Class – XII
Lesson Plan 6

Topic: Matrices and Determinants
Brief Description of the lesson:

In this topic students will be able to learn that matrix owes their origin to various linear problems, the most important part of which consists in the nature of solutions of system of simultaneous linear equation, its importance in real life situations. Students will be able to learn basics of determinants, some basic properties and problems related to determinants.

Objectives:

I - Specific Objectives:

Students will be able to:
S1 define and identify matrices (**Understand/Classifying)**
S2 describe the different types of matrices and their properties. (**Understand/Classifying)**
S3 perform basic operations on matrices, such as addition, subtraction, multiplication, and transposition.**(Application/Implementation)**
S4 distinguish between the matrices and determinants **(Analysis)**
S5 understand the meaning of determinants **(Understand/Interpreting)**
S6 calculate the determinant of a square matrix of order 2 x 2 and 3 x 3 **(Application/Implementation)**
S7 construct the linear equations from the given problem based on daily life situation. **(Synthesis)**
S8 apply matrices and determinants to solve systems of linear equations using inverse of a matrix, **(Application/Implementation)**

II - Behavioral Objectives:
By understanding and solving variety of problems, students will attain following behavioral objectives:
They will be able to:
B1 After completion of chapter, students will be able to visualize class room arrangement in terms of matrix/determinants and also would develop a skill of systematic approach. (**Understand/Classifying)**
B2 Develop the practical approach to convert the real life situation in the form of linear equations. **(Application/Implementation) (Synthesis)**

Process / Activities:
ACT1 Will ask students to take a hypothetical situation and to frame a linear equation in two variables based upon it **(Understanding/Interpreting) (Synthesis)**

Skills:

(i) Computation
(ii) Synthesis
(iii) Analysis
(iv) Application

Assessment:

Assessment of activity will be done on the basis of following question:

A1 (a) The upward speed v (t) of a rocket at time t is approximated by v (t) = at2 + bt + c, $0 \leq t \leq 100$ where a, b, and c are constants. It has been found that the speed at times t = 3, t = 6, and t = 9 seconds are respectively, 64, 133, and 208 miles per second respectively. Find the speed at time t = 15 seconds. (Use matrix inversion method.) **(Application/Implementation)**

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Expected Learning Outcomes:

Students would be able to:
1) explain the concepts of matrices and determinants in their own words. Communicate their understanding of matrices and determinants to others. (**Understanding)**
2) understand different types of matrices**(Understanding/Classifying)**
3) learn matrix algebra and apply it to various situations. **(Application/Implementation)**
4) apply the concept that given matrix can be represented in the form of sum of their symmetric and skew – symmetric **(Application/Implementation)**
5) distinguish between the between the matrices and determinants. **(Analysis)**
6) calculate the determinant of a square matrix. (**Understanding)**
6) construct the linear equations from the daily life situations. **(Synthesis)**
7) apply matrices and determinants to solve real-world problems. **(Application/Implementation)**

Placements of Objectives, Instructional Activities and Assessment:

Topic/Start Date/Assessment					
Knowledge	**Understanding**	**Application**	**Analysis**	**Synthesis**	**Evaluation**
	S1	S3	S4	S7	
	S2	S6		B2	
	S5	S8		ACT1	
	B1	B2			
	ACT1	A1			