Semester - II

MT 121-Analytical Geometry

Unit 1:   Analytical Geometry of Two Dimension   (10 Lectures)
1.1.   Change of axes: translation and rotation.
1.2.   Conic Sections: General equation of second degree in two variables
1.3.   Reductionto standard form, center of conic, nature of conic.

Unit 2:   Planes   (10 Lectures)
2.1.   Direction cosines and direction ratios,Equation of plane, Normal form, Transform
        to the normal form, Plane passing through three non-collinear points, Intercept
        form, Angle between   two   planes.
2.2.   Distance of a point from a plane, Distance between parallel planes, Systems of
        planes, two sides of planes, Bisector planes.

Unit 3:   Lines in three dimension   (8 lectures)
3.1.   Equations of a line in Symmetric and unsymmetrical forms, Line passing through
        two points, Angle between a line and a plane.
3.2.   Perpendicular distance of a point from a plane, Condition for two lines to be
        coplanar (without proof).

Unit 4:   Sphere   (8 Lectures)
4.1.   Equation of a sphere in different forms, plane section of a sphere.
4.2.   Equation of a circle, sphere through a given circle
4.3.   Intersection of a sphere and a line, Equation of tangent plane to sphere.

Text Books:
1.   Analytic Geometry in Two and Three Dimensions : Von Steuben
Unit1: Sec, 8.4
2.   Analytical Solid Geometry: Shantinarayan; S. Chand and Company
        Ltd, New Delhi, 1998.
        Unit2: Sec. 1.6,1.7, Sec. 2.1 to 2.7
            Unit3: Sec. 3.1 to 3.4, 3.7
            Unit4: Sec. 6.1 to 6.6.

Reference Book:
1.   P.K.Jain and Khalil Ahmad,A Text Book of Analytical Geometry of Three
        Dimensions, Wiley Estern Ltd. 1999.