+--

Department of Applied sciences & Humanities

Innovative Teaching Method (Poster Presentation) - Report

Academic Year –2024-25	Class: F.Y.B.Tech. ETC
Semester–I	Date: 25/11/2024
CO: CO3	PO:PO1, PO2

Title of Innovation method/activity: Poster Presentation

(Unit 3: Application of Linear Algebra **)**

Name of Faculty: Dr. S. M. Bhati

Course: Engineering Mathematics-I (100101)

Objectives:

a. Clear the concept.

b. It helps students to think individually.

c. More involvement of students.

Instructions of Activity:

1. The activity is to be performed in group
2. Group consists of 5 students.

2. Description of method with Benefits (8 –10lines)

Description of method

Monitor and support students for performing Activity:

By using this method we are able to check the concept understand by the students. Also students get engage and show their creativity while preparing Poster. Student's interest in the subject will increase.

Benefits of method

- It helps students to think individually about a topic and clear their concept.
- It helps students to develop their creativity.
- It helps students to understand the concepts and revise the topic.
- Students know the application which increases the interest of students in learning Engineering Mathematics.

3. Roles and Responsibilities

- **Teacher**
  - Elaborate regarding activity.
  - Encourage students to prepare Poster.
  - Remain available during the completion of task.
  - Prepare assessment methodology.
- **Student**
  - Go through the concept of the topic.
  - Understand the concept and show their creativity in group while preparing the Poster Presentation.
  - Actively participate in Poster Presentation activity and contribute their knowledge regarding the topic covered.

4. Assessment Tools: Maximum Marks 8

Completeness	3	2	1
	Excellent	Good	poor
	All elements included in sufficient details	All elements included with some covered superficially	Few elements are included
Organization	3	2	1
	Excellent	Good	poor
	Content presented in clear manner, clear connection among presentation o f group members, all participated	Generally satisfactory with a few minor lapses	Difficult to follow flow and structure
Oral Presentation Skills	2	1	
	Excellent	Satisfactory	
	Voice level and expression nonverbal communication and eye contact, all appropriate good flow of content seen at ease	Generally satisfactory with a few minor lapses. Oral communication problems clearly found	

5. Sample Evaluation sheet of attendee:

Activity Based Assessment Engineering Mathematics-I (100101) AY-2024-2025

Computer-B

Group No.	Roll No.	Name Of Students	Topic	Completeness (3)	Organization (3)	Timely Submission (2)	Total (8)
1	1	Yash Manoj Aher	Translation using matrices	3	3	2	8
	2	HARSHAL KAILAS AHIRE		2	3	2	7
	4	SNEHA NITIN ANDHALKAR		2	3	2	7
	5	Ashlesha Arun Anjarkar		2	2	2	6
	6	SUMIT SUBHASH APSUNDE		2	3	2	7
2	7	RITESH PRAVIN BACHHAV	Affine Transform in terms of matrices	2	3	2	7
	8	KARTIK GANESH BARI		2	3	2	7
	9	Deepesh Umesh Bhope		2	3	2	7
	10	VAISHNAVI VIJAY BOCHARE		2	3	2	7
	11	KANCHAN SAMADHAN BORADE		2	3	2	7
3	12	Anushka Pradeep Boraste	The Projection Transformation as the application of matrices	2	3	2	7
	13	MAYUR DNYANESHWAR CHAUDHARI		2	3	2	7
	14	ISHAAN SUDEEP CHINCHORE		2	3	2	7
	15	ASMITA SAMPAT DATIR		2	3	2	7
	16	MANISH LALIT DEORE		2	3	2	7
4	17	ADITYA SANJAY DEORE	Perspective projection and orthographic projection as application of matrices	2	2	1	5
	18	PRITI BHAUSAHEB DHABALE		2	2	2	6
	19	RUTUJA POPAT DHATRAK		2	2	2	6
	20	TUSHAR BHARAT DHOLE		2	2	2	6
	21	ISHWARI SANTOSH DHUMAL		2	2	2	6
5	22	ADNAN MOHAMAD ARIF DOSANI	Reflection and dilation using matrices	2	2	2	6
	23	Dhiraj Gorakhnath Fulmali		2	3	2	7
	24	NIKITA RAJENDRA GAIKAWAD		2	2	2	6
	25	SHIVANJALI SUNIL GANGODE		2	3	2	7
	26	SHRAVANI VASANT GAVATE		2	3	2	7
6	27	AVINASH SURESH GHOLAP	Rotation matrix and its	2	2	2	6
	28	Rohit Jitendra Girase		2	2	2	6

