

Module Code	TM-3301		
Module Title	Product Design Engineering		
Degree/Diploma	Bachelor of Engineering Degree		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	8 hours/week
		Contact hours	4 hours/week
Prerequisite	None		
Anti-requisite	None		
Aims			
<p>The objective of the module is to familiarise students with concepts, techniques, and tools that encourage creativity and innovation in product design. The module provides a comprehensive coverage of many areas of engineering so that students can understand the range of engineering disciplines in improving product design. Student are introduced to the creative problem solving method for product redesign techniques and success through case studies that explore issues of promising product, design for function, design for assembly, disassembly, quality, maintainability, and sustainability.</p>			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	30%	<ul style="list-style-type: none"> - describe the history and current trend of product design engineering - understand the fundamentals of the product design process 	
Middle order :	40%	<ul style="list-style-type: none"> - apply basic engineering concepts of product design to real world applications - analyse and select suitable design concepts and techniques for a specific product 	
Higher order:	30%	<ul style="list-style-type: none"> - justify the selection of concepts, techniques, and tools for product design - solve complex engineering problems through the selection of design concepts, techniques, and tools for specific products - form arguments for concepts, techniques, tools and potential benefits to society based on environmental and economic perspectives - work cooperatively in groups when reviewing case studies 	
Module Contents			
<ul style="list-style-type: none"> - Product design process and customer focus - Creative concept generation and selection - Product configuration and design for function - Design evaluation: assessing design assembly - Product evaluation: assessing design for disassembly and maintenance - Product architecture: the impact on manufacturing - Sustainable product design through reliability - Virtual product prototyping and additive manufacturing 			
Assessment	Formative assessment	Regular quizzes will be used to test and to give feedback for their learning.	
	Summative assessment	Examination: 50% Coursework: 50% <ul style="list-style-type: none"> - 2 reports (10% each) - 1 class test (10%) - 2 reports (10% each) 	