

Module code	SP-2304		
Module Title	Thermodynamics, Fluids and Statistical Mechanics		
Degree/Diploma	Bachelor of Science (Applied Physics)		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	10 hours/week
		Contact hours	4 hours/week
Prerequisite	None		
Anti-requisite	SP-2204 Thermodynamics, Fluids and Statistical Mechanics		
Aims			
To provide the students with an understanding on the concepts and principles of thermodynamics and fluid mechanics and its application in resolving real-life problems, and to use the probability theory to understand the average behaviour of large thermodynamic systems.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	- Explain the basic principles of Thermodynamics, Fluid Mechanics and Statistical Mechanics. - Identify situations in which these principles are applied in real-life problems.	
Middle order :	60%	- Analyse the various situations in which the principles of Thermodynamics and Fluid Mechanics are relevant. - Apply the existing theories and models in real -life applications	
Higher order:	10%	- Extend and employ the existing models for new applications - Work independently in resolving real-life problems applying these theories	
Module Contents			
<ul style="list-style-type: none"> - laws of thermodynamics, concepts of enthalpy and entropy, adiabatic and isothermal processes - thermodynamic cycles and applications, Fundamentals of statistical mechanics, kinetic models for pressure, temperature and energy, Gibb's distribution - Fermi-Dirac distribution, Bose-Einstein distribution - fluid pressure and its variations, hydrostatic forces and buoyancy, types of fluid flow, principles of conservation of mass, momentum and energy - Bernoulli's equation and its applications, dimension analysis and similitude, application of the principles of fluid mechanics in fluid machines 			
Assessment	Formative assessment	Weekly Tutorial Sessions and Discussion	
	Summative assessment	Examination: 60% Coursework: 40% - 2 Class Tests (20%) - 2 Written Individual Reports (20%)	