniform rigid body, limit to 5 forces.	Discussions Thought Experiments Activities	ITEM *Appendix / i / ii / iii / iv / v	SCORE / 6 / 5 / 5 / 6 / 6	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
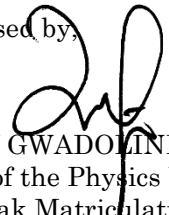Head of the Physics Unit
Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	10			
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 10/09/2024(T5A); 10/09/2024(T5B); 11/09/2024(T6A); 11/09/2024(T6A)	6.3a) Define and use moment of inertia (Refer Equation 10) 6.3b) Use the moment of inertia of a uniform rigid body. (sphere, cylinder, ring, disc, and rod). 6.3c) Determine the moment of inertia of a flywheel. (Experiment 4: Rotational motion of rigid body) d) State and use net torque (Refer Equation 10)	Discussions Thought Experiments Activities	ITEM *Appendix / SCORE: i=6, ii=5, iii=6, iv=5, v=5	All objectives achieved. Students are able to understand the materials of the topic.

Reflection table:

ITEM *Appendix	SCORE
i	6
ii	5
iii	6
iv	5
v	5

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Physics Lecturer
Sarawak Matriculation College
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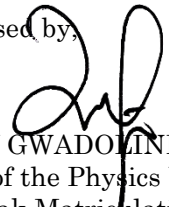Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	10						
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 12/09/2024(T5A); 11/09/2024(T5B); 12/09/2024(T6A); 12/09/2024(T6A)	6.4a) Explain and use angular momentum (Refer Equation 11) 6.4b) State and use principle of conservation of angular momentum.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	6	
			v	6	

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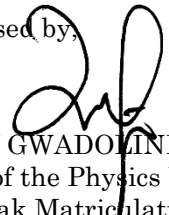Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	10						
CHAPTER	Chapter: 6: ROTATION OF RIGID BODY						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 12/09/2024(T5A); 13/09/2024(T5B); 13/09/2024(T6A); 13/09/2024(T6A)	6.4a) Explain and use angular momentum (Refer Equation 11) 6.4b) State and use principle of conservation of angular momentum.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	6	
			iv	5	
			v	6	

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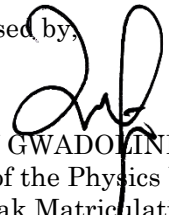Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	11			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 24/09/2024(T5A); 24/09/2024(T5B); 25/09/2024(T6A); 25/09/2024(T6A)	7.1a) Explain SHM. 7.1b) Apply SHM displacement equation (Refer Equation 12) 7.1c) Derive (without calculus) and use equations – velocity, acceleration, kinetic energy, and potential energy (Refer Equation 12) 7.1d) Emphasise the relationship between total SHM energy and amplitude. 7.1e) Apply equations of velocity, acceleration, kinetic energy and potential energy for SHM.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	5	
			iv	6	
			v	6	

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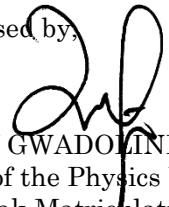Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	11			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 26/09/2024(T5A); 25/09/2024(T5B); 26/09/2024(T6A); 26/09/2024(T6A)	7.2a) Analyse the following graphs – displacement-time, velocity-time, acceleration-time and energy-displacement.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	5	
			v	5	

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Sarawak Matriculation College
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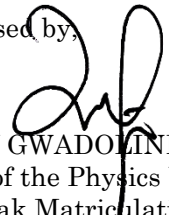Head of the Physics Unit
Sarawak Matriculation College
Date:

LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	11					
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES					
MODE	TUTORIALS					
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.					
SLT	**F2F (hour):**	1	**NF2F (hour):**	1		

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 26/09/2024(T5A); 27/09/2024(T5B); 27/09/2024(T6A); 27/09/2024(T6A)	7.3a) Use expression for period of SHM, for simple pendulum and mass-spring system – Simple pendulum and mass-spring system (Refer Equation 13) 7.3b) Determine the acceleration, g due to gravity using simple pendulum.(Experiment 5: SHM) 7.3c) Investigate the effect of large amplitude oscillation to the accuracy of acceleration due to gravity, g obtained from the experiment. (Experiment 5: SHM)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	6	
			iii	5	
			iv	5	
			v	6	

