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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 1 | | | | | | |
| **CHAPTER** | | Chapter 1: Physical Quantities And Measurements | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  7/12/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 1.1a Define dimension.  1.2a Define scalar and vector quantities.  1.3a State the significant figures of a given number.  1.3e State the sources of uncertainty in the results of an experiment. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 2 | | | | | | |
| **CHAPTER** | | Chapter 2: Kinematics Of Motions | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  7/19/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 2.1a Define instantaneous velocity, average velocity, uniform velocity, instantaneous acceleration, average acceleration and uniform acceleration.  2.1b Interpret the physical meaning of displacement-time, velocity-time and acceleration-time graphs. Refer Equation 1. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 5 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **WEEK** | | 3 | | | | | | |
| **CHAPTER** | | Chapter 2: Kinematics Of MotionsChapter 3: Dynamics Of Linear Motion | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  7/26/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 2.3a Describe projectile motion launched at an angle, as well as special cases when angle is zero  3.1a Define momentum and impulse, refer equation 2  3.2a State the principle of conservation of linear momentum. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 5 | | **iii** | 5 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 4 | | | | | | |
| **CHAPTER** | | Chapter 3: Dynamics Of Linear Motion | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  8/2/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 3.2c Differentiate elastic and inelastic collisions. (remarks: similarities & differences)  3.3a Identify the forces acting on a body in different situations:  i. Weight, W; ii. Tension, T; iii. Normal force, N; iv. Friction, f; and  v. External force (pull or push), F.  3.4a State Newton's laws of motion. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 5 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 5 | | | | | | |
| **CHAPTER** | | Chapter 4: Work, Energy And Power | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  8/9/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 4.1a State the physical meaning of dot (scalar) product for work, refer equation 4.  4.1b Define and apply work done by a constant force.  4.2a Define and use: i. Gravitational potential energy, ii. Elastic potential energy for spring, iii. Kinetic energy. (Refer Equation 5) | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 6 | | **iii** | 5 | | **iv** | 5 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **WEEK** | | 6 | | | | | | |
| **CHAPTER** | | Chapter 4: Work, Energy And PowerChapter 5: Circular Motion | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  8/16/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 4.2b State the principle of conservation of energy.  4.2d State and apply work-energy theorem (Refer equation 5)  4.3a Define and use average power and instantaneous power (Refer Equation 6)  5.1a Define and use: i. angular displacement, θ ii. period, T iii. frequency, f iv. angular velocity, ω  5.2a Describe uniform circular motion. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 5 | | **iii** | 5 | | **iv** | 5 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **WEEK** | | 7 | | | | | | |
| **CHAPTER** | | Chapter 5: Circular MotionChapter 6: Rotation Of Rigid Body | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  8/23/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 5.3a Explain centripetal acceleration and centripetal force (Refer equation 7)  6.1a Define and use: iangular displacement, θ; ii. average angular velocity, ωav, iii. instantaneous angular velocity, ω; iv. average angular acceleration, αav; and v. instantaneous angular acceleration, α.  6.2a State the physical meaning of cross (vector) product for torque (Refer equation 9)  6.2b Define and apply torque.  6.2c State conditions for equilibrium of rigid body, ΣF = 0, Στ = 0 | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 8 | | | | | | |
| **CHAPTER** | | Chapter 6: Rotation Of Rigid Body | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  8/30/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 6.3a Define and use moment of inertia (Refer equation 10)  6.3d State and use net torque (Refer equation 10)  6.4a Explain and use angular momentum (Refer equation 11)  6.4b State and use principle of conservation of angular momentum. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 5 | | **iii** | 6 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 9 | | | | | | |
| **CHAPTER** | | Chapter 7: Oscillations And Waves | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  9/6/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 7.1a Explain SHM.  7.1d Emphasise the relationship between total SHM energy and amplitude. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 5 | | **iii** | 6 | | **iv** | 5 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 10 | | | | | | |