	29	Vaibhav Jalindar Gujar	uses	2	2	2	6
	30	NILESH DATTATRAY JADHAV		2	2	2	6
	31	Shivani Shrikrishna Kabade		2	3	2	7
7	32	GAURI CHANGADEV KHALKAR	Change of scale using matrices	2	3	2	7
	33	SAMRUDDHI CHANDRAKANT KHODE		2	2	2	6
	34	SURAJ SUNIL MAHAKALE		2	2	2	6
	35	SOHAM SANDIP MANDALIK		2	2	2	6
	36	HARSHAL NANDU MORE		2	3	2	7
8	37	VAISHNAVI VIJAY MORE	Use of linear transformation in computer graphics	2	3	2	7
	38	SHIRPAD RAJENDRA NIGAL		1	1	1	3
	39	SHANTANU SANTOSH NIKAM		2	3	2	7
	40	SHRADDHA RAVINDRA PADOL		2	3	2	7
	41	SUSHIL DATTU PAGARE		2	3	2	7
9	42		Eigenvalues for vibration problems				
	43	ADITYA RAJENDRA PATIL		2	2	2	6
	44	ROSHAN NARAYAN PAWAR		3	3	2	8
	45	SHREYASI WALMIK PAWAR		2	3	2	7
	46	Krishna Ishwar Pawar		2	2	2	6
10	47	BHOOMI SUNIL PAWAR	Significance of eigenvalues and eigenvectors in Mechanical Vibrations	2	3	2	7
	48	VEDANT MUKUND PINGALE		2	2	2	6
	49	ESHIKA DATTATRAY POTDAR		2	3	2	7
	50	Harshad Anil Rathod		2	2	2	6
	51	VAISHNAVI DNYANESHWAR SAHANE		2	3	2	7
11	52	YUVRAJ SANTOSH SATPUTE	Use of matrix in mechanical vibration theory	2	3	2	7
	53	KALYANI GANESH SAWANT		2	3	2	7
	54	ADITI DEVADAS SHETTY		2	3	2	7
	55	PRACHI PUNDLIK SHINDE		2	3	2	7
	56	SHREYA PRAVIN SINKAR		2	3	2	7
12	57	ABHIJIT NARAYAN SURWADE	Applications of matrix in economics	2	2	2	6
	58	Aarti Sandip Tidake		2	3	2	7
	59	ADITI DHIRAJ TIWARI		2	3	2	7
	60	VAIDANTI DNYANESHWAR UGALE		2	3	2	7

