MATHEMATICS II
BEG 102SH

YEAR: I   **SEMESTER: II**

Teaching Schedule Hours/ Week			Examination Scheme						Total Marks
			Final				Internal Assessments		
			Theory		Practical		Theory	Practical	
L	P	T	Duration	Marks	Duration	Marks			
3	-	2	3	80	-	-	20	-	100

Course Objectives: The basic objective of the course is to provide a sound knowledge of vectors, 3-D Analytical geometry, Infinite series and ordinary differential equations

Course Content:

1.0 Analytic Geometry of 3-D: (12hrs)
Planes, Straight lines, Standard equation of sphere, cylinder and cone

2.0 Infinite Series: (6 hrs)
Infinite Series and sequences, convergence, ratio, root and Integral tests, absolute convergence, Power series, radius of convergence

3.0 Plane Curves and Polar Coordinates: (4 hrs)
Planes curves, parametric equations, polar coordinates, integral in the polar coordinates

4.0 Vector Calculus: (8 hrs)
Differentiation and Integration of vectors, gradients, divergence and curl

5.0 Differential Equations: (15 hrs)
First order differential equation, variable separation, homogeneous, linear and exact. Second order Differential equations, linear equations with constant coefficients, homogeneous equation with Constant coefficients, general solutions, initial value problems, non-homogeneous equations, Solutions in series, Legendre, Bessel equations

Recommended books:

- Three- dimensional Geometry-Y.R Sthapit and B.C Bajracharya

- 2. Algebra   - G. D. Pant

- A Text Book of Vector Analysis- M.B Singh and B.C Bajracharya

- Integral Calculus and Differential Equations - G.D. Pant & G.S. Sth.

- 5. Calculus and Analytic Geometry- Thomas & Finney,   Narosa Publication House, India.

- Advanced Engineering Mathematics – E Kreyszig, 5th Edition, Wiley, New York