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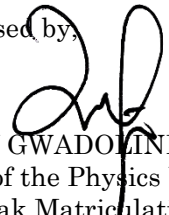Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	12			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 01/10/2024(T5A); 01/10/2024(T5B); 02/10/2024(T6A); 02/10/2024(T6A)	7.4a) Define wavelength. 7.4b) Define and use wave number (Refer Equation 14) 7.4c) Solve problems related to equation of progressive wave (Refer Equation 14) 7.4d) Distinguish between particle vibrational velocity and wave propagation velocity. 7.4e) Use particle vibrational velocity (Refer Equation 14) 7.4f) Use wave propagation velocity (Refer Equation 14) 7.4g) Analyse the graphs of – displacement-time and displacement-distance	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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Sarawak Matriculation College
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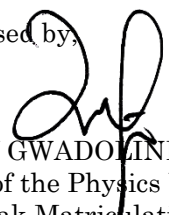Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	12			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 03/10/2024(T5A); 02/10/2024(T5B); 03/10/2024(T6A); 03/10/2024(T6A)	7.5a) State the principle of superposition of waves for the constructive and destructive interferences. 7.5b) Use the standing wave equation (Refer Equation 15) 7.5c) Compare between progressive waves and standing waves.	Discussions Thought Experiments Activities	**ITEM** *Appendix* i ii iii iv v	**SCORE** 5 5 5 5 6	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

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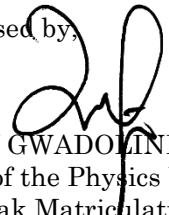Head of the Physics Unit
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	12						
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	F2F (hour):	1	NF2F (hour):	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 03/10/2024(T5A); 04/10/2024(T5B); 04/10/2024(T6A); 04/10/2024(T6A)	7.5a) State the principle of superposition of waves for the constructive and destructive interferences. 7.5b) Use the standing wave equation (Refer Equation 15) 7.5c) Compare between progressive waves and standing waves.	Discussions Thought Experiments Activities	ITEM *Appendix / i / ii / iii / iv / v	SCORE / 6 / 6 / 5 / 5 / 5	All objectives achieved. Students are able to understand the materials of the topic.

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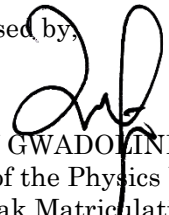Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	13			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 08/10/2024(T5A); 08/10/2024(T5B); 09/10/2024(T6A); 09/10/2024(T6A)	7.6a) Solve problems related to the fundamental and overtone frequencies for stretched string and air columns (open and closed end). (Refer Equation 16) 7.6b) Use wave speed in a stretched string (Refer Equation 16) 7.6c) Investigate standing wave formed in a stretched string. (Experiment 6: Standing waves) 7.6d) Determine the mass per unit length of the string. (Experiment 6: Standing waves)	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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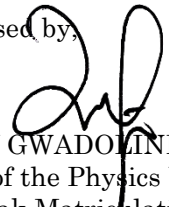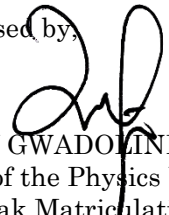Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	13					
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES					
MODE	TUTORIALS					
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.					
SLT	**F2F (hour):**	1	**NF2F (hour):**	1		

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 10/10/2024(T5A); 09/10/2024(T5B); 10/10/2024(T6A); 10/10/2024(T6A)	7.6a) Solve problems related to the fundamental and overtone frequencies for stretched string and air columns (open and closed end). (Refer Equation 16) 7.6b) Use wave speed in a stretched string (Refer Equation 16) 7.6c) Investigate standing wave formed in a stretched string. (Experiment 6: Standing waves) 7.6d) Determine the mass per unit length of the string. (Experiment 6: Standing waves)	Discussions Thought Experiments Activities	**ITEM** **Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	6	
			v	5	

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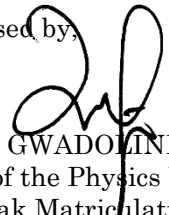Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	13			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 10/10/2024(T5A); 11/10/2024(T5B); 11/10/2024(T6A); 11/10/2024(T6A)	7.6a) Solve problems related to the fundamental and overtone frequencies for stretched string and air columns (open and closed end). (Refer Equation 16) 7.6b) Use wave speed in a stretched string (Refer Equation 16) 7.6c) Investigate standing wave formed in a stretched string. (Experiment 6: Standing waves) 7.6d) Determine the mass per unit length of the string. (Experiment 6: Standing waves)	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>6</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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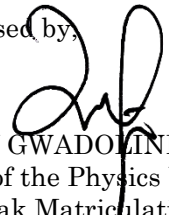Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	14			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 15/10/2024(T5A); 15/10/2024(T5B); 16/10/2024(T6A); 16/10/2024(T6A)	7.7a) State Doppler Effect for sound waves. 7.7b) Apply Doppler Effect equation for relative motion between source and observer. Limit to stationary observer and moving source, and vice versa. (Refer Equation 17)	Discussions Thought Experiments Activities	**ITEM *Appendix**	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	5	
			iii	5	
			iv	5	
			v	5	

