20BSM201T					Analytical Geometry (A Group)					
Teaching Scheme					Examination Scheme					
L	T	P	C	Hrs. / Week	Theory			Practical		Total Marks
					MS	ES	IA	LW	LE/Viva	
3	1	0	4	4	25	50	25	--	--	100

COURSE OBJECTIVES

- To explain the need of different coordinate systems.
- To enable students to visualize three dimensional objects.
- To acquaint the students with the guiding curves of 3D solids.
- To make students understand the basics of central coincidences.

UNIT 1 INTRODUCTION TO 3D GEOMETRY **09 Hrs.**

Line in plane, Line in Space, Circle, Curvilinear coordinates, Spherical and Cylindrical coordinates.

UNIT 2 THE SPHERE **11 Hrs.**

Definition and equation of a sphere, Plane section of a sphere, Intersection of two spheres, Intersection of a sphere and a line, Power of a point, tangent plane, Plane of contact, Polar plane, Pole, Angle of Intersection of two spheres, Radical plane, Co-axial system of spheres.

UNIT 3 CONE AND CYLINDER **10 Hrs.**

Definition and equation of a cone, Vertex , Guiding curve, Generators, Three mutually perpendicular generators, Intersection of a line with a cone, Tangent line and tangent plane, Reciprocal cone, Right circular cone, Definition and equation of a cylinder, Right circular cylinder, Enveloping cylinder.

UNIT 4 CONICOIDS **10 Hrs.**

General equation of second degree, Central conicoids, Tangent plane, Director sphere, Normal, Plane of contact, Polar plane, Conjugate plane and conjugate points.

40 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 – Identify the role of various coordinate systems in the practical world.
CO2 – Understand the formation of various solids- sphere, cone and cylinder.
CO3 – Apply the concepts of geometry to solids.
CO4 – Distinguish various types of cylinders and explain the significance of each.
CO5 – Appraise the knowledge of calculus to further rate each solid.
CO6 – Construct solids of regular shapes to suit practical needs.

TEXT/REFERENCE BOOKS

1. Shanti Narayan, A Text book of Analytical Geometry, S. Chand, & company, New Delhi.
2. H. Burchared Fine and E. D. Thompson, Coordinate Geometry, The Macmillan Company.
3. P. K. Jain and Khalil Ahmed, A textbook of Analytical Geometry, New Age, Delhi.
4. John Bird, Engineering Mathematics, 5th ed., Oxford, 2005.

END SEMESTER EXAMINATION QUESTION PAPER PATTERN

Max. Marks: 100 **Exam Duration: 3 Hrs**

Part A : 6 questions of 4 marks each	24 Marks
Part B: 6 questions of 8 marks each	48 Marks
Part C: 2 questions of 14 marks each	28 Marks