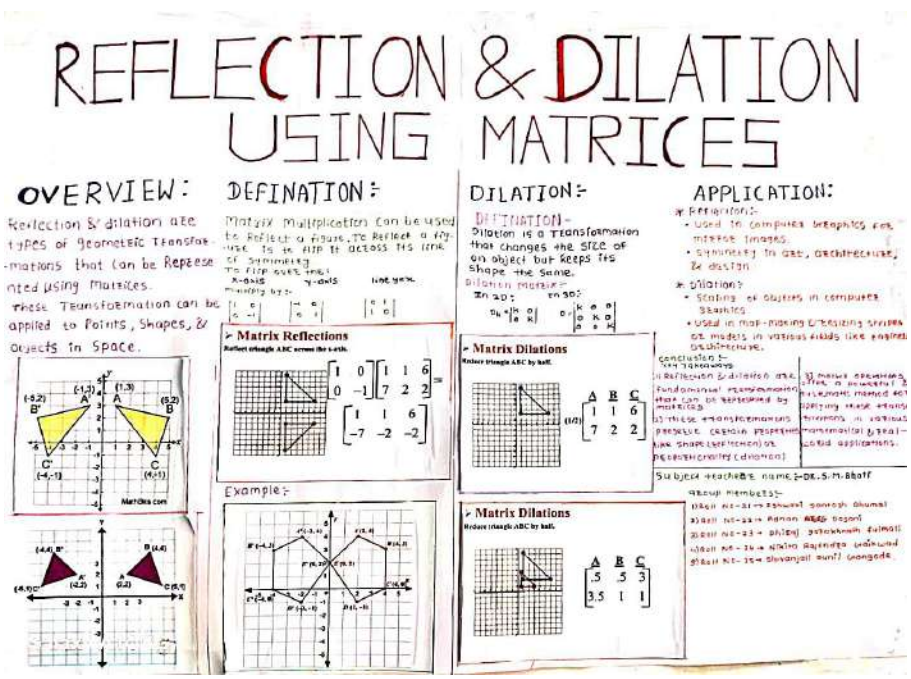
	61	SAHIL GOPAL UGHADE		2	2	2	6
13	62	NIRMAL DILIP WADETTIWAR	Use of matrix in signal processing	2	2	2	6
	63	RADHIKA SURESH WADGHULE		2	3	2	7
	64	ANIKET DATTATRAY WAGH		2	3	2	7
	65	PRIYADARSHINI TUKARAM WAGH		3	2	2	7
	66	RAJASHREE VIKAS WAGH		2	2	2	6
14	67	MANASVI DHIRAJ WANI	Applications of matrices in control theory	2	2	2	6
	68	AAYUSH ANANT YEOLE		2	2	2	6
	69	AKANKSHA SHAHAJI KOKATE		2	3	2	7

R1: Completeness :(3)

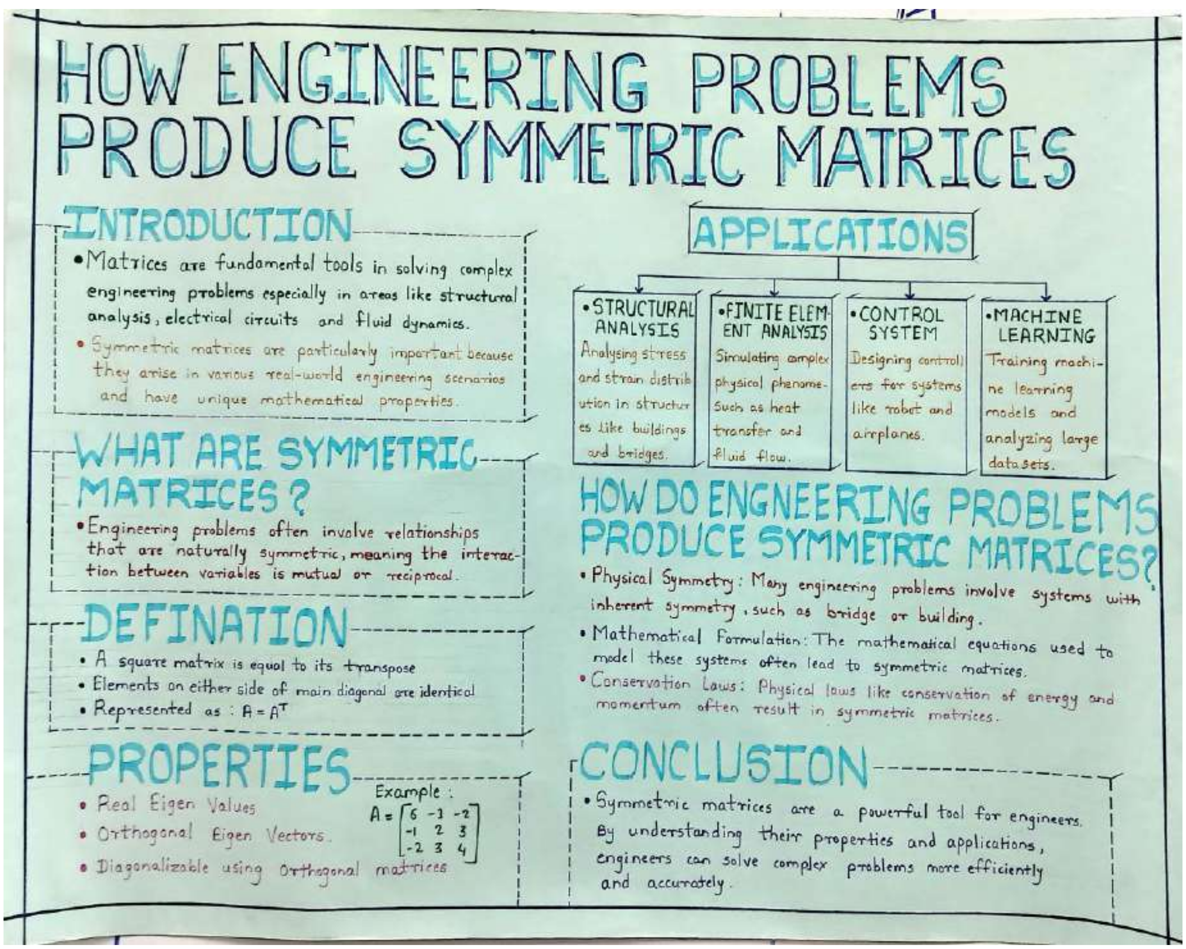
R2: Organization :(3)

R3: Timely submission:(2)

6.Activity Picture




REFLECTION & DILATION
USING MATRICES


HOW ENGINEERING PROBLEMS
PRODUCE SYMMETRIC MATRICES
INTRODUCTION
• Matrices are fundamental tools in solving complex engineering problems especially in areas like structural analysis, electrical circuits and fluid dynamics.
• Symmetric matrices are particularly important because they arise in various real-world engineering scenarios and have unique mathematical properties.
WHAT ARE SYMMETRIC MATRICES?
• Engineering problems often involve relationships that are naturally symmetric, meaning the interaction between variables is mutual or reciprocal.
DEFINATION
• A square matrix is equal to its transpose
• Elements on either side of main diagonal are identical
• Represented as : A = A^T
PROPERTIES
• Real Eigen Values
• Orthogonal Eigen Vectors.
• Diagonalizable using Orthogonal matrices
Example :
A = [6 -1 -2; -1 2 3; -2 3 4]
APPLICATIONS
• STRUCTURAL ANALYSIS
Analysing stress and strain distribution in structures like buildings and bridges.
• FINITE ELEMENT ANALYSIS
Simulating complex physical phenome- Such as heat transfer and fluid flow.
• CONTROL SYSTEM
Designing controllers for systems like robot and airplanes.
• MACHINE LEARNING
Training machine learning models and analyzing large data sets.
HOW DO ENGNEERING PROBLEMS PRODUCE SYMMETRIC MATRICES?
• Physical Symmetry: Many engineering problems involve systems with inherent symmetry, such as bridge or building.
• Mathematical Formulation: The mathematical equations used to model these systems often lead to symmetric matrices.
• Conservation Laws: Physical laws like conservation of energy and momentum often result in symmetric matrices.
CONCLUSION
• Symmetric matrices are a powerful tool for engineers. By understanding their properties and applications, engineers can solve complex problems more efficiently and accurately.

7. For review and critique contact: e-mail address of faculty

bhati.satish@kbtcoe.org

Dr. S. M. Bhati

Subject Incharge

Dr.S.M.Bhati

Subject Chairman

Dr. S.J.Kokate

BOS Chairman