

Module code	SP-2305		
Module Title	Introduction to Materials Science		
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	None		
Aims			
This module aims to introduce the concepts and principles involved in the science and engineering of materials in everyday use.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	50%	<ul style="list-style-type: none"> - be able to classify materials into specific groups - explain the physical and functional properties of materials from atomic scale - explain microstructure and property relationship in materials - explain mechanical indices for characterizing materials - explain principles of strengthening mechanism in engineered materials 	
Middle order :	40%	<ul style="list-style-type: none"> - evaluate the functional requirements for materials in specific applications - evaluate and characterize the failure of materials 	
Higher order:	10%	<ul style="list-style-type: none"> - write appropriate reports for effective communication while working independently and also collaboratively in a team 	
Module Contents			
<ul style="list-style-type: none"> - Introduction to materials in modern devices - Classification of materials into groups (metals, ceramics, and polymers) - Atomistic and particulate nature of materials - Concepts of crystalline and non-crystalline solids - Electronic/atomic models and structures - Relationship between inter or intra-particulate association and optical, electrical, magnetic, and thermal properties - Crystalline defects and their effects on properties - Principles of diffusion and diffusive processes in phase changes and materials processing - Principles of strengthening mechanisms 			
Assessment	Formative assessment	In-class questions, tutorials and feedback	
	Summative assessment	Examination: 60% Coursework: 40% <ul style="list-style-type: none"> - 2 class tests (20%) - 2 assignments (20%) 	