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
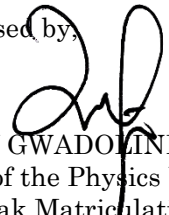Sarawak Matriculation College
Date:

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN
CODE / COURSE	SP015
WEEK	14
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES
MODE	TUTORIALS
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.

SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 17/10/2024(T5A); 16/10/2024(T5B); 17/10/2024(T6A); 17/10/2024(T6A)	7.7a) State Doppler Effect for sound waves. 7.7b) Apply Doppler Effect equation for relative motion between source and observer. Limit to stationary observer and moving source, and vice versa. (Refer Equation 17)	Discussions Thought Experiments Activities	**ITEM *Appendix** i ii iii iv v	**SCORE** 5 6 6 6 6	All objectives achieved. Students are able to understand the materials of the topic.

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Physics Lecturer
Sarawak Matriculation College
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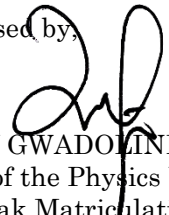Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	14			
CHAPTER	Chapter: 7: OSCILLATIONS AND WAVES			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 17/10/2024(T5A); 18/10/2024(T5B); 18/10/2024(T6A); 18/10/2024(T6A)	7.7a) State Doppler Effect for sound waves. 7.7b) Apply Doppler Effect equation for relative motion between source and observer. Limit to stationary observer and moving source, and vice versa. (Refer Equation 17)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	6	
			iii	6	
			iv	6	
			v	5	

Prepared by,

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Physics Lecturer
Sarawak Matriculation College
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Endorsed by,

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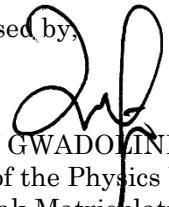Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	15						
CHAPTER	Chapter: 8: PHYSICS OF MATTER						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 22/10/2024(T5A); 22/10/2024(T5B); 23/10/2024(T6A); 23/10/2024(T6A)	8.1a) Distinguish between stress and strain for tensile and compression force. (Refer Equation 18) 8.1b) Analyse the graph of stress-strain, σ & for a metal under tension. 8.1c) Explain elastic and plastic deformations. 8.1d) Analyse graph of force-elongation for brittle and ductile materials.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	6	
			iv	5	
			v	5	

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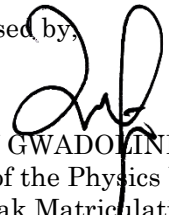Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	15			
CHAPTER	Chapter: 8: PHYSICS OF MATTER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 24/10/2024(T5A); 23/10/2024(T5B); 24/10/2024(T6A); 24/10/2024(T6A)	8.2a) Define and use Young's Modulus (Refer Equation 19) 8.2b) Apply strain energy from force-elongation graph. (Refer Equation 19) 8.2c) Apply strain energy per unit volume from stress-strain graph. (Refer Equation 19)	Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</td></tr><tr><td>ii</td><td>5</td></tr><tr><td>iii</td><td>6</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

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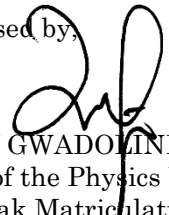Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN					
CODE / COURSE	SP015					
WEEK	15					
CHAPTER	Chapter: 8: PHYSICS OF MATTER					
MODE	TUTORIALS					
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.					
SLT	**F2F (hour):**	1	**NF2F (hour):**	1		

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 24/10/2024(T5A); 25/10/2024(T5B); 25/10/2024(T6A); 25/10/2024(T6A)	8.2a) Define and use Young's Modulus (Refer Equation 19) 8.2b) Apply strain energy from force-elongation graph. (Refer Equation 19) 8.2c) Apply strain energy per unit volume from stress-strain graph. (Refer Equation 19)	Discussions Thought Experiments Activities	**ITEM *Appendix*** i ii iii iv v	**SCORE** 5 5 5 6 6	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date:

