# SP015 Rancangan Instruksional Harian

# Lectures

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  17/07/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 13/07/2023 |  | Date: 14/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  24/07/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 20/07/2023 |  | Date: 21/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 3 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS  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** |
| Monday  31/07/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 27/07/2023 |  | Date: 28/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  07/08/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 03/08/2023 |  | Date: 04/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  14/08/2023  9am-10am  BT1 | K1 | 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) | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 10/08/2023 |  | Date: 11/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 6 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER  Chapter: 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** |
| Monday  21/08/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 17/08/2023 |  | Date: 18/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 7 | | | |
| **CHAPTER** | | Chapter: 5: CIRCULAR MOTION  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** |
| Monday  28/08/2023  9am-10am  BT1 | K1 | 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 | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 24/08/2023 |  | Date: 25/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  04/09/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 31/08/2023 |  | Date: 01/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  18/09/2023  9am-10am  BT1 | K1 | 7.1a Explain SHM.  7.1d Emphasise the relationship between total SHM energy and amplitude. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 14/09/2023 |  | Date: 15/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  25/09/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 21/09/2023 |  | Date: 22/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  02/10/2023  9am-10am  BT1 | K1 | 7.5a State the principle of superposition of waves for the constructive and destructive interferences.  7.5c Compare between progressive waves and standing waves. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 28/09/2023 |  | Date: 29/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 12 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES  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** |
| Monday  09/10/2023  9am-10am  BT1 | K1 | 7.7a State Doppler Effect for sound waves.  8.1c Explain elastic and plastic deformations. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 05/10/2023 |  | Date: 06/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  16/10/2023  9am-10am  BT1 | K1 | 8.2a Define and use Young's Modulus (Refer equation 19) | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 12/10/2023 |  | Date: 13/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  23/10/2023  9am-10am  BT1 | K1 | 8.3a Define heat conduction. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 19/10/2023 |  | Date: 20/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  30/10/2023  9am-10am  BT1 | K1 | 8.4a Define coefficient of linear expansion, α, area expansion, β and volume expansion, γ | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 26/10/2023 |  | Date: 27/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  06/11/2023  9am-10am  BT1 | K1 | 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) | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 02/11/2023 |  | Date: 03/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  13/11/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 09/11/2023 |  | Date: 10/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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** |
| Monday  20/11/2023  9am-10am  BT1 | K1 | 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. | Discussion  Thought Experiments | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 16/11/2023 |  | Date: 17/11/2023 |

