MTH 121.3 Engineering Mathematics II (3 – 2 – 0)
Evaluation:

	Theory	Practical	Total
Sessional	50	-	50
Final	50	-	50
Total	100	-	100

Course Objective:
The main objective of this course is to provide the basic knowledge of three dimensional geometry, Calculus of several variables, differential equation, Laplace transform. After the completion of this course, students can use their knowledge in their professional course.

Chapter	Content	Hrs
1	**Three Dimensional geometry :** I. Review of direction cosines, direction ratios, Planes II. Straight lines III. Sphere and its tangent plane IV. Cone and cylinder(definitions, standard equation only)	12
2	**Partial derivatives and Extreme values for function of two or more variables:** I. Definitions, total derivatives, Chain rule, Eulers theorem for function of two or three variables, its application II. Extreme values for two or more variables	6
3	**Laplace transformation:** I. Definition II. Derivation of formulae III. Application of laplace transform, IV. Inverse laplace transform V. Convolution theorem on laplace transform and application	8
4	**Differential equation:** I. Order and degree of differential equation II. First order differential equation with their solutions (separable, reducible to separable form exact ness condition), linear and Bernoulies equation) III. Second order differential equation (Homogeneous and non homogeneous) with constant coefficient as well as variable coefficients. IV. Initial value problem. V. Power Series solution VI. Legendres and Bessel equation with their solution, properties and application	13
5.	**Double Integral:** I. Definitions, Fubinis theorems (statement only) II. Change of order, III. Change Cartesian integral to equivalent polar integral IV. Area and volume by double integral	6

Text Books:

1. Engineering Mathematics II: Prof. D.D Sharma (Regmi), Toya Narayan Paudel, Hari Prasad Adhikari, Sukunda publication, Bhotahity, Kathmandu.
2. Advance Engineering Mathematics : Erwin Kreyszig.

Reference Books:

1. Calculus with analytical geometry: E.W. Swokoswski.
2. Algebra: G.D Pant
3. Three Dimensional Geometry: Y.R Sthapit, B.C Bajracharya
4. Calculus and analytical geometry: George B Thomas, Ross L. Finney