



BASICS OF MATH & PHYSICAL SCIENCES WORKBOOK COURSE OUTLINE

This product is designed as a workbook containing practice problems to assist the learner in solving specific applied mathematics and applied sciences problems and calculating the appropriate answers in SI measurement units. The learning outcome of all chapters is an enhanced understanding of solving problems relating to the specific topic area.

Content

- 1. Perimeter & Area of Plane Objects**
Calculate perimeters and areas.
- 2. Surface Areas & Volumes of Regular Solids**
Calculate areas and volumes.
- 3. Converting Units of Length, Area & Volume**
Calculate measurement unit conversions.
- 4. Basic Trigonometry**
Solve basic trigonometry problems.
- 5. Areas & Volumes Related to Sectors, Segments, and Polygons**
Calculate areas and volumes of odd shapes.
- 6. Mass, Weight & Density**
Calculate mass, weight and density.
- 7. Simple Equation Handling**
Solve equation for the desired variable.
- 8. Basic Vector Problems**
Solve vector problems using different calculation methods.
- 9. Static Forces**
Calculate static forces.
- 10. Sliding Friction**
Solve problems involving sliding friction.
- 11. Force & Moment**
Solve problems involving force.
- 12. Levers & Beams**
Solve static equilibrium problems involving levers and beams.
- 13. Simple Machines**
Calculate the mechanical advantage conveyed in simple machines.
- 14. Velocity & Acceleration**
Solve problems relating to velocity and acceleration.
- 15. Dynamic Forces**
Solve problems involving dynamic forces.



BASICS OF MATH & PHYSICAL SCIENCES WORKBOOK COURSE OUTLINE

- 16. Work, Energy & Power**
Solve problems using the relationships between work, energy and power.
- 17. Belt & Pulley, & Gear Systems**
Solve problems involving rotational force and rotational speed.
- 18. Stress & Strain**
Solve problems involving calculation of stress and strain.
- 19. Force & Pressure**
Solve problems involving force and pressure.
- 20. Temperature and Heat**
Solve problems involving temperature and heat calculation.
- 21. Thermal Expansion of Solids and Liquids**
Solve problems using the linear co-efficient of expansion for various materials.
- 22. Basic Gas Laws**
Calculate pressure using gas law equations.
- 23. Steam Tables**
Solve problems using the Steam Tables.
- 24. Steam System Calculations**
Calculate steam system inputs and outputs.
- 25. Basic Electricity Calculations**
Solve calculations involving current, voltage, resistance, conductance, energy and power.

Appendix A - Geometric Shape Formulae

Appendix B - Unit Conversions

Appendix C – Steam Tables