TEACHING PLAN – ODD-2021-2022

A. GENERAL INFORMATION

Name of the Faculty : **Dr. N. Sarala**

Department : **Mathematics**

Programme : **M. Sc**

Programme Code : **PSM**

Name of the Paper : **Measure Theory**

Lecture Hours / ~~Practical Hours~~ : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To generalize the concept of integration using measures. • To develop the concept of analysis in abstract situations. • To introduce the concepts of measure on real line, integration of non-negative functions. • To study about abstract measure spaces and Product measure spaces. • To analyse about Lp-Spaces and Signed measure.	On completion of the course, students should be able to • Acquire the concept of Lebesgue measure, measurable set. • Understand the concept of integration of non-negative functions. • Demonstrate Hahn decomposition theorem and Fubini's theorem. • Analyze the properties of Lp-spaces and Signed measure space. • Apply measurability in product spaces.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method, • Laboratory Method • Project Method, • Problem Solving Method

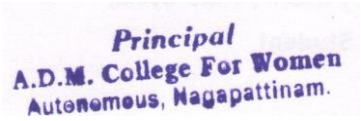
C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Measure on Real line • Lebesgue outer measure • Measurable sets • Regularity • Measurable function.	09.08.21 to 31.08.21	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• Integration of non-negative functions • The General integral • Integration of series.	01.09.21 to 20.09.21	5 Hrs 5 Hrs 5 Hrs	-	-
Unit III	• Abstract Measure spaces • Measures and outer measures • Completion of a measure • Measure spaces • Integration with respect to a measure.	21.09.21 to 20.10.21	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit IV	• Convergence in Measure • Almost uniform convergence • Signed Measures and Halin Decomposition • The Jordan Decomposition	21.10.21 to 20.11.21	4 Hrs 4 Hrs 4 Hrs 3 Hrs	-	-
Unit V	• Measurability in a Product space • The product Measure and Fubini's Theorem.	22.12.21 to 31.12.21	7 Hrs 8 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 20.8.21,13.9.21,18.10.21,
Assignment	9.11.21,9.12.21
Quiz	25.10.21, 7.12.21
Seminar	6.12.21 & 17.12.21
Tutor Ward Meeting	7.12.21 – 20.12.21 Every Saturday

PRINCIPAL



TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.R.Vanitha**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Algebra**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce the concept of Group theory • To learn about normal subgroups ,homomorphism and Isomorphism • To study about Rings. • To facilitate a better understanding of vector space • To find rank and nullity of linear transformation.	Learners will be able to • Know about cosets • Understand Lagrange's theorem. • Design homomorphism and Isomorphism between groups and rings. • Form linear transformation between vector spaces • Find norm of vector	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Subgroups • Cyclic Groups • Order of an Element • Cosets and Lagrange's Theorem.	09.08.2021 to 31.08.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit II	• Normal Subgroups and Quotient Groups • Isomorphism • Cayley's theorem • Homomorphism • Fundamental theorem of homomorphism.	1.09.2021 to 20.09.2021	4 Hrs 2 Hrs 2 Hrs 4 Hrs 3 Hrs	-	-
Unit III	• Rings -definition and examples • Elementary properties, Isomorphism • Types of rings • characteristic of a ring Subrings, Ideals • Quotient rings • Homomorphism of rings	21.09.2021 to 20.10.2021	2 Hrs 2 Hrs 3 Hrs 2 Hrs 2Hrs 2Hrs	-	-
Unit IV	• Vector Saces –Definition and examples • Subspaces • Linear Transformation • Span of a set	21.10.2021 to 20.11.2021	3 Hrs 3 Hrs 3Hrs 3 Hrs	-	-