# Tutorials

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 1 | | | |
| **CHAPTER** | | Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(18/07/2023); K1T2A(18/07/2023); K1T2B(18/07/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 1.1a) Define dimension.  1.1b) Determine the dimensions of derived quantities.  1.1c) Verify the homogeneity of equations using dimensional analysis. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 13/07/2023 |  | Date: 14/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 1 | | | |
| **CHAPTER** | | Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(20/07/2023); K1T2A(19/07/2023); K1T2B(19/07/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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). | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 13/07/2023 |  | Date: 14/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 1 | | | |
| **CHAPTER** | | Chapter: 1: PHYSICAL QUANTITIES AND MEASUREMENTS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(21/07/2023); K1T2A(21/07/2023); K1T2B(20/07/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 13/07/2023 |  | Date: 14/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 2 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(25/07/2023); K1T2A(25/07/2023); K1T2B(25/07/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 20/07/2023 |  | Date: 21/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 2 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(27/07/2023); K1T2A(26/07/2023); K1T2B(26/07/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 20/07/2023 |  | Date: 21/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 2 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(28/07/2023); K1T2A(28/07/2023); K1T2B(27/07/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 20/07/2023 |  | Date: 21/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 3 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(01/08/2023); K1T2A(01/08/2023); K1T2B(01/08/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 2.2a) Derive and apply equations of motion with uniform acceleration (Refer equation 1) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 27/07/2023 |  | Date: 28/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 3 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(03/08/2023); K1T2A(02/08/2023); K1T2B(02/08/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 27/07/2023 |  | Date: 28/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 3 | | | |
| **CHAPTER** | | Chapter: 2: KINEMATICS OF MOTIONS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(04/08/2023); K1T2A(04/08/2023); K1T2B(03/08/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 27/07/2023 |  | Date: 28/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 4 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(08/08/2023); K1T2A(08/08/2023); K1T2B(08/08/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 3.1a) Define momentum and impulse (Refer Equation 2)  3.1b) Solve 1D problems related to impulse and impulse-momentum theorem (Refer Equation 2) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 03/08/2023 |  | Date: 04/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 4 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(10/08/2023); K1T2A(09/08/2023); K1T2B(09/08/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 3.1c) Use F-t graph to determine impulse. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 03/08/2023 |  | Date: 04/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 4 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(11/08/2023); K1T2A(11/08/2023); K1T2B(10/08/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 03/08/2023 |  | Date: 04/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 5 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(15/08/2023); K1T2A(15/08/2023); K1T2B(15/08/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 10/08/2023 |  | Date: 11/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 5 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(17/08/2023); K1T2A(16/08/2023); K1T2B(16/08/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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 | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 10/08/2023 |  | Date: 11/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 5 | | | |
| **CHAPTER** | | Chapter: 3: DYNAMICS OF LINEAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(18/08/2023); K1T2A(18/08/2023); K1T2B(17/08/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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 | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 10/08/2023 |  | Date: 11/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 6 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(22/08/2023); K1T2A(22/08/2023); K1T2B(22/08/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 17/08/2023 |  | Date: 18/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 6 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(24/08/2023); K1T2A(23/08/2023); K1T2B(23/08/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 17/08/2023 |  | Date: 18/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 6 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(25/08/2023); K1T2A(25/08/2023); K1T2B(24/08/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 17/08/2023 |  | Date: 18/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 7 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(29/08/2023); K1T2A(29/08/2023); K1T2B(29/08/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 24/08/2023 |  | Date: 25/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 7 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(31/08/2023); K1T2A(30/08/2023); K1T2B(30/08/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 24/08/2023 |  | Date: 25/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 7 | | | |
| **CHAPTER** | | Chapter: 4: WORK, ENERGY AND POWER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(01/09/2023); K1T2A(01/09/2023); K1T2B(31/08/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 24/08/2023 |  | Date: 25/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 8 | | | |
| **CHAPTER** | | Chapter: 5: CIRCULAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(05/09/2023); K1T2A(05/09/2023); K1T2B(05/09/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 5.1a) Define and use – angular displacement, period, frequency, angular velocity | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 31/08/2023 |  | Date: 01/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 8 | | | |
| **CHAPTER** | | Chapter: 5: CIRCULAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(07/09/2023); K1T2A(06/09/2023); K1T2B(06/09/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 5.2a) Describe uniform circular motion.  5.2b) Convert units between degrees, radian, and revolution or rotation. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 31/08/2023 |  | Date: 01/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 8 | | | |
| **CHAPTER** | | Chapter: 5: CIRCULAR MOTION | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(08/09/2023); K1T2A(08/09/2023); K1T2B(07/09/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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 | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 31/08/2023 |  | Date: 01/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 9 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(19/09/2023); K1T2A(19/09/2023); K1T2B(19/09/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 4 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 14/09/2023 |  | Date: 15/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 9 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(21/09/2023); K1T2A(20/09/2023); K1T2B(20/09/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 14/09/2023 |  | Date: 15/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 9 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(22/09/2023); K1T2A(22/09/2023); K1T2B(21/09/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 14/09/2023 |  | Date: 15/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 10 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(26/09/2023); K1T2A(26/09/2023); K1T2B(26/09/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 21/09/2023 |  | Date: 22/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 10 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(28/09/2023); K1T2A(27/09/2023); K1T2B(27/09/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 6.4a) Explain and use angular momentum (Refer Equation 11)  6.4b) State and use principle of conservation of angular momentum. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 21/09/2023 |  | Date: 22/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 10 | | | |
