

Course Code: 204	Mathematics for Computer Applications	Credits:02	Marks : 50 (Internal -10 External -40)
Course Outcomes	After completing this course, students will be able to- 1) Understand set theory, functions and relations concepts, matrix needed for designing and solving problems. 2) Use graph algorithms to solve problems.		
Unit No.	Descriptions	No. of Periods	
I	SETS Introduction. Methods of describing of a set: Tabular form, Set builder form. Finiteset, Infiniteset, Emptyset, Subset, Universal set, Equal sets, Disjoint sets, Complementary set. Operation on Sets: Union of sets, Intersection of sets, Difference of sets, Examples. DeMorgan's Laws (without proof). Venn diagram, Examples. Cartesian product of two sets, Examples. Idempotent laws, Identity laws, Commutative Laws, Associative laws, Distributive laws, Inverse laws, Involution laws. Duality. Computer Representation of sets and its operations. Relations and Functions: Introduction, Operations on Functions, Injective, surjective and bijective functions	15	
II	Matrices : Introduction to matrices, Types of matrices: Row matrix, Column matrix, Null matrix, Unit matrix, Square Matrix, Diagonal matrix, Scalar matrix, Symmetric matrix, Skew - symmetric matrix, Transpose of a matrix, Definition of Determinants of order 2nd & 3rd and their expansions Singular and Non-Singular Matrices Algebra of Matrices: Equality of matrices, Scalar Multiplication of matrix, Addition of matrices, Subtraction of matrices, Multiplication of matrices. Elementary Row & Column Transformations Inverse of Matrix (Using Elementary Transformations) Examples based on above.	15	
	Reference Books: 1. Discrete Mathematics & Structures by Satinder Bal Gupta, University Science Press 2. Fundamental Approach to Discrete Mathematics by D. P. Acharjya, Sreekumar, New Age International Publishers 3. Discrete Mathematical Structures by Kolman, Busby, Ross, Pearson Education Asia 4. Matrices by Shantinayakan, S. Chand & Co. New Delhi 5. Discrete Mathematics by Schaum Series 6. Discrete Mathematics by K D Joshi 7. David Makinson, "Sets, Logic and Maths for Computing", Springer Indian Reprint, 2011. 8. Kenneth H. Rosen, "Discrete Mathematics and Its Applications", Tata McGraw Hill, 4th Edition, 2002. 9. Trembley, J.P. and Manohar, R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw Hill, New Delhi, 2007.		