UNIVERSITY OF MADRAS
B.Sc. DEGREE COURSE IN MATHEMATICS
SYLLABUS WITH EFFECT FROM 2020-2021

BMA-CSC05

CORE-V: ANALYTICAL GEOMETRY
(Common to B.Sc. Maths with Computer Applications)

Inst.Hrs : 5   **YEAR: II**
Credits : 4   **SEMESTER: III**

Learning outcomes:

Students will acquire Knowledge
- To analyze characteristics and properties of two and three dimensional geometric shapes.
- To develop mathematical arguments about geometric relationships.
- In Geometry and its applications in real world.

UNIT I
Chord of contact – polar and pole,- conjugate points and conjugate lines – chord with (x_1, y_1) as its midpoint – diameters – conjugate diameters of an ellipse.- semi diameters- conjugate diameters of hyperbola
Chapter 7: Sections 7.1 to 7.3 , Chapter – 8 Section 8.1 to 8.5.

UNIT II
Polar coordinates: General polar equation of straight line – Polar equation of a circle on
$A_1 A_2$ as diameter, Equation of a straight line, circle, conic – Equation of chord, tangent, normal. Equations of the asymptotes of a hyperbola.
Chapter 10 : Sec 10.1 to 10.8.

UNIT III
Introduction – System of Planes - Length of the perpendicular – Orthogonal projection.
Chapter 2 Sec 2.1 to 2.10.

UNIT IV
Representation of line – angle between a line and a plane- co-planar lines- shortest distance 2 skew lines- Length of the perpendicular- intersection of three planes
Chapter 3 :Sec 3.1 to 3.8.

UNIT V
Equation of a sphere - general equation - section of a sphere by a plane - equation of the circle - tangent plane - angle of intersection of two spheres- condition for the orthogonality - radical plane.
Chapter 6 : Sec 6.1 to 6.8.

Contents and treatment as in
1. Analytical Geometry of 2D by P.Durai Pandian- Muhil publishers for Unit – 1 and 2
2. Analytical Solid Geometry of 3D by Shanthi Narayan and Dr.P.K. Mittal-S.Chand& Co. Pvt.Ltd.- for Unit – 3 to 5

Reference :

1. Analytical Geometry of Two Dimension by T. K. Manikavachakam Pillai and S. Narayanan.S.Viswanathan (Printers and Publishers) Pvt. Ltd.

2. Analytical Geometry of Three Dimension by T. K. Manikavachakam Pillai and S. Narayanan.S.Viswanathan (Printers and Publishers) Pvt. Ltd.

e-Resources:

1. http://mathworld.wolfram.com.

2. http://www.univie.ac.at/future.media/moe/galerie.html