| **CHAPTER** | | Chapter 7: Oscillations And Waves | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  9/13/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 7.4a Define wavelength.  7.4b Define and use wave number (Refer equation 14)  7.4d Distinguish between particle vibrational velocity and wave propagation velocity. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 11 | | | | | | |
| **CHAPTER** | | Chapter 7: Oscillations And Waves | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  9/27/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 7.5a State the principle of superposition of waves for the constructive and destructive interferences.  7.5c Compare between progressive waves and standing waves. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 12 | | | | | | |
| **CHAPTER** | | Chapter 7: Oscillations And WavesChapter 8: Physics Of Matter | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  10/4/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 7.7a State Doppler Effect for sound waves.  8.1c Explain elastic and plastic deformations. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 6 | | **iii** | 5 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **WEEK** | | 13 | | | | | | |
| **CHAPTER** | | Chapter 8: Physics Of Matter | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  10/11/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 8.2a Define and use Young's Modulus (Refer equation 19) | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 5 | | **iv** | 5 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 14 | | | | | | |
| **CHAPTER** | | Chapter 8: Physics Of Matter | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  10/18/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 8.3a Define heat conduction. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 5 | | **iii** | 6 | | **iv** | 5 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 15 | | | | | | |
| **CHAPTER** | | Chapter 8: Physics Of Matter | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  10/25/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 8.4a Define coefficient of linear expansion, α, area expansion, β and volume expansion, γ | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 5 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 6 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| Prepared by, |  | Endorsed by, |
| SHAFIQ BIN RASULAN |  | MARY GWADOLINE YUSUS |
| Physics Lecturer |  | Head of the Physics Unit |
| Sarawak Matriculation College |  | Sarawak Matriculation College |
| Date: |  | Date: |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 16 | | | | | | |
| **CHAPTER** | | Chapter 9: Kinetic Theory Of Gases And Thermodynamics | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  11/1/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 9.1a State the assumptions of kinetic theory of gases.  9.1b Describe root mean square (rms) speed of gas molecules (Refer equation 22)  9.2a Explain and use translational kinetic energy of a molecule (Refer equation 23) | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 6 | | **iii** | 6 | | **iv** | 6 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 17 | | | | | | |
| **CHAPTER** | | Chapter 9: Kinetic Theory Of Gases And Thermodynamics | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  11/8/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 9.2b Define degree of freedom.  9.2c Identify number of degrees of freedom, ffor monoatomic, diatomic and polyatomic gas molecules.  9.2d State the principle of equipartition of energy.  9.2e Discuss internal energy of gas. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 5 | | **iii** | 6 | | **iv** | 6 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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| **LECTURER** | | SHAFIQ BIN RASULAN | | | | | | |
| **CODE / COURSE** | | SP015 | | | | | | |
| **WEEK** | | 18 | | | | | | |
| **CHAPTER** | | Chapter 9: Kinetic Theory Of Gases And Thermodynamics | | | | | | |
| **MODE** | | Lecture | | | | | | |
| **CLO** | | CLO1: Describe basic concepts of mechanics, wave, matters, heat and thermodynamics | | | | | | |
| **SLT** | | **F2F (hour):** | 1 | **NF2F (hour):** | 1 | | | |
| **DAY**  **DATE**  **TIME**  **VENUE** | **CLASS** | **LEARNING OUTCOME** | | | | **T&L STRATEGIES & TOOLS** | **REFLECTION** | **REMARKS** |
| Friday  11/15/2024  8am-9am (T5) & 9am-10am (T6)  BT1 | K3 | 9.3a State the First Law of Thermodynamics (Refer equation 24)  9.4a Define the following thermodynamic processes: i. Isothermal; ii. Isochoric; iii. Isobaric and iv. Adiabatic.  9.4b Analyse P-V graph for all the thermodynamic processes. | | | | Discussions  Thought Experiments  Activities | |  |  | | --- | --- | | **ITEM**  ***\*Appendix*** | **SCORE** | | **i** | 6 | | **ii** | 6 | | **iii** | 6 | | **iv** | 5 | | **v** | 5 | | All objectives achieved. Students are able to understand the materials of the topic. |

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