



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

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| Course Code | IS02CMTH51 | Title of the Course | Elementary Algebra of Matrices |
| Total Credits of the Course | 2 | Hours per Week | 2 hours |

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| Course Objectives: | <ol style="list-style-type: none">1. This course is aimed at enhancing employability.2. Students will get detailed knowledge of Matrix Algebra.3. Students will learn using matrices to solve systems of linear equations. |
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| Course Content | | |
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| Unit | Description | Weightage* (%) |
| 1. | Algebra of Matrices-I Different types of Matrices, Associative and Distributive Laws of Matrices, Determinants and Minors of Matrices, Adjoint and Inverse of a square matrix, Rank of a matrix, Elementary transformation on a matrix, Invariance of Rank under elementary transformation, Reduction to normal form, Elementary matrices, Rank of product, Method for computing the inverse of a non-singular matrix by elementary operations, Equivalence matrices. | 50 |
| 2. | Algebra of Matrices-II System of Linear homogeneous and Nonhomogeneous equations, Eigen value (Characteristic Roots) and Eigen vectors of a square matrix, Nature of the characteristic roots and some special types of matrices, Construction of orthogonal and unitary matrices, Characteristic matrix and Characteristic equation of a matrix and Cayley-Hamilton theorem. | 50 |

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| Teaching-Learning Methodology | Classroom teaching, Presentation by students, Use of ICT whenever required. |
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| Evaluation Pattern | | |
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| Sr. No. | Details of the Evaluation | Weightage |
| 1. | Internal Written / Practical Examination (As per CBCS R.6.8.3) | 15% |
| 2. | Internal Continuous Assessment in the form of Practical, Viva-voce, | 15% |





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| | Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3) | |
| 3. | University Examination | 70% |

Course Outcomes: Having completed this course,

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| 1. | Students will be able to use knowledge of Matrices in initiating the study of Advanced linear algebra. |
| 2. | Students will be able to use matrices for analysing and solving systems of linear equations. |

Suggested References:

| Sr. No. | References |
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| 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. |
| 3. | Lipschutz S., Lipson M. L, Discrete Mathematics, McGraw-Hill International Ed. (Schaum's Series) |

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

On-line Resources