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	16			
CHAPTER	Chapter: 8: PHYSICS OF MATTER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 29/10/2024(T5A); 29/10/2024(T5B); 30/10/2024(T6A); 30/10/2024(T6A)	8.3a) Define heat conduction. 8.3b) Solve problems related to rate of heat transfer through a cross-sectional area (remarks: maximum two insulated objects in series) (Refer Equation 20) 8.3c) Analyse graphs of temperature-distance (T-L) for heat conduction through insulated and non-insulated rods, maximum two rods in series.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	6	
			iii	6	
			iv	6	
			v	6	

Prepared by,

SHAFIQ BIN RASULAN
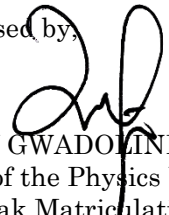Physics Lecturer
Sarawak Matriculation College
Date:

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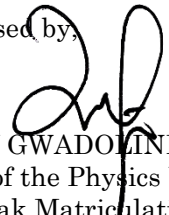Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	16			
CHAPTER	Chapter: 8: PHYSICS OF MATTER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 31/10/2024(T5A); 30/10/2024(T5B); 31/10/2024(T6A); 31/10/2024(T6A)	8.3a) Define heat conduction. 8.3b) Solve problems related to rate of heat transfer through a cross-sectional area (remarks: maximum two insulated objects in series) (Refer Equation 20) 8.3c) Analyse graphs of temperature-distance (T-L) for heat conduction through insulated and non-insulated rods, maximum two rods in series.	Discussions Thought Experiments Activities	ITEM *Appendix — SCORE i — 6 ii — 6 iii — 6 iv — 5 v — 5	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
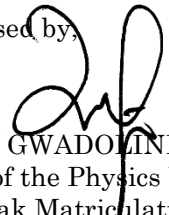Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	16			
CHAPTER	Chapter: 8: PHYSICS OF MATTER			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 31/10/2024(T5A); 01/11/2024(T5B); 01/11/2024(T6A); 01/11/2024(T6A)	8.4a) Define coefficient of linear expansion, a, area expansion, ß and volume expansion, y 8.4b) Solve problems related to thermal expansion of linear, area and volume, include expansion of liquid in a container. (Refer Equation 21)	Discussions Thought Experiments Activities	ITEM *Appendix	SCORE	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	6	
			v	6	

Prepared by,

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Physics Lecturer
Sarawak Matriculation College
Date:

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MARY GWADOLINE YUSUS
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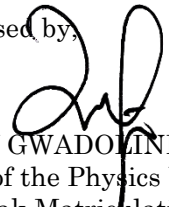Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	17			
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):**	1	**NF2F (hour):**	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 05/11/2024(T5A); 05/11/2024(T5B); 06/11/2024(T6A); 06/11/2024(T6A)	9.1a) State the assumptions of kinetic theory of gases. 9.1b) Describe root mean square (rms) speed of gas molecules (Refer Equation 22) 9.1c) Solve problems related to root mean square (rms) speed of gas molecules (Refer Equation 22) 9.1d) Solve problems related to the equations and pressure (Refer Equation 22)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	5	
			iii	6	
			iv	5	
			v	6	

Prepared by,

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Physics Lecturer
Sarawak Matriculation College
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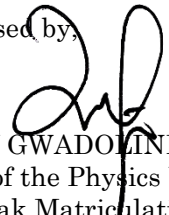Sarawak Matriculation College
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SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	17			
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	F2F (hour):	1	NF2F (hour):	1

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 07/11/2024(T5A); 06/11/2024(T5B); 07/11/2024(T6A); 07/11/2024(T6A)	9.2a) Explain and use translational kinetic energy of a molecule (Refer Equation 23) 9.2b) Define degree of freedom. 9.2c) Identify number of degrees of freedom, f for monoatomic, diatomic and polyatomic gas molecules. 9.2d) State the principle of equipartition of energy. 9.2e) Discuss internal energy of gas. 9.2f) Solve problems related to internal energy (Refer Equation 23)	Discussions Thought Experiments Activities	**ITEM** *Appe ndix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	6	
			ii	5	
			iii	6	
			iv	6	
			v	6	

Prepared by,

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Physics Lecturer
Sarawak Matriculation College
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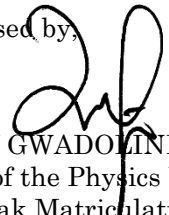Sarawak Matriculation College
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KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN						
CODE / COURSE	SP015						
WEEK	17						
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS						
MODE	TUTORIALS						
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.						
SLT	**F2F (hour):**	1	**NF2F (hour):**	1			

