

**PROGRAMME NAME: : B.A PROGRAMME**

**COURSE NAME : ANALYTIC GEOMETRY AND APPLIED ALGEBRA**

**SEMESTER DURATION: JULY TO DECEMBER**

<b>Week</b>	<b>Topic(s)</b>	<b>Teaching Methodology Adopted/ Continuous Internal Evaluation</b>
1.	Techniques for sketching parabola with problem solving.	Presentations
2.	Techniques for sketching Ellipse with problem solving.	Lectures/Discussions
3.	Techniques for sketching hyperbola with problem solving.	Lectures
4.	Reflection properties of parabola, Ellipse and Hyperbola.	Presentations/lectures
5.	Classification of quadratic equation representing lines, Parabola, Ellipse and Hyperbola, Rotation of axis second degree equations.	Case Study/Practicals

6.	Rectangular coordinates in 3-space with problems on Spheres.	Practicals
7.	Rectangular coordinates in 3-space with problems on Cylindrical surfaces cones.	Lectures
8.	Vectors in coordinate system, Vectors viewed geometrically.	Demonstration/Lectures
9.	Vectors determined by length and angle, Dot product, Cross product and their geometrical properties.	Lectures
10.	Parametric equations of lines in plane.	Practicals
11.	Parametric equations of lines in 3-space.	Practicals
12.	Latin squares, Table for a finite group as a Latin square, Latin squares as in design of experiments.	Case study/Lectures

13.	Mathematical models for matching jobs, Spelling checker, Network reliability, Street surveillance, Scheduling meetings.	Assignments
14.	Interval graph modelling and Influence model, Pitcher pouring puzzle.	Assignments

**Course Objectives:** The course aims at identify curves and applying mathematical models in daily life problems studying geometric properties of different conic sections. The purpose of this course is to strengthen the mathematical skill along with the algebraic skills and concepts to assure success in the Algebra.

**Course Learning Outcomes:** The course will enable the students to:

- i) Identify and sketch curves.
- ii) Use three dimensional geometry using vectors.
- iii) Understand mathematical models to relate mathematics with daily life problems.