	• Linear Independence		3Hrs		
Unit V	• Basis and Dimension • Rank and Nullity • Matrix of a linear transformation. • Inner product Space	22.12.2021 to 31.12.2021	4 Hrs 2 Hrs 4 Hrs 5 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 21.08.2021,14.09.2021,15.10.2021,12.12.2021
Assignment	20.8.2021,16.9.2021, 27.10.2021
Quiz	03.9.2021, 08.10.2021 (Objective Type Questions)
Seminar	7.12.2021-20.12.2021
Tutor Ward Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.R.Vanitha**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **Algebra**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
Course Objectives: • To know advanced concepts of Group Theory. • To study about the • Polynomial Rings over rational Fields. • To learn about dual spaces. • To acquire the knowledge of extension fields related with Polynomials. • To Study about the elements of Galois Theory and Finite Fields.	Learners will be able to • Understand Sylow's theorem and its applications. • Analyze the various types of polynomials. • Develop the knowledge over modules. • Evaluate the roots and characteristics of polynomials. • Apply finite fields in Galois Theory	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Conjugacy • Cauchy'sTheorem for abelian Group • Sylow's Theorems	**01.10.2021 to 19.10.2021**	**5 Hrs** **5 Hrs** **5 Hrs**	**-**	**-**
Unit II	• Polynomial rings. • Polynomial rings over rational field. • Polynomial rings over Commutative rings.	**23.10.2021 to 12.11.2021**	**5 Hrs** **5 Hrs** **5 Hrs**	**-**	**-**
Unit III	• Dual spaces • Properties • Modules. • Fundamental theorem on finitely Generated modules	**13.11.2021 to 03.12.2021**	**4 Hrs** **3Hrs** **4 Hrs** **4Hrs**	**-**	**-**
Unit IV	• Extension fields • Roots of polynomials • More About Polynomials.	**04.12.2021 to 19.12.2021**	**5 Hrs** **5 Hrs** **5 Hrs**	**-**	**-**
Unit V	• The Elements of Galois Theory • Fixed field • Normal extension • Fundamental theorem of Galois elements • Finite fields	**21.12.2021 to 31.12.2021**	**3 Hrs** **3 Hrs** **3Hrs** **3 Hrs** **3 Hrs**	**-**	**-**

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 28.10.2021,1.12.2021
Assignment	27.11.2021, 16.12.2021
Quiz	28.11.2021 and 29.12.2021(Objective Type Questions)
Seminar	2.12.2021 to 20.12.2021
Tutor Ward Meeting	EVERY SATURDAY

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs. M. Prabavathy**

Department : **Mathematics**

Programme : **B. Sc**

Programme Code : **USM**

Name of the Paper : **Real Analysis**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce Real Number System • To explore the concepts of neighborhoods and its related parameters. • To define continuous functions • To define Derivative and algebra of derivatives • To derive mean value theorems	Learners will be able to • State the nature of number system and field axioms • Define open sets, closed sets, limit points, closure and interior of a set, compactness and connectedness • Differentiate continuous and discontinuous functions, uniform continuous functions. • State derivative function and Darboux's theorem • Prove intermediate value theorems	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Absolute value in R • Supremum and Infimum of a set • Some Subsets of R • Countable and Uncountable sets.	09.08.2021 to 27.08.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit II	• Types Continuity of Functions • Types of discontinuous functions • Algebra of Continuous functions • Intermediate Value theorem • Inverse function theorem and Uniform continuity of a function.	28.08.2021 to 17.09.2021	4 Hrs 2 Hrs 2 Hrs 4 Hrs 3 Hrs	-	-
Unit III	• Derivability • Algebra of derivatives • Inverse function theorem • Darboux theorem	18.09.2021 to 06.10.2021	5 Hrs 4 Hrs 2 Hrs 4 Hrs	-	-
Unit IV	• Rolle's Theorem • Mean value theorems on derivatives • Taylor's theorem with remainder	07.10.2021 to 29.10.2021	5 Hrs 5 Hrs 5 Hrs	-	-