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 07/11/2024(T5A); 08/11/2024(T5B); 08/11/2024(T6A); 08/11/2024(T6A)	9.2a) Explain and use translational kinetic energy of a molecule (Refer Equation 23) 9.2b) Define degree of freedom. 9.2c) Identify number of degrees of freedom, f for monoatomic, diatomic and polyatomic gas molecules. 9.2d) State the principle of equipartition of energy. 9.2e) Discuss internal energy of gas. 9.2f) Solve problems related to internal energy (Refer Equation 23)	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	5	
			iii	5	
			iv	5	
			v	5	

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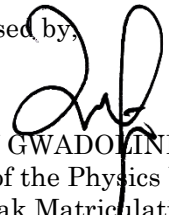Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	18				
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS				
MODE	TUTORIALS				
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.				
SLT	**F2F (hour):**	1	**NF2F (hour):**	1	

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(TUE, 1200hrs, DK1), T5B(TUE, 1100 hrs, DK1), T6A(WED, 1000 hrs, DK2), T6B(WED, 1500 hrs, DK3) 12/11/2024(T5A); 12/11/2024(T5B); 13/11/2024(T6A); 13/11/2024(T6A)	9.3a) State the First Law of Thermodynamics (Refer Equation 24) 9.3b) Solve problem related to First Law of Thermodynamics.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	6	
			v	5	

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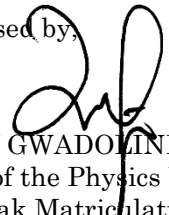Sarawak Matriculation College
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LECTURER	SHAFIQ BIN RASULAN				
CODE / COURSE	SP015				
WEEK	18				
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS				
MODE	TUTORIALS				
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.				
SLT	**F2F (hour):** 1		**NF2F (hour):** 1		

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION		REMARKS
T5A(THUR, 1100hrs, BT1), T5B(WED, 0900 hrs, DK2), T6A(THUR, 0900 hrs, BT3), T6B(THUR, 0800 hrs, BT3) 14/11/2024(T5A); 13/11/2024(T5B); 14/11/2024(T6A); 14/11/2024(T6A)	9.4a) Define the following thermodynamic processes – Isothermal, Isochoric, Isobaric and Adiabatic. 9.4b) Analyse P-V graph for all the thermodynamic processes.	Discussions Thought Experiments Activities	**ITEM** *Appendix*	**SCORE**	All objectives achieved. Students are able to understand the materials of the topic.
			i	5	
			ii	6	
			iii	5	
			iv	6	
			v	6	

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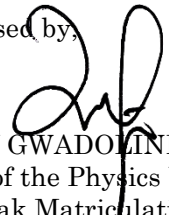Sarawak Matriculation College
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LESSON PLAN
SEMESTER I SESSION 2024/2025

LECTURER	SHAFIQ BIN RASULAN			
CODE / COURSE	SP015			
WEEK	18			
CHAPTER	Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS			
MODE	TUTORIALS			
CLO	CLO2: Solve problems related to mechanics, waves, matter, heat and thermodynamics.			
SLT	**F2F (hour):** 1		**NF2F (hour):** 1	

CLASS (DAY, TIME, VENUE) DATE	LEARNING OUTCOME	T&L STRATEGIES & TOOLS	REFLECTION	REMARKS
T5A(THUR, 1500hrs, DK3), T5B(FRI, 1000 hrs, BT1), T6A(FRI , 1100 hrs, BT1), T6B(FRI, 0800 hrs, MF) 14/11/2024(T5A); 15/11/2024(T5B); 15/11/2024(T6A); 15/11/2024(T6A)	9.5a) Derive equation of work done in isothermal, isochoric and isobaric processes from P-V graph. 9.5b) Solve problem related to work done in isothermal process, isobaric process, and isochoric process (Refer Equation 25)	Discussions Thought Experiments Activities	<table><tr><td>**ITEM** *Appendix*</td><td>**SCORE**</td></tr><tr><td>i</td><td>5</td></tr><tr><td>ii</td><td>6</td></tr><tr><td>iii</td><td>5</td></tr><tr><td>iv</td><td>6</td></tr><tr><td>v</td><td>5</td></tr></table>	All objectives achieved. Students are able to understand the materials of the topic.

Prepared by,

SHAFIQ BIN RASULAN
Physics Lecturer
Sarawak Matriculation College
Date:

Endorsed by,

MARY GWADOLINE YUSUS
Head of the Physics Unit
Sarawak Matriculation College
Date: