



Integrated Bachelor-Master Programme
(Integrated B.Sc.-M.Sc.) (Mathematics) Semester (I)

Course Code	IS02CMTH52	Title of the Course	PROBLEMS AND EXERCISES IN MATRIX ALGEBRA
Total Credits of the Course	1	Hours per Week	2 hours

Course Objectives:	<ol style="list-style-type: none">1. This course is aimed at enhancing skill of problem solving in mathematics.2. The students will learn basic operations on matrices.3. Students will solve problems on system of linear equations.
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Course Content		
Unit	Description	Weightage* (%)
1.	Problems based on Matrices, Some Special Types of Matrices, Sub-Matrices, Determinant and Minors of a Matrix, Algebra of Matrices, Reversal Law for Transpose of a Product, Associative La, Distributive Law, Zero Divisor, Adjoint and Inverse of a Square Matrix.	
2.	Problems based on Rank of a Matrix, Elementary Transformation on a Matrix, Invariance of Rank Under Elementary Transformation, Reduction to Normal Form, Elementary Matrices.	
3.	Problems based on Method for Computing the Inverse of a Non-singular Matrix by Elementary Operations, Equivalence Matrices.	
4.	Problems based on Solution of System of linear homogeneous algebraic equations, Solution of System of linear non-homogeneous algebraic equations.	
5.	Problems based on Characteristic Roots and Vectors of a Square Matrix, Nature of the Characteristic Roots and Some Special Types of Matrices, Construction of Orthogonal and Unitary Matrices.	
6.	Problems based on Characteristic Matrix and Characteristic equation of a matrix, Cayley-Hamilton Theorem.	





Teaching-Learning Methodology	Classroom teaching, Presentation by students, Group discussion, Use of ICT whenever required.
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Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	----
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	30%
3.	University Examination	70%

Course Outcomes: Having completed this course,	
1.	Students can use the basic knowledge of Complex numbers in Complex Analysis in future.
2.	Basic understanding of functions will help them in Mathematical Analysis, Abstract Algebra, Linear Algebra, Topology, Differential equations and many other branches of Mathematics.
3.	Students will be able to use this knowledge of Matrices in initiating the study of Advanced linear algebra.

Suggested References:	
Sr. No.	References
1.	Narayan S., Mittal P. K. (2005), A textbook of Matrices, 11 th revised edition, S. Chand and Co. Ltd., New Delhi.
2.	Grewal B. S., Higher Engineering Mathematics, 36th edition, Khanna Publ.

On-line resources to be used if available as reference material
On-line Resources