| **CHAPTER** | | Chapter: 6: ROTATION OF RIGID BODY | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(29/09/2023); K1T2A(29/09/2023); K1T2B(28/09/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 6.4a) Explain and use angular momentum (Refer Equation 11)  6.4b) State and use principle of conservation of angular momentum. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 21/09/2023 |  | Date: 22/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 11 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(03/10/2023); K1T2A(03/10/2023); K1T2B(03/10/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 28/09/2023 |  | Date: 29/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 11 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(05/10/2023); K1T2A(04/10/2023); K1T2B(04/10/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 7.2a) Analyse the following graphs – displacement-time, velocity-time, acceleration-time and energy-displacement. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 28/09/2023 |  | Date: 29/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 11 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(06/10/2023); K1T2A(06/10/2023); K1T2B(05/10/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 28/09/2023 |  | Date: 29/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 12 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(10/10/2023); K1T2A(10/10/2023); K1T2B(10/10/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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 | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 3 | | **iii** | 3 | | **iv** | 3 | | **v** | 3 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 05/10/2023 |  | Date: 06/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 12 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(12/10/2023); K1T2A(11/10/2023); K1T2B(11/10/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 05/10/2023 |  | Date: 06/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 12 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(13/10/2023); K1T2A(13/10/2023); K1T2B(12/10/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 05/10/2023 |  | Date: 06/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 13 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(17/10/2023); K1T2A(17/10/2023); K1T2B(17/10/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 12/10/2023 |  | Date: 13/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 13 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(19/10/2023); K1T2A(18/10/2023); K1T2B(18/10/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 12/10/2023 |  | Date: 13/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 13 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(20/10/2023); K1T2A(20/10/2023); K1T2B(19/10/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 12/10/2023 |  | Date: 13/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 14 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(24/10/2023); K1T2A(24/10/2023); K1T2B(24/10/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 19/10/2023 |  | Date: 20/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 14 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(26/10/2023); K1T2A(25/10/2023); K1T2B(25/10/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 19/10/2023 |  | Date: 20/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 14 | | | |
| **CHAPTER** | | Chapter: 7: OSCILLATIONS AND WAVES | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(27/10/2023); K1T2A(27/10/2023); K1T2B(26/10/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 19/10/2023 |  | Date: 20/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 15 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(31/10/2023); K1T2A(31/10/2023); K1T2B(31/10/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 26/10/2023 |  | Date: 27/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 15 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(02/11/2023); K1T2A(01/11/2023); K1T2B(01/11/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 26/10/2023 |  | Date: 27/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 15 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(03/11/2023); K1T2A(03/11/2023); K1T2B(02/11/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 26/10/2023 |  | Date: 27/10/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 16 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(07/11/2023); K1T2A(07/11/2023); K1T2B(07/11/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 02/11/2023 |  | Date: 03/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 16 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(09/11/2023); K1T2A(08/11/2023); K1T2B(08/11/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 02/11/2023 |  | Date: 03/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 16 | | | |
| **CHAPTER** | | Chapter: 8: PHYSICS OF MATTER | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(10/11/2023); K1T2A(10/11/2023); K1T2B(09/11/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 02/11/2023 |  | Date: 03/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 17 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(14/11/2023); K1T2A(14/11/2023); K1T2B(14/11/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 09/11/2023 |  | Date: 10/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 17 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(16/11/2023); K1T2A(15/11/2023); K1T2B(15/11/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 09/11/2023 |  | Date: 10/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 17 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(17/11/2023); K1T2A(17/11/2023); K1T2B(16/11/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 09/11/2023 |  | Date: 10/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 18 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Tuesday); K1T2A(Tuesday); K1T2B(Tuesday) | | K1T1(21/11/2023); K1T2A(21/11/2023); K1T2B(21/11/2023) | | K1T1(9am - 10am); K1T2A(3pm - 4pm); K1T2B(10am - 11am) | | K1T1(BT3); K1T2A(BT1); K1T2B(MF) | | K1 | 9.3a) State the First Law of Thermodynamics (Refer Equation 24)  9.3b) Solve problem related to First Law of Thermodynamics. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 16/11/2023 |  | Date: 17/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 18 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Thursday); K1T2A(Wednesday); K1T2B(Wednesday) | | K1T1(23/11/2023); K1T2A(22/11/2023); K1T2B(22/11/2023) | | K1T1(10am -11am); K1T2A(2pm - 3pm); K1T2B(9am - 10am) | | K1T1(DK1); K1T2A(BT3); K1T2B(BT3) | | K1 | 9.4a) Define the following thermodynamic processes – Isothermal, Isochoric, Isobaric and Adiabatic.  9.4b) Analyse P-V graph for all the thermodynamic processes. | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 16/11/2023 |  | Date: 17/11/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 18 | | | |
| **CHAPTER** | | Chapter: 9: KINETIC THEORY OF GASES AND THERMODYNAMICS | | | |
| **MODE** | | Tutorial | | | |
| **CLO** | | CLO2: Solve problems related to 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** |
| |  | | --- | | K1T1(Friday); K1T2A(Friday); K1T2B(Thursday) | | K1T1(24/11/2023); K1T2A(24/11/2023); K1T2B(23/11/2023) | | K1T1(11am - 12pm); K1T2A(10am - 11am); K1T2B(12pm-1pm) | | K1T1(DK2); K1T2A(MF); K1T2B(BT1) | | K1 | 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) | Discussion  Thought Experiments  Problem Practice | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 16/11/2023 |  | Date: 17/11/2023 |

