Name of College: Govt. College for Women, Shahzadpur (Ambala)
Academic Session: Feb.-May(2022-23)
Class: B.Sc Ist Year
Paper: BM – 122 Ordinary differential Equations
Teacher's Name: Natasha

Month	Dates	Topic to be covered	Assignments /Tests etc.
February	1-4	Geometrical meaning of a differential equation. Exact differential equations, integrating factors.	
	6-11	Integrating factors Continued	Test
	13-17	Linear differential equations with constant coefficients.	
	20-28	Linear differential equations with constant coefficients	Test
March	1-4	Homogeneous linear ordinary differential equations	Assignment
	13-18	Equations reducible to homogeneous	
	20-25	Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable.	
	27-31	Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients	Test
April	1-8	Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form dx/P = dy/Q = dz/R	
	10-15	First order higher degree equations solvable for x,y,p Lagrange's equations, Clairaut's equations.	Test
	17-22	Equation reducible to Clairaut's form. Singular solutions	
	24-29	Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves	
May	1-6	Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact.	
	8-13	General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary equations.	Test
	15-20	Revision	
	22-26	Revision	Test

Month	Dates	Topic to be covered	Assignments /Tests etc.
February	1-4	Expansion of trigonometrical functions.	
	6-11	Direct circular functions	
	13-17	hyperbolic functions and their properties	
	20-28	Inverse circular and hyperbolic functions and their properties	Test
March	1-4	Inverse circular and hyperbolic functions and their properties	Assignment
	13-18	Logarithm of a complex quantity	
	20-25	Gregory's series. Summation of Trigonometry series	
	27-31	De Moivre's Theorem	Test
April	1-8	Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple) Primes,	
	10-15	Fundamental Theorem of Arithemetic. Linear Congruences, Fermat's theorem.	Test
	17-22	Wilson's theorem and its converse. Linear Diophanatine equations in two variables	
	24-29	Complete residue system and reduced residue system modulo m. Euler function Euler's generalization of Fermat's theorem	
May	1-6	Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function [x].	
	8-13	The number of divisors and the sum of divisors of a natural number n (The functions d(n) and s (n)).	Test
	15-20	Moebius function and Moebius inversion formula.	
	22-26	Revision	Test

Name of College: Govt. College for Women, Shahzadpur (Ambala)
Academic Session: Feb.-May(2022-23)
Class: B.Sc II Year
Paper: BM –243 Programing in C &Numerical Methods
Teacher's Name: Natasha

Month	Dates	Topic to be covered	Assignments /Tests etc.
February	1-4	Programmer's model of a computer, ,	
	6-11	Algorithms, Flow charts, Data types	
	13-17	Operators and expressions, Input / outputs functions	
	20-28	Solution of Algebraic and Transcendental equations: Bisection method,	Test
	1-4	Regula-Falsi method, Secant method	Assignment
	13-18	Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods.	
March	20-25	Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method,	
	27-31	Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method.	Test
April	1-8	Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method.	
	10-15	Decisions control structure: Decision statements, Logical and conditional statements,	Test
	17-22	Implementation of Loops	
	24-29	Switch Statement & Case control structures. Functions, Preprocessors and Arrays.	
May	1-6	Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters.	
	8-13	Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures.	Test
	15-20	Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions	
	22-26	Revision	Test

Month	Dates	Topic to be covered	Assignments /Tests etc.
February	1-4	Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span,	
	6-11	Linearly Independent and dependent subsets of a vector space	
	13-17	Finitely generated vector space, Existence theorem for basis of a finitely generated vactor space	
	20-28	Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension	Test
March	1-4	homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces,	Assignment
	13-18	Vector space of all the linear transformations	
	20-25	Null Space, Range space of a linear transformation, Rank and Nullity Theorem,	
	27-31	Algebra of Liner Transformation, Minimal Polynomial of a linear transformation,	Test
April	1-8	Singular and non-singular linear transformations	
	10-15	Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations	Test
	17-22	Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis	
	24-29	Bessel's inequality for finite dimensional vector spaces, .	
May	1-6	Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties,	
	8-13	Unitary linear transformations	Test
	15-20	Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimentional vactor spaces	
	22-26		Test