SRM UNIVERSITY
FACULTY OF SCIENCE AND HUMANITIES
DEPARTMENT OF MATHEMATICS

B.Sc., MATHEMATICS (SEMESTER I)

UMA15102 ANALYTICAL GEOMETRY

LESSON PLAN

Lect. No.	Lesson Schedule	Learning outcomes	Cumulative hours
UNIT I – CONICS			
L.1.1	Equation of a conic in Polar coordinates	Students will be able to learn about conics in polar coordinates.	2
L.1.2	Equation of Directrix of a conic		5
L.1.3	Equation of a Chord to the conic		8
L.1.4	Equation of tangent and normal to the conic		10
L.1.5	Simple problems		12
UNIT II – STRAIGHT LINES			
L.2.1	Equation of Straight lines	Students will be able to understand about straight lines in three dimension.	14
L.2.2	Perpendicular drawn to a line		16
L.2.3	Angle between two lines and angle between a line and a plane		18
L.2.4	Coplanarity of straight-line		21
L.2.5	Equation of shortest distance between two skew lines-simple problems		24
UNIT III - SPHERE			
L.3.1	Standard equation of sphere	Students will be able to differentiate between sphere and cirle.	26
L.3.2	Results based on the properties of a sphere		28
L.3.3	Tangent plane to a sphere at a point		30
L.3.4	Plane section of a sphere		33
L.3.5	Equation of a sphere through the circle		36
UNIT IV – CONE AND CYLINDER			
L.4.1	Equationof a Cone whose vertex is at the origin	Students will be able to have knowledge about cone and cylinder	38
L.4.2	Envelope cone of a sphere		40
L.4.3	Right circular cone		43
L.4.4	Equation of a cylinder		46
L.4.5	Right circular cylinder		48

UNIT V - CONICOIDS			
L.5.1	Nature of a conicoid	Students will be familiar with conicoides	50
L.5.2	Standard equation of central conicoid		52
L.5.3	Tangent plane of a conicoid		55
L.5.4	Condition for a plane to touch a conicoid		58
L.5.5	Director Sphere and Director plane		60

TEXT BOOKS

1. P. Durai Pandian, Text book of Analytical Geometry-3 Dimensional, Asia, 1968.
2. N.P. Bali, Solid Geometry, Laxmi Publications (P) Ltd, 2005.

REFERENCES

1. S.Narayanan, T.K.Manickavasgam Pillai, Calculus-I & II, Viswanathan Publications, 2004.
2. M.L. Khanna, Solid Geometry, Jai Prakash Nath & Co Publishers, Meerut,2008.
3. P.R.Vittal, Coordinate Geometry, Margham Publishers, 2003.
4. G.B.Thomas & R.L.Finney, Calculus & Analytic Geometry, Addison Wesley, Mass (Indian Print), 1998.

Total Internal marks: 50

Internal marks split up:
Cycle Test1 : 10 Marks
Cycle Test2 : 10 Marks
Model Exam : 20 Marks
Surprise Test : 5 Marks
Attendance : 5 Marks