**Labs**

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 3 | | | |
| **CHAPTER** | | Chapter 1: Physical Quantities And Measurements | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 02/08/2023(K1T1)  03/08/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 1: Measurement and Safety  1.3g: Measure and determine the uncertainty of physical quantities.(Experiment I : Measurement and uncertainty) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 3 | | **iii** | 4 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 27/07/2023 |  | Date: 28/07/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 4 | | | |
| **CHAPTER** | | Chapter 2: Kinematics Of Motions | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 09/08/2023(K1T1)  10/08/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 2: Free Fall & Projectile Motion  2.3c: Determine the acceleration due to gravity, g using free fall and projectile motion. (Experiment 2: Free fall and projectile motion) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 03/08/2023 |  | Date: 04/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 6 | | | |
| **CHAPTER** | | Chapter 4: Work, Energy And Power | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 23/08/2023(K1T1)  24/08/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 3: Energy  4.3b: Verify the law of conservation of energy.(Experiment 3: Energy) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 17/08/2023 |  | Date: 18/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 7 | | | |
| **CHAPTER** | | Chapter 6: Rotation Of Rigid Body | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 30/08/2023(K1T1)  31/08/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 4: Rotational Motion of Rigid Body  6.3c: Determine the moment of inertia of a flywheel. (Experiment 4: Rotational motion of rigid body) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 4 | | **ii** | 4 | | **iii** | 4 | | **iv** | 3 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 24/08/2023 |  | Date: 25/08/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 9 | | | |
| **CHAPTER** | | Chapter 7: Oscillations And Waves | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 20/09/2023(K1T1)  21/09/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 5: Simple Harmonic Motion  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) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 14/09/2023 |  | Date: 15/09/2023 |

**KOLEJ MATRIKULASI SARAWAK**

**LESSON PLAN**

**SEMESTER I SESSION 2023/2024**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **LECTURER** | | SHAFIQ BIN RASULAN | | | |
| **CODE / COURSE** | | SP015 | | | |
| **WEEK** | | 11 | | | |
| **CHAPTER** | | Chapter 7: Oscillations And Waves | | | |
| **MODE** | | Laboratory/ Physics Practicals | | | |
| **CLO** | | CLO3: Apply the appropriate scientific laboratory skills in physics experiments | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| |  | | --- | | Wednesday (K1T1)  Thursday (K1T2) | | 04/10/2023(K1T1)  05/10/2023(K1T2) | | 1100 - 1300(K1T1)  1400 - 1500(K1T2) | | Physics Lab (Makmal Fizik) | | K1 | Experiment 6: Standing Waves  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) | Laboratory Work | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 3 | | **ii** | 4 | | **iii** | 3 | | **iv** | 4 | | **v** | 4 | | All objectives achieved. Students are able to understand the materials of the topic. |

|  |  |  |
| --- | --- | --- |
| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MOHD AIMAN BIN MOHD ADLI |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: 28/09/2023 |  | Date: 29/09/2023 |

|  |  |  |
| --- | --- | --- |
| **Equation No** | **LO** | **Equations** |
| 1 | 2.2 |  |
| 2 | 3.1 |  |
| 3 | 3.3 |  |
| 4 | 4.1 |  |
| 5 | 4.2 |  |
| 6 | 4.3 |  |
| 7 | 5.3 |  |
| 8 | 6.1 |  |
| 9 | 6.2 |  |
| 10 | 6.3 |  |
| 11 | 6.4 |  |
| 12 | 7.1 |  |
| 13 | 7.3 |  |
| 14 | 7.4 |  |
| 15 | 7.5 |  |
| 16 | 7.6 |  |
| 17 | 7.7 |  |
| 18 | 8.1 |  |
| 19 | 8.2 |  |
| 20 | 8.3 |  |
| 21 | 8.4 |  |
| 22 | 9.1 |  |
| 23 | 9.2 |  |
| 24 | 9.3 |  |
| 25 | 9.5 |  |