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

<table>
<tr><td colspan="2">LECTURER</td><td colspan="5">SHAFIQ BIN RASULAN</td></tr>
<tr><td colspan="2">CODE / COURSE</td><td colspan="5">SP015</td></tr>
<tr><td colspan="2">WEEK</td><td colspan="5">2</td></tr>
<tr><td colspan="2">CHAPTER</td><td colspan="5">Chapter 2: Kinematics Of Motions</td></tr>
<tr><td colspan="2">MODE</td><td colspan="5">Lecture</td></tr>
<tr><td colspan="2">CLO</td><td colspan="5">CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics</td></tr>
<tr><td colspan="2">SLT</td><td>F2F (hour):</td><td>1</td><td>NF2F (hour):</td><td colspan="2">1</td></tr>
<tr><td>DAY
DATE
TIME
VENUE</td><td>CLASS</td><td colspan="2">LEARNING OUTCOME</td><td>T&L STRATEGIES & TOOLS</td><td>REFLECTION</td><td>REMARKS</td></tr>
<tr><td>Friday

7/19/2024

8am-9am (T5) & 9am-10am (T6)

BT1</td><td>K3</td><td colspan="2">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.</td><td>Discussions

Thought Experiments

Activities</td><td><table><tr><th>*Appendix</th><th>SCORE</th></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></td><td>All objectives achieved. Students are able to understand the materials of the topic.</td></tr>
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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 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** **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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LESSON PLAN
SEMESTER I SESSION 2024/2025

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** **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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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**: **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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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.

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LESSON PLAN
SEMESTER I SESSION 2024/2025

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: iangular displacement, θ; ii. average angular velocity, ωav, iii. instantaneous angular velocity, ω; iv. average angular acceleration, αav; 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, ΣF = 0, Στ = 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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<tr><td colspan="2">CODE / COURSE</td><td colspan="5">SP015</td></tr>
<tr><td colspan="2">WEEK</td><td colspan="5">8</td></tr>
<tr><td colspan="2">CHAPTER</td><td colspan="5">Chapter 6: Rotation Of Rigid Body</td></tr>
<tr><td colspan="2">MODE</td><td colspan="5">Lecture</td></tr>
<tr><td colspan="2">CLO</td><td colspan="5">CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics</td></tr>
<tr><td colspan="2">SLT</td><td>F2F (hour):</td><td>1</td><td>NF2F (hour):</td><td colspan="2">1</td></tr>
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<tr><td>Friday

8/30/2024

8am-9am (T5) & 9am-10am (T6)

BT1</td><td>K3</td><td colspan="2">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.</td><td>Discussions

Thought Experiments

Activities</td><td><table><tr><th>ITEM
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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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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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LESSON PLAN
SEMESTER I SESSION 2024/2025

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<tr><td colspan="2">CODE / COURSE</td><td colspan="5">SP015</td></tr>
<tr><td colspan="2">WEEK</td><td colspan="5">11</td></tr>
<tr><td colspan="2">CHAPTER</td><td colspan="5">Chapter 7: Oscillations And Waves</td></tr>
<tr><td colspan="2">MODE</td><td colspan="5">Lecture</td></tr>
<tr><td colspan="2">CLO</td><td colspan="5">CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics</td></tr>
<tr><td colspan="2">SLT</td><td>F2F (hour):</td><td>1</td><td>NF2F (hour):</td><td colspan="2">1</td></tr>
<tr><td>DAY
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VENUE</td><td>CLASS</td><td colspan="2">LEARNING OUTCOME</td><td>T&L STRATEGIES & TOOLS</td><td>REFLECTION</td><td>REMARKS</td></tr>
<tr><td>Friday

9/27/2024

8am-9am (T5) & 9am-10am (T6)

BT1</td><td>K3</td><td colspan="2">7.5a State the principle of superposition of waves for the constructive and destructive interferences.
7.5c Compare between progressive waves and standing waves.</td><td>Discussions

Thought Experiments

Activities</td><td><table><tr><th>ITEM
*Appendix</th><th>SCORE</th></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></td><td>All objectives achieved. Students are able to understand the materials of the topic.</td></tr>
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<tr><td colspan="2">WEEK</td><td colspan="5">12</td></tr>
<tr><td colspan="2">CHAPTER</td><td colspan="5">Chapter 7: Oscillations And WavesChapter 8: Physics Of Matter</td></tr>
<tr><td colspan="2">MODE</td><td colspan="5">Lecture</td></tr>
<tr><td colspan="2">CLO</td><td colspan="5">CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics</td></tr>
<tr><td colspan="2">SLT</td><td>F2F (hour):</td><td>1</td><td>NF2F (hour):</td><td colspan="2">1</td></tr>
<tr><td>DAY
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TIME
VENUE</td><td>CLASS</td><td colspan="2">LEARNING OUTCOME</td><td>T&L STRATEGIES & TOOLS</td><td>REFLECTION</td><td>REMARKS</td></tr>
<tr><td>Friday

10/4/2024

8am-9am (T5) & 9am-10am (T6)

BT1</td><td>K3</td><td colspan="2">7.7a State Doppler Effect for sound waves.
8.1c Explain elastic and plastic deformations.</td><td>Discussions

Thought Experiments

Activities</td><td><table><tr><th>ITEM
*Appendix</th><th>SCORE</th></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></td><td>All objectives achieved. Students are able to understand the materials of the topic.</td></tr>
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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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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** **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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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** **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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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**: **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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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	**ITEM** ***Appendix*** / **SCORE** **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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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** **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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