

KOLEJ MATRIKULASI SARAWAK
LESSON PLAN
SEMESTER I SESSION 2024/2025

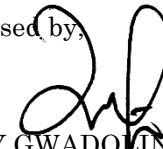
LECTURER		SHAFIQ BIN RASULAN																		
CODE / COURSE		SP015																		
WEEK		1																		
CHAPTER		Chapter 1: Physical Quantities And Measurements																		
MODE		Lecture																		
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																		
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	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</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>	ITEM *Appendix	SCORE	i	6	ii	6	iii	6	iv	6	v	5	All objectives achieved. Students are able to understand the materials of the topic.
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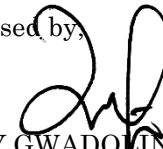
LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		2																			
CHAPTER		Chapter 2: Kinematics Of Motions																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1		NF2F (hour):		1													
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>	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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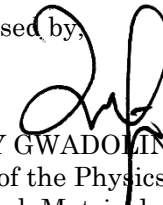
LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		3																			
CHAPTER		Chapter 2: Kinematics Of MotionsChapter 3: Dynamics Of Linear Motion																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1		NF2F (hour):		1													
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>6</td></tr><tr><td>v</td><td>6</td></tr></table>	ITEM *Appendix	SCORE	i	5	ii	5	iii	5	iv	6	v	6	All objectives achieved. Students are able to understand the materials of the topic.	
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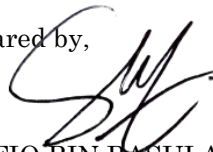


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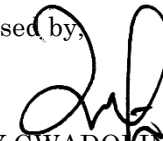
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CODE / COURSE		SP015																		
WEEK		4																		
CHAPTER		Chapter 3: Dynamics Of Linear Motion																		
MODE		Lecture																		
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																		
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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	<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>	ITEM *Appendix	SCORE	i	5	ii	6	iii	6	iv	5	v	5	All objectives achieved. Students are able to understand the materials of the topic.
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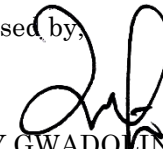
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WEEK		5																			
CHAPTER		Chapter 4: Work, Energy And Power																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1	NF2F (hour):		1														
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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	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</td></tr><tr><td>ii</td><td>6</td></tr><tr><td>iii</td><td>5</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>5</td></tr></table>	ITEM *Appendix	SCORE	i	6	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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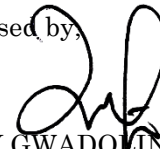
LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		6																			
CHAPTER		Chapter 4: Work, Energy And PowerChapter 5: Circular Motion																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1	NF2F (hour):		1														
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>5</td></tr><tr><td>iv</td><td>5</td></tr><tr><td>v</td><td>6</td></tr></table>	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.	
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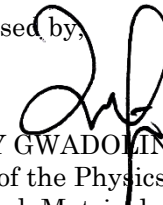
LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		7																			
CHAPTER		Chapter 5: Circular MotionChapter 6: Rotation Of Rigid Body																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1	NF2F (hour):		1														
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>6</td></tr></table>	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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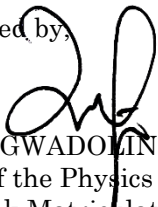
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LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		8																			
CHAPTER		Chapter 6: Rotation Of Rigid Body																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1		NF2F (hour):		1													
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>	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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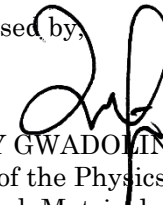
LECTURER		SHAFIQ BIN RASULAN																		
CODE / COURSE		SP015																		
WEEK		9																		
CHAPTER		Chapter 7: Oscillations And Waves																		
MODE		Lecture																		
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																		
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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	<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>	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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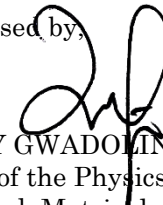
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WEEK		10																		
CHAPTER		Chapter 7: Oscillations And Waves																		
MODE		Lecture																		
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																		
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Friday 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	<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>6</td></tr></table>	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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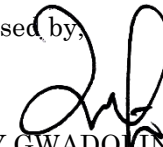
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CODE / COURSE		SP015																			
WEEK		11																			
CHAPTER		Chapter 7: Oscillations And Waves																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1		NF2F (hour):		1													
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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	<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>	ITEM *Appendix	SCORE	i	5	ii	6	iii	6	iv	6	v	5	All objectives achieved. Students are able to understand the materials of the topic.	
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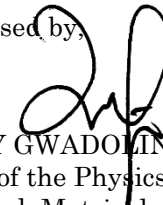
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WEEK		12																			
CHAPTER		Chapter 7: Oscillations And WavesChapter 8: Physics Of Matter																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
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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	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</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>6</td></tr></table>	ITEM *Appendix	SCORE	i	6	ii	6	iii	5	iv	6	v	6	All objectives achieved. Students are able to understand the materials of the topic.	
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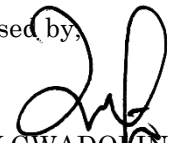
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LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		13																			
CHAPTER		Chapter 8: Physics Of Matter																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1		NF2F (hour):		1													
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>5</td></tr><tr><td>v</td><td>5</td></tr></table>	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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Prepared by,


