MATHEMATICS - II
BEG 107 SH

Year: I   **Semester: II**

Teaching schedule Hours/Week					Examination Scheme				Internal Assessments		Total marks
					Final						
					Theory		**Practical**		**Theory Mark**	**Practical Mark**	
Cr.hr	L	Tu	P	T	Duration	Mark	Duration	Mark			
3	4	2		6	3 hrs	80	-	-	20	-	100

Course Objectives:
1. To provide the concept of Vector Differentiation and Integration, Solution of Differential Equations, Analytical three Dimensional Geometry and Basic Concept of Statistics.

Course Topics:
1. **Differential Equations:** First order differential equation, variable separation, homogeneous, linear and exact, second order differential equations, linear equations with constant coefficient, homogeneous equation with constant coefficients, general solutions, initial value problems, non-homogeneous equations, solution of differential by Power Series Method.   - **12 hrs**.
2. **Infinite Series:** Infinite series and sequences; Convergence, ratio, root and integral tests, absolute convergence, power series radius of convergence   - **6 hrs**.
3. **Plan curves and polar coordinates:** Plane curves, parametric equations, polar coordinates, integral in the polar coordinates.   - **5 hrs**.
4. **Vector Calculus:** Differential and Integration of vectors, gradients, divergence and curl.   - **6 hrs**.
5. **Analytic geometry of 3-D:** Planes, Straight lines, Standard equation of sphere and general concept of cone and cylinder.   - **8 hrs.**
6. **Descriptive Statistics**: Introduction, Definition, objective, Limitation of statistics. Data collection method and techniques. Presentation and analysis of data (include Mean, Median, mode, Standard deviation, and simple correlation and regression). **8 hrs**.

Total : 60 hrs.

Recommended books:
1. Three-dimensional Geometry   -Y.R. Sthapit and B.C. Bajracharya.
2. Algebra   - G.D. Pant
3. A text book of vector Analysis   - M.B. Singh and B.C. Bajracharya
4. Integral Calculus and Differential Equations   - G.D. Pant & G.S. Shrestha
5. Calculus and Analytic Geometry   -Thomas and Finney, Narosa
   Publication House, India.
6. Advanced Engineering Mathematic   - E. Kreyszig, 5th Edition. Wilcy, New York.
7. Our Engineering Mathematics (Vol.-II)   - S.P. Pradhananga, N.B. Khatakho,
   Bidhyarthi Publication
8. Probability and statistics for Engineering   -Arjun Kumar Gaire

MATHEMATICS - II
BEG 102 HS

Year: I   Semester: II

Theory: 50

1. Assessment Examination
   (Internal Evaluation) ....Full Marks: 20
   Pass Marks: 8
   Time: 3 hrs.

2. Final Examination ....Full Marks: 80
   Pass Marks: 32
   Time: 3 hrs.

Marking Scheme

Topics	Weightage	Questions	Remarks
Differential Equations	25	5 Questions out of 6	Group A
Analytical Geometry 3D	20	4 Questions out of 5	Group B
Infinite Series	15	3 Questions out of 4	Group C
Descriptive Statistics	10	4 Questions out of 5	Group D
Plane Curve and Polar Coordinate	10		
Total	**80**	**16 out of 20**	