

Class – XI

Lesson Plan

TOPIC: CONIC SECTIONS

Brief Description: In this Chapter, we shall study about different curves, viz., circles, ellipses, parabolas and hyperbolas. These curves are in fact, known as *conic sections* or more commonly *conics* because they can be obtained as intersections of a plane with a double napped right circular cone. These curves have a very wide range of applications in fields such as planetary motion, design of telescopes and antennas, reflectors in flashlights and automobile headlights, etc.

UN Sustainable Goals to be achieved (if any): Quality Education

Objectives: (put Bloom's level)

I - Specific Objectives

Students will be able to understand:

- ❖ Sections of a Cone
- ❖ Equation of Circle
- ❖ Definition, Focus, Latus rectum and *directrix* of parabola and Equation of Parabola
- ❖ Definition, Major axis, minor axis, Focus, Latus rectum and *directrix* of Ellipse and its equation
- ❖ Definition, Transverse axis, Conjugate axis, Focus, Latus rectum and *directrix* of Hyperbola
- ❖ and its equation

II - Behavioral Objectives

Through this chapter students will develop

1. Imagination skill
2. Creativity

Process / Activities:

Activity (to introduce the lesson)

For introducing the chapter (Conic Sections), students will be asked to:

1. To cut a double napped cone at different angles to see different conic structures

Activity (to support learning)

Students will be asked to conduct an activity in the classroom regarding:

To construct an ellipse when two fixed points are given.

Skills (as per subject)

- ❖ Imagination
- ❖ Observation
- ❖ Understanding
- ❖ Problem solving

Digital Content to be used:

PPT/Video will be shown to students, so that students would be able to understand the concept of circle, ellipse, parabola, hyperbola in detail

Exercise for Notebook (put Bloom's level)

- ❖ Glossary
- ❖ R.T.C (Reference to Context)
- ❖ Typology of questions
- ❖ Value based question

Expected Learning Outcomes

Students would be able to learn:

- ❖ Sections of a Cone
- ❖ Definition, Focus, Latus rectum and *directrix* of parabola
- ❖ Equation of circle and parabola
- ❖ Definition, Major axis, minor axis, Focus, Latus rectum and *directrix* of Ellipse
- ❖ Equation of Ellipse
- ❖ Definition, Transverse axis, Conjugate axis, Focus, Latus rectum and *directrix* of Hyperbola
- ❖ Equation of Hyperbola
- ❖ Imagination skill
- ❖ Creativity

Assessment: (put Bloom's level)

Q1. Using distance concept derive equation of circle with centre (0,2) and radius 2 (PS)

Q2. Find the equation of the parabola with focus (2,0) and directrix $x = -2$. (US)

Q3. Find the area of the triangle formed by the lines joining the vertex of the parabola $x^2 = 12y$ to the ends of its latus rectum. (MS)

Q4. A rod of length 12 cm moves with its ends always touching the coordinate axes. Determine the equation of the locus of a point P on the rod, which is 3 cm from the end in contact with the x -axis. (R)

Q5. A man running a racecourse notes that the sum of the distances from the two flag posts from him is always 10 m and the distance between the flag posts is 8 m. Find the equation of the posts traced by the man. (AEL)

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