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 Physics Lecturer
 Sarawak Matriculation College
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Endorsed by,


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

KOLEJ MATRIKULASI SARAWAK
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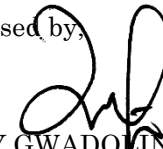
LECTURER		SHAFIQ BIN RASULAN																			
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WEEK		14																			
CHAPTER		Chapter 8: Physics Of Matter																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
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	<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>5</td></tr></table>	ITEM *Appendix	SCORE	i	5	ii	5	iii	6	iv	5	v	5	All objectives achieved. Students are able to understand the materials of the topic.	
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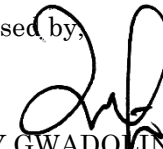
LECTURER		SHAFIQ BIN RASULAN																			
CODE / COURSE		SP015																			
WEEK		15																			
CHAPTER		Chapter 8: Physics Of Matter																			
MODE		Lecture																			
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																			
SLT		F2F (hour):		1	NF2F (hour):		1														
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<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>6</td></tr></table>	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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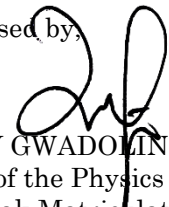
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LECTURER		SHAFIQ BIN RASULAN																		
CODE / COURSE		SP015																		
WEEK		16																		
CHAPTER		Chapter 9: Kinetic Theory Of Gases And Thermodynamics																		
MODE		Lecture																		
CLO		CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics																		
SLT		F2F (hour):		1	NF2F (hour):	1														
DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME				T&L STRATEGIE S & 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	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</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>	ITEM *Appendix	SCORE	i	6	ii	6	iii	6	iv	6	v	5	All objectives achieved. Students are able to understand the materials of the topic.
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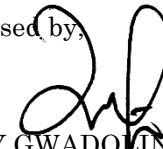
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DAY DATE TIME VENUE	CLASS	LEARNING OUTCOME			T&L STRATEGIE S & TOOLS	REFLECTION		REMARKS												
Friday 11/8/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	9.2b Define degree of freedom. 9.2c Identify number of degrees of freedom, ffor monoatomic, diatomic 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 *Appe ndix</td><td>SCOR E</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>		ITEM *Appe ndix	SCOR E	i	6	ii	5	iii	6	iv	6	v	5	All objectives achieved. Students are able to understand the materials of the topic.
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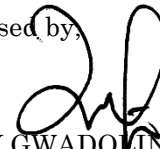
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Friday 11/15/2024 8am-9am (T5) & 9am-10am (T6) BT1	K3	9.3a State the First Law of Thermodynamics (Refer equation 24) 9.4a Define the following thermodynamic processes: i. Isothermal; ii. Isochoric; iii. Isobaric and iv. Adiabatic. 9.4b Analyse P-V graph for all the thermodynamic processes.				Discussions Thought Experiments Activities	<table><tr><td>ITEM *Appendix</td><td>SCORE</td></tr><tr><td>i</td><td>6</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>	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.	
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