

1. Fluids:

Pressure: definition, units, unit conversion,
Pressure of fluids.
Buoyant force
Equation of continuity of fluids.
Pascal's principle
Archimedes' principle
Bernoulli's equation

2. Heat and temperature

What are heat and temperature?
What are their units?
Deferent unit systems to measure temperature: °C, °F, K and the conversion of units.
Thermal expansion.
Specific heat. (Problem solving: mixing of 2 or more substance of different temperatures.)
How is the heat transferred between substances? Conduction, convection and radiation. What are the quantitative relations in the three ways of transferring heat?

3. Ideal Gas:

What are the variables to describe the state of an ideal gas? Pressure, Volume, Temperature, and mole number.
What is the equation for ideal gas? And what is R?
What is internal energy? How does it related with temperature?
What is heat and work? What are their signs and what are their relation with P, V and T?
Graphically describe a process. (P-V, V-T and P-T graph)
What are examples of common processes of isobaric, isothermal, isochoric, and adiabatic? What do they look like graphically? What are the work, heat and internal energy in all the above process?
Thermodynamics first law: $\Delta U = Q + W$
(Please note, the text book was using the law of $\Delta U = Q - W$, with W refers the work being done by object to external world. Which is the same as the sign convention we used in class – doing work to external, loosing internal energy.)
How do we calculate them from a P-V graph or any other graph?
What are the U, Q, W for a complete cycle consisting of various processes?

4. Simple Harmonic motion and wave

Position vs time equation for simple harmonic motion.
Condition of simple harmonic motion happens.
Wave equation.
Parameters related with waves: amplitude, phase, frequency, wave velocity.

5. Everything included in your previous study guides