Bil.	**Title**		
1.	Subject	Trigonometry	
2.	Subject Code	KE013	
3.	Status	Major	
4.	Credit Hours	Two (2) [2(1.5L +1T) x 14 weeks]	
5.	Semester and Year	Semester 1	
6.	Pre-requisite	-	
7.	Mode of Delivery	Lectures and Tutorials	
8.	Assessment	Assignments 20% Class Test 20% Final Examination 60%	
9.	Objectives	The unit aims to provide a first level course in engineering mathematics and to introduce students to a good foundation in trigonometric functions and identities. The student's knowledge of Trigonometry is extended. The unit is taught via a combination of lectures and tutorials.	
10.	Learning Outcomes	Upon the completion of the unit, the students will be able to: 1. Solve a variety of trigonometrical equations making use of trigonometrical identities where appropriate. 2. Use the basic skills of trigonometric manipulation. 3. Appreciate the periodic nature of trigonometrical functions.	
11.	Details of subject	Contents	Hours
		Chapter 1: Angles and Arcs Degree measurement. Radian measurement. Arc length and area.	1.5L 1T
		Chapter 2: Right Angled Triangles Pythagoras Theorem. Sine rule. Cosine rule. Definition of Sine, cosine, tangent, secant, cotangent and cosecant on right-angled triangles. Evaluation of Sine, cosine, tangent, secant, cotangent and cosecant.	4.5L 3T
		Chapter 3: Area of Triangles Area of triangles via cartesian coordinates	3L 2T
		Chapter 4: Trigonometric Identities Pythagorean. Compound angle. Double angle. Factor formula. The R sin (t + e) formula and its use in solution of equations (e.g. Adding curves of A sin t and B cos t)	4.5L 3T

		Chapter 5: Trigonometric functions Definition of sine, cosine, tangent, secant, cotangent and cosecant as coordinates on a unit circle on all four quadrants. Evaluation of sine, cosine, tangent, secant, cotangent and cosecant on a unit circle. Graphs of sin x and cos x over one cycle. Graphs of sine, cosine and tangent to emphasise their periodic nature. General solution to equations of the form sin x = a, etc. Sketch/identify graphs of the form y = a sin bt. Definition of Phase angles. Solution of A sin (bt - k) type of equations.	7.5L 5T
		Total	L = 21 hrs T = 14 hrs 35 hours
12.	Main Reference	1. Anton, H. (2000). *Calculus* (8th ed.). John Wiley and Sons.	
13.	Additional Reference	1. Stroud, K. A. (1998). *Engineering Mathematics* (4th ed.). Macmillan Press. 2. Berry, J., & Wainwright, P. (1991). *Foundation Mathematics for Engineers*. UK: Palgrave Macmillan.	
14.	Practical/Lab Classes	Not applicable	