

Module code	SM-4332		
Module Title	Operations Research I		
Degree/Diploma	Bachelor of Science (Mathematics)		
Type of Module	Major Option		
Modular Credits	4	Total student Workload	10 hours/week
		Contact hours	4 hours/week
Prerequisite	SM-2203 Linear Algebra and its Applications		
Anti-requisite	None		
Aims			
The module is designed to provide the students the fundamental skills to apply scientific techniques of solving real world problems specifically with linear programming formulation.			
Learning Outcomes			
<i>On successful completion of this module, a student will be expected to be able to:</i>			
Lower order :	40%	- define assumptions of formulating a problem - formulate real world problems	
Middle order :	40%	-solve mathematical representation of real world problems with different solution techniques, and find limitations to the models	
Higher order:	20%	- interpret the solution and its usefulness with different applications - make effective decision to best design and operate a system	
Module Contents			
<ul style="list-style-type: none"> - Linear Programming. - Introduction to Linear Programming Problem (LPP); different forms of modeling of LPP; Standard or canonical form; non-degenerate and degenerate LPP; feasible solution, basic solution, basic feasible solution, feasible region; optimal feasible solutions. - Formulation of various types of problem. - Theoretical development of the Simplex method and its application. - Dual Linear Programming Problem. Transportation Problem. - Introduction to Game Theory. <p>Non-linear Programming.</p>			
Assessment	Formative assessment	Tutorial and feedback.	
	Summative assessment	Examination: 60% Coursework: 40% - 3 tests (40%)	