

## **Lesson Plan – September, October**

Group: 12th

Subject: Mathematics

Topics: Integration (Chapter 30), Definite Integrals (Chapter 31),  
Differential Equations (Chapter 32)

Date: September 1<sup>st</sup> – October 10<sup>th</sup> 2020

### **Instructional Objectives:**

- Understand that integration is an inverse operation of differentiation
- Learn properties and techniques of integration to integrate various expressions
- Geometrically understand the concept of a definite integral as a limit of a summation
- Learn properties and techniques to evaluate definite integrals
- Use definite integrals to find the area bounded by given curves
- Understand the definition and use of a differential equation
- Form a differential equation from a given situation
- Solve simple differential equations

### **Teaching Process:**

#### **Background Context:**

Using the background knowledge and methods learnt for differentiation, the student understands the concept of Integration as a process of “antidifferentiation”.

#### **Teaching:**

With the mixed-mode learning of offline work and online classes, the student will be assigned work to read up and solve, before coming to class. Challenging problems and specific doubts will be cleared during the online classes.

Zoom will be used for online classes. The Zoom whiteboard application will be used to solve problems and clear doubts in class. This application allows all participants to annotate and hence allows collaborative on-screen working. For more detailed working out, information will be typed out in MS Word or Powerpoint and shared with the student during online class, or via email.

### **Resources required:**

**Textbooks:**

- The NIOS Mathematics Textbook 2 for Senior Secondary classes will be used as the main textbook
- ISC Mathematics Book II, for Class XII (O.P. Malhotra et. al.) will be used as an additional reference by the teacher for problems

**Software Tools:**

- Geogebra will be used to graphically show various functions (to help understand the idea of “area under the curve”)

**Online Resources:**

- Essence of Calculus youtube series by 3Blue1Brown (<https://www.youtube.com/watch?v=WUvTyaaNkzM&t=3s>) provides high quality visual aids to understand the meaning of differentiation and integration, the two tools of Calculus

**Evaluation tools:**

Understanding of the topic will be evaluated through classroom interactions, homework corrections and a written test at the end of the topic

**Modifications: Special Needs**

Not required for the student this year

**Suggestions:**

None

**Self-Reflection:**

To be filled post-lesson for the teacher’s reference.