

## Class – XII

### Lesson Plan 2

#### Topic: Continuity and Differentiability

#### Brief Description of the lesson:

After studying this lesson, students will be able to:  
define continuity of a function at a point, state the condition for continuity, define the continuous functions, state the relationship between continuity and differentiability, to differentiate various types of functions viz composite implicit, inverse trigonometric exponential and logarithmic functions and to find second order derivatives.

#### **Objectives:**

##### **I - Specific Objectives:**

To enable the students to understand:

S1 continuity and differentiability (**Knowledge/Recalling**)

S2 change in one variable when the other variable changes (i.e. meaning of differentiation)

(**Understand/Classifying**)

S3 Differentiation of trigonometric function, logarithmic function, exponential function, inverse of trigonometric function, implicit functions, parametric form and higher order derivatives

(**Apply/Implementation**)

##### **II - Behavioural Objectives:**

By understanding and solving variety of problems, students will attain following behavioural objectives:

1) B1 To develop specific problem-solving approach required in the topic through a lot of practice (**Apply/Implementation**)

2) B2 Develop the practical problem-solving skills by learning and applying different concepts learnt in variety of problems. (**Apply/Implementation**)

#### Process / Activities:

1) ACT1 To understand the concept of continuity, with the help of graphs of different functions  $f(x) = \sin x$  and  $f(x) = [x]$ , where  $[ \ ]$  is greatest integer function.

(**Understand/Classifying**)

#### Skills:

1) Analysis

2) Problem solving

3) Application

#### Assessment:

Assessment of activity will be done based on decided rubrics:

A1 Assessment of activity will be done based on the following questions

(a) Plot the graph of  $y = \cos x$

(b) Plot the graph of  $y = \{x\}$ , where  $\{ \}$  is fractional part function

**Expected Learning Outcomes:**

The students would be able to efficiently deal with:

- 1) continuity and differentiability of a function (**Knowledge/Recalling**)
- 2) differentiating trigonometric function, logarithmic function, exponential and parametric function, inverse of trigonometric function (**Apply/Implementation**)
- 3) higher order derivatives (**Understand/Interpret**)
- 4) critical thinking through plotting of graph (**Synthesis**)

**Placements of Objectives, Instructional Activities and Assessment:**

<b>Topic/Start Date/Assessment</b>					
<b>Knowledge</b>	<b>Understanding</b>	<b>Application</b>	<b>Analysis</b>	<b>Synthesis</b>	<b>Evaluation</b>
S1	S2	S3	A1		
	ACT1	B1			
		B2			