

## Subject Description Form

<b>Subject Code</b>	AMA548
<b>Subject Title</b>	Supply Chain Analysis
<b>Credit Value</b>	3
<b>Level</b>	5
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	<b>Pre-requisite:</b> AMA502 Operations Research Methods AMA528 Probability and Stochastic Models
<b>Objectives</b>	Enable students to appreciate the principles and methods of supply chain analysis. Emphasis is placed on the modeling and optimization techniques of formulating and solving real-world supply chain problems.
<b>Intended Learning Outcomes</b>	Upon completion of the subject, students will be able to: (a) Explain the basic concepts of supply chain managements and different supply chain models. (b) Apply mathematical and statistical knowledge and modelling techniques to formulate real-world supply chain systems. (c) Compare various inventory and ordering policies. (d) Analyze supply chain planning and scheduling problems.
<b>Subject Synopsis/ Indicative Syllabus</b>	<p>Overview of supply chain systems.</p> <p>Classical Supply Chain Replenishment Systems: Basic economic order quantity (EOQ) model, uncertain demand, time-varying demand: Wagner-Whitin Method, Silver-Meal Heuristic, Continuous and periodic review inventory control systems – (s, Q) system, (R, S) system, (s, S) system, and (R, s, S) system.</p> <p>Co-ordinated Supply Chain Systems: Information sharing, Common cycle model, Synchronized cycles model, Incentive mechanisms – profit sharing, quantity discounts, trade credit policy.</p> <p>Scheduling in Supply Chain Systems: Job-shop scheduling, Production planning.</p> <p>Network Flow Model and its Applications.</p> <p>Introduction to Logistics Models: Facility location, Vehicle routing problems, Green supply chain, and Reverse logistics.</p>
<b>Teaching/Learning Methodology</b>	The subject will be delivered mainly through lectures and tutorials. The teaching and learning approach is mainly problem-solving oriented. The approach aims at the development of mathematical and statistical techniques and how the techniques can be applied to solving and analyzing supply chain systems. Students are encouraged to adopt a deep study approach by employing high level cognitive strategies, such as critical and evaluative

	thinking, relating, integrating and applying theories to practice.					
<b>Assessment Methods in Alignment with Intended Learning Outcomes</b>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)			
			a	b	c	d
	1. Assignments/ Projects/ Test	100%	✓	✓	✓	✓
	Total	100 %				
	(a), (b), (c), and (d) will be assessed by assignment/test, and case study/project. Typical case study/project includes inventory management, delivery and transport system scheduling, and/or scheduling production process in supply chain systems.					
<b>Student Study Effort Required</b>	Class contact:					
	▪ Lecture		26 Hrs.			
	▪ Tutorial		13 Hrs.			
	Other student study effort:					
	▪ Assignment/Project		58 Hrs.			
	▪ Self-study		40 Hrs.			
	Total student study effort		137 Hrs.			
<b>Reading List and References</b>	Schroeder, R.G.	Operations Management: Decision Making in the Operations Function	Mcgraw-Hill, 1993			
	Shapiro, J.	Modeling the Supply Chain	South-Western College, 2006			
	Silver, E.A., Pyke, D., and Peterson, R.	Inventory Management and Production Planning and Scheduling	Wiley, 1998			