Unit V	• Riemann integration: Definition and Darboux's theorem • Conditions of Integrability: integrability of continuous and monotonic functions • Properties of Integrable functions • Integral functions, Continuity and derivability of Integral functions, The first Mean value Theorem, fundamental theorem of integral calculus.	01.11.2021 to 02.12.2021	3 Hrs 4 Hrs 4 Hrs 4 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 21.8.2021,22.9.2021,18.10.2021,17.11.2021
Assignment	24.9.2021,12.10.2021, 27.11.2021
Quiz	25.8.2021,6.10.2021, 29.11.2021
Seminar	14.9.2021,7.10.2021,28.10.2021,2.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.M.Prabavathy**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **Real Analysis**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To study basic Topology like compact, perfect and connected sets. • 2.To learn about Riemann's Stieltjes integral. • To learn about sets of functions and uniform convergence. • 4.To learn about Power series and Fourier Series. • 5.To learn about Lebesgue Theory and Measure space.	Learners will be able to • State the nature of number system and field axioms • Define open sets, closed sets, limit points, closure and interior of a set, compactness and connectedness. • Differentiate continuous and discontinuous functions, uniform continuous functions. • State derivative function and Darboux's theorem • Prove intermediate value theorems	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Basic Topology: Finite, Countable and Uncountable sets • Metric spaces • Compact sets • Perfect sets & connected sets.	20.09.2021 to 07.10.2021	5 Hrs 5 Hrs 3 Hrs 2 Hrs	-	-
Unit II	• **Continuity:** Limits of Functions & Continuous Functions • Continuity and Compactness • Continuity and Connectedness • Discontinuities • Monotonic Functions & Infinite Limits and Limits at infinity.	08.10.2021 to 30.10.2021	4 Hrs 4 Hrs 4 Hrs 3 Hrs	-	-
Unit III	• . The Riemann Stieltjes integral -Definition and Existence of the integral • Properties of the integral functions • Integration and Differentiation • Rectifiable Curves	01.11.2021 to 24.11.2021	3 Hrs 4 Hrs 4 Hrs 4 Hrs	-	-
Unit IV	• **Sequences and Series of Functions:** Discussion of Main Problem – Uniform Convergence • Uniform Convergence and	25.11.2021 to 15.12.2021	3 Hrs 3 Hrs	-	-

	Continuity • Uniform Convergence and Integration & Uniform Convergence and Differentiation • Equicontinuous Families of Functions • The Stone - Weierstrass Theorem.		3 Hrs 3 Hrs 3 Hrs		
Unit V	• **Functions of Several Variables:** Linear Transformations • Differentiation • The Contraction Principle • The Inverse Function Theorem • The Implicit Function Theorem.	16.12.2021 to 04.01.2022	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 28.10.2021,1.12.2021
Assignment	27.11.2021, 16.12.2021
Quiz	28.11.2021 and 29.12.2021
Seminar	2.12.2021 to 20.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.M.Prabavathy**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Differential Equations and Laplace Transforms**

Lecture Hours : **30 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To solve second order and higher order linear differential equations with constant coefficients and variable coefficients. • To sense the essential difference between ODE and PDE. • To acquire the knowledge of complete, singular and particular integrals of PDE . • To compute solutions of Lagrange's equations and to find solution of PDEs using Charpits method. • To gain the basic knowledge of Laplace transforms and its inverse with applications.	Learners will be able to • Find the complete solution of a non-homogeneous differential equation as a linear combination of the complementary function and a particular solution. • Solve differential equations by using method of variation of parameters. • Find solutions of first order partial differential equations of the standard forms. • Solve the PDE's using Charpit method.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Linear Differential Equations with constant coefficients • Evaluation of particular integral of e^{ax}, cos ax, sin ax, x^k , where k is a positive integer ,and $e^{ax} f(x)$ where $f(x)$ is any function of x.	09.08.2021 to 17.09.2021	4 Hrs 5 Hrs	-	-
Unit II	• Linear Equations with variable Coefficients: to find the particular integral functions and the relation between them • Equations reducible to linear homogeneous equation • Method of Variation of parameters.	18.09.2021 to 29.10.2021	3 Hrs 3 Hrs 3 Hrs	-	-
Unit III	• Partial Differential Equations: Formation of equations by elimination of constants and arbitrary functions • General, Complete and singular integral (Geometrical meaning not expected) • Solutions of first order equations of the standard forms	30.10.2021 to 16.12.2021	3 Hrs 3 Hrs 3 Hrs		

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date: 28.09.2021, 14.11.2021
Assignment	17.09.2021 and 29.10.2021
Quiz	20.12.2021
Seminar	23.11.2021 to 30.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr. G.SUDHA**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Operations Research**

Lecture Hours : **60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To find the solution of the LPP using graphical method • To understand different types of LPP • To solve Transportation Problem using various methods • To introduce Assignment Problem and solve it • To explore the concepts of Network Analysis and rules of network construction	• Analyse and solve linear programming models of real life situations. • Understand the problem solving method of Simplex and Big M Method. • Learn the applications of Transportation Problem. • Learn to solve Assignment problems. • Use PERT and CPM in solving Network Analysis problems.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Mathematical Formulation of L.P.P • Graphical Solution method • Some exceptional cases • General Linear Programming Problem • Canonical and Standard form of LPP • Simplex method	09.08.2021 to 08.09.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 1 Hrs 2 Hrs	-	-
Unit II	• Use of Artificial Variables • Two Phase Method • Duality in Linear Programming problem • General primal, Dual Pair • Formulating a dual Problem • Duality and Simplex Method • Dual Simplex Method	09.09.2021 to 11.10.2021	1 Hr 3 Hrs 3 Hrs 3 Hrs 2 Hrs 2 Hrs 1 Hr	-	-
Unit III	• General Transportation problem • Finding Initial Basic feasible Solution • Test for Optimality • Transportation Algorithm • MODI Method	12.10.2021 to 19.11.2021	2Hrs 4 Hrs 4 Hrs 2 Hrs 2Hrs 1Hr	-	-
Unit V	• Network and Basic Components • Rules of Network Construction • Time Calculations in Networks • Critical Path Analysis • PERT Calculations.	20.11..2021 to 31.12.2021	2 Hrs 2 Hrs 4 Hrs 4 Hrs 3 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 29.08.2021, 15.09.2021, 18.10.2021, 18.11.2021
Assignment	30.8.2021, 24.09.2021, 18.10.2021,
Quiz	31.08.2021, 19.11.2021
Seminar	24.09.2021, 19.10.2021, 25.11.2021
Tutor Ward Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr. G. SUDHA**

Department : **Mathematics**

Programme : **M. Sc**

Programme Code : **PSM**

Name of the Paper : **Advanced Numerical Analysis**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
Course Objectives: • To give an in-depth knowledge of differential equations and their applications. • To study some special functions and their properties. • To understand the existence, uniqueness, stability behavior of the solutions of the ODE. • To analyze about the Boundary value problems. • To learn about Stability Nature of Nonlinear systems of equations.	Learners will be able to • Apply Numerical methods to solve Algebraic and Transcendental equation. • Apply appropriate Numerical Methods to determine the solution of linear equations. • Gain knowledge about interpolation for equal and unequal intervals. • Evaluate Numerical Differentiation. • Evaluate Numerical integration. .	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Transcendental and Polynomial Equations • Bisection Method • Iteration Methods Based on First Degree Equation • Iteration Methods Based on Second Degree Equation • Rate of Convergence • Polynomial Equations.	21.09.21 to 08.10.21	2 Hrs 3 Hrs 3 Hrs 3 Hrs 2 Hrs 2 Hrs	-	-
Unit II	• System of Linear Algebraic Equations And Eigen value Problems : Successive over Relaxation (SOR) Method • Iterative Method of A^{-1} - Eigen values and Eigenvectors : Jacobi Method for Symmetric Matrices • Givens Method for Symmetric Matrices • Power Method	09.10.21 to 30.10.21	5 Hrs 4 Hrs 3 Hrs 3 Hrs	--	--
Unit III	• Interpolation and Approximation : Higher Order Interpolation • Hermite Interpolations • Bivariate Interpolation • Least Squares Approximation	01.11.21 to 24.11.21	6 Hrs 5 Hrs 4 Hrs		

Unit IV	• Differentiation and Integration : Methods Based on Interpolation Methods Based on Finite Differences • Extrapolation Methods – Partial differentiation – Numerical Integration – Methods Based on Interpolation • Newton – Cotes Methods – Methods Based on Undetermined Coefficients – Gauss Legendre Integration Methods • Lobatto Integration Methods – Radau Integration Methods – Gauss – Chebyshev Integration Methods - Composite Integration Methods	25.11.21 to 10.12.21	4 Hrs 3 Hrs 4 Hrs 4 Hrs	--	--
Unit V	• Ordinary Differential Equations: Numerical Methods – Euler Method – Backward Euler Method – • Mid – Point Method – Taylor Series Method – Runge – Kutta Methods – Implicit Runge – Kutta Methods • Multistep Methods – Convergence of Multistep Methods.	13.12.21 to 31.12.21	5 Hrs 5 Hrs 5 Hrs	--	--

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 04.10.21, 02.11.21, 02.12.21, 17.12.21, 31.12.21
Assignment	28.10.21, 24.11.21
Quiz	15.11.21, 10.12.21
Seminar	20.12.21 to 30.12.21
Tutor Ward Meeting	- Every Saturday

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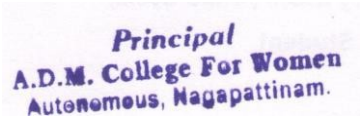

TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr. G. SUDHA**

Department : **Mathematics**

Programme : **B Sc**

Programme Code : **USM**

Name of the Paper : **Classical Algebra**

Lecture Hours : **60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
Course Objectives: • To lay a good foundation for the study of theory of equations. • To learn the concepts of algebraic equations and transformation of equations. • To understand the basics of inequalities, maxima and minima. • To study the types of matrices and their inverse. • To inculcate the C-H theorem and its properties	Learners will be able to • Understand the asppecs of Classical algebraic structures • Find the nature of the roots of the equations • Solve and apply the inequalities • Find the inverse and rank of the matrix • Calculate Eigen value and vectors of a matrix and apply CH theorem	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Forming the equations with the given roots • Relation between the roots and coefficients • Symmetric functions of the roots • Sum of the powers of the roots of an equation • Newton's theorem on the sum of the powers of the roots (Problems only).	21.09.21 to 06.10.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• Transformations of equations • Reciprocal equation • Diminishing and Increasing the roots • Form of the quotient and remainder when a polynomial is divided by a Binomial • Removal of terms • Descartes' rule of signs • Simple problems.	07.10.2021 to 27.10.2021	2 Hrs 3 Hrs 3 Hrs 3 Hrs 2 Hrs 1 Hrs 1 Hr	--	--
Unit III	• Inequalities • Elementary Principles • Geometric and Arithmetic means • Weirstrass inequalities • Cauchy's inequality • Applications to Maxima and Minima	28.10.2021 to 13.11.2021	2Hrs 4 Hrs 4 Hrs 2 Hrs 2Hrs 1Hr		

Unit IV	• Definition and algebraic operations • Types of Matrices • Transpose of a matrix,Singular matrix ,Symmetric, Skew- symmetric, Orthogonal, Hermitian, Skew-Hermitian ,Adjoint matrix • The Inverse of the matrix Reciprocal matrix Reversal law for the inverse of a product • Orthogonal matrices and its properties Unitary matrix Rank of the matrix	15.11..2021 to 06.12..2021	3 Hrs 4 Hrs 4 Hrs 4 Hrs 3 Hrs	--	--
Unit V	• Simultaneous linear equations (except proof of the theorems) • Eigen values and Eigen vectors • Cayley Hamilton's theorem(Statement only)	07.12.21 to 30.12.21			

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date -04.10.21, 02.11.21, 02.12.21,
Assignment	17.12.21, 31.12.21
Quiz	15.11.21, 10.12.21
Seminar	20.12.21 to 30.12.21
Tutor Ward Meeting	14.12.21 to 22.12.21 Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.P.Hameetha Begum**

Department : **Mathematics**

Programme : **B.Sc (Mathematics)**

Programme Code : **USM**

Name of the Paper : **Vector Calculus and Fourier Series**

Lecture Hours : **75 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To understand the fundamental concepts of vector differentiation. • To develop the knowledge of vector integration. • To acquire the interpretation of curl of a vector field. • To inculcate the basic concepts of Fourier series. • To know about half range sine and cosine series.	Learners will be able to • Explain the concepts of differentiation of vector field. • Integrate the vector functions over curves and surfaces. • Compute integrals using Green's theorem, Stoke's theorem and the Divergence theorem. • Solve the wave equations, Laplace equations using Fourier series. • Derive the Fourier series to the periodic signals in half range.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Velocity & Acceleration, level surfaces, The vector differential operator, Gradient of a vector • Direction & magnitude of gradient, Divergence & curl • Solenoidal & Irrotational vectors, Formula involving operator del • Operators involving del twice and problems	02.08.2021 to 18.08.2021	4 Hrs 4 Hrs 4 Hrs 3 Hrs	-	-
Unit II	• Line Integral, Conservative Field • Volume Integral • Surface Integral, Problems	19.08.2021 to 06.09.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit III	• Gauss Divergence Theorem • Green's Theorem • Stoke's Theorem, Problems	07.09.2021 to 25.09.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit IV	• Fourier Series- definition and problems in (0, 2 π) • Problems in (-π, π) • Problems in change of interval	27.09.2021 to 16.10.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit V	• Definition & Properties of Even and Odd functions • Use of these functions in Fourier Series & Half Range fourier Series • Development in Cosine Series • Development in Sine Series	18.10.2021 to 05.11.2021	3 Hrs 2 Hrs 5 Hrs 5 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 26.08.2021,15.09.2021, 08.10.2021
Assignment	20.08.2021,13.09.2021, 20.10.2021
Quiz	16.9.2021, 08.11.2021 (Objective Type Questions)
Seminar	25.8.2021, 14.09.2021, 15.10.2021, 24.11.2021, 10.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.P.Hameetha Begum**

