

Subject Description Form

Subject Code	AMA104
Subject Title	Foundation Mathematics II for Science and Engineering
Credit Value	3
Level	1
Pre-requisite / Co-requisite/ Exclusion	Pre-requisite: Foundation Mathematics I for Science and Engineering (AMA103)
Objectives	This is a bridging subject to provide students with an integrated knowledge required for the understanding and application of mathematical concepts and techniques. Students can develop their own ability of logical thinking and extend their knowledge to solve problems different from the examples.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: <ol style="list-style-type: none"> 1. apply the concepts of convergence and divergence of series and to apply Taylor's expansions in solving numerical problems; 2. use the methods in matrices and linear equations in problem solving; 3. apply the techniques of statistics to model and solve problems in science and engineering.
Subject Synopsis/ Indicative Syllabus	<p><i>Infinite series:</i> Convergence of series, including tests for convergence; power series; Taylor expansions of functions; applications.</p> <p><i>Linear Algebra:</i> Matrices and determinants; Systems of linear equations.</p> <p><i>Probability and Statistics:</i> Descriptive statistics; Frequency distribution; Mean, median and mode; Variance and standard deviation; Probability; Discrete and continuous random variables; Normal distribution.</p>
Teaching/Learning Methodology	The subject will be delivered mainly through lectures and tutorials. The lectures aim to provide the students with an integrated knowledge required for the understanding and application of mathematical concepts and techniques. Tutorials will mainly be used to develop students' problem solving ability.

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
			1	2	3
	a. Assignment and Mid-term Test	40%	✓	✓	✓
	b. Final Examination	60%	✓	✓	✓
	Total	100 %			
<p>Continuous Assessment comprises of assignments and a mid-term test. A final examination is held at the end of the semester.</p> <p>Questions used in assignments, mid-term test and examination are used to assess the student's level of understanding of the basic concepts and their ability to use mathematical techniques in solving problems in science and engineering.</p> <p>To pass this subject, students are required to obtain Grade D or above in both the Continuous Assessment and the Examination components.</p>					
Student Study Effort Expected	Class contact:				
	▪ Lecture		28 Hrs.		
	▪ Tutorial		14 Hrs.		
	Other student study effort:				
	▪ Assignments		20 Hrs.		
	▪ Self-study		58 Hrs.		
	Total student study effort		120 Hrs.		
Reading List and References	<u>Textbook:</u>				
	Ross, S.	A First Course in Probability 8 th edition	Prentice Hall 2009		
<u>References:</u>					
Hung, K.F. & Pong, G.T.Y.	Foundation Mathematics Revised edition	McGraw Hill 2008			