

SOLID GEOMETRY

Semester	Subject Code	Category	Lecture		Theory		Practical	Credits
II	21CMA 2B	Core	Hrs/week	Hrs/Sem	Hrs/week	Hrs/Sem	0	4
			4	60	4	60		

COURSE OBJECTIVES:

The students will be able to

- Understand the knowledge in various concept of Analytical Solid Geometry.
- Learn about Plane, Straight Line, Sphere, Cone and Cylinder

COURSE OUTCOMES:

On the successful completion of the course, the students will be able to

CO Number	CO Statement	Knowledge Level (K1-K4)
CO1	Study the concept of plane and apply the knowledge in solving problems	K1
CO2	Learn the concept of straight line	K3
CO3	Find the equation of sphere	K3
CO4	Discuss the importance of cone	K2
CO5	Apply the concept of cylinder in various problems	K4

Knowledge Level: K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze.

MAPPING OF COURSE OUTCOMES

COS	PO1	PO2	PO3	PO4	PO5	PO6
CO1	S	M	S	S	S	S
CO2	S	M	S	S	S	S
CO3	S	S	M	M	M	M
CO4	S	M	M	M	M	M
CO5	S	S	S	M	S	M

S- Strong M – Medium L – Low

UNIT I: PLANE**12Hours**

General equation of a plane – Equation of a plane in the normal form – Angle between planes – Plane through three given points – Equation of a plane through the line of intersection of two planes.

UNIT II: STRAIGHT LINE**12Hours**

Symmetrical form of a straight line – Image of a point with respect to a plane – Image of a line with respect to a plane – Length and equation of the shortest distance between two skew lines - Coplanar lines.

UNIT III: SPHERE**12Hours**

Equation of the sphere – Length of the tangent – Tangent plane – Section of a sphere by a plane – Orthogonal spheres – Equation of a sphere through a given circle.

UNIT IV: CONE**12Hours**

Equation of a cone with a given vertex and a given guiding curve - Equation of a cone with its vertex at the origin - Condition for the general equation of the second degree to represent a cone - Right circular cone – Enveloping cone - Tangency of a plane to a cone.

UNIT V: CYLINDER**12Hours**

Equation of a cylinder with a given generator and a given guiding curve - Right circular cylinder - Enveloping cylinder – Enveloping cylinder as a limiting form of an enveloping cone.

DISTRIBUTION OF MARKS: PROBLEMS 75 % AND THEORY 25%**TEXT BOOKS**

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	S.G.Venkatachalapathy	Analytical Geometry	Margham Publications	2008.(For Units I,II and III)
2.	P.DuraiPandian	Analytical Geometry of Three Dimensions	Mugil Publishers	Revised Edition, 1983

REFERENCE BOOKS

S.NO	AUTHORS	TITLE	PUBLISHERS	YEAR OF PUBLICATION
1.	P.R.Vittal	Vector Analysis, Analytical Solid Geometry, Sequence and Series	Margham Publications	3 rd Edition, 2003.(For Units IV and V)
2.	S. G. Venkatachalapathy	Analytical Geometry	Margham Publications	1 st Edition,

WEB RESOURCES

1. <https://www.brainkart.com/article/Three-Dimensional-Analytical-Geometry-6453>
2. <https://www.intmath.com/plane-analytic-geometry/intro.php>

TEACHING METHODOLOGY

1. Class room teaching
2. Giving Assignments for all units
3. Discussions
4. Home Test
5. PPT presentation

SYLLABUS DESIGNERS

1. Dr.N. Nithyapriya, Assistant Professor of Mathematics
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