Department : **Mathematics**

Programme : **M.Sc (Mathematics)**

Programme Code : **PSM**

Name of the Paper : **Mathematical Modelling**

Lecture Hours : **45 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce different mathematical models in Ordinary Differential Equations. • To study MM of epidemics through systems of Ordinary Differential Equations of first order. • To analyse MM through Linear Differential Equations of second order • To develop MM through Difference Equations. • To learn MM through graph theoretical models.	Learners will be able to • To develop models on linear growth and decay of any system. • To make mathematical modeling in epidemics in population. • To design mathematical modelling in any type of motions. • To solve problems in dynamics and genetics using modeling. • To demonstrate various real life situations by modelling through graphs.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Mathematical modelling through Differential Equations, Linear growth and Decay models • Non - Linear growth and Decay models • Compartment models • MM in Dynamics through ODE of first order	02.08.2021 to 18.08.2021	3 Hrs 2 Hrs 2 Hrs 2 Hrs	-	-
Unit II	• Mathematical modelling in population Dynamics & MM of epidemics through systems of ODEs • MM in Economics through systems of ODE of first order • Mathematical models in Medicines, Arms Race , Battles and International Trade in terms of systems of ODEs	19.08.2021 to 06.09.2021	4 Hrs 2 Hrs 3 Hrs	-	-
Unit III	• MM of Planetary motions • MM of circular motions & motions of Satellites • MM through linear DEs of second order • Miscellaneous MM through ODE of second order	07.09.2021 to 25.09.2021	2 Hrs 3 Hrs 2 Hrs 2 Hrs	-	-

Unit IV	• The need For Mathematical Modelling Through Difference Equations : Some simple models • Basic Theory of Linear Difference Equations with constant coefficients • Mathematical Modelling through Difference Equations in Economics and Finance • MM through Difference Equations in Population Dynamics and Genetics & MM through Difference Equations in Probability Theory	27.09.2021 to 16.10.2021	2 Hrs 2 Hrs 2 Hrs 3 Hrs	-	-
Unit V	• Situations that can be modelled through graphs • Mathematical models in terms of directed graphs & Mathematical Models in terms of signed graphs • MM in terms of Weighted Digraphs • MM in terms of unoriented graphs	18.10.2021 to 05.11.2021	2 Hrs 3 Hrs 2 Hrs 2 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 26.08.2021,15.09.2021, 08.10.2021
Assignment	20.08.2021,13.09.2021, 20.10.2021
Quiz	16.9.2021, 08.11.2021 (Objective Type Questions)
Seminar	27.09.2021 to 05.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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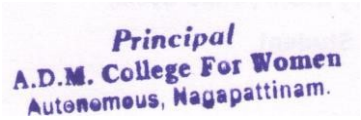

TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr.P.Jamuna Devi**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **DIFFERENTIAL CALCULUS AND TRIGONOMETRY**

Lecture Hours : **75 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To inculcate the basics of differentiation and their applications. • To introduce the notion of curvatures, Evolutes & Involutes and polar co-ordinates. • To develop conceptual understanding and fluency with Trigonometric functions. • To acquire the basic knowledge of circular and hyperbolic functions of complex variables. • To develop skill in summing up infinite trigonometric series using appropriate method.	Learners will be able to • To apply Leibnitz's Theorem for finding n^{th} derivative of product of functions. • To sketch curves in Cartesian polar coordinate systems. • To calculate the limit and examine the continuity of the function at a point. • To understand the relation between circular and Hyperbolic functions. • To find summation of infinite trigonometric series using appropriate method.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Methods of Successive Differentiation • Leibnitz,'s Theorem and its applications • Increasing & Decreasing functions	02.08.2021 to 20.08.2021	5 Hrs 5Hrs 5 Hrs	-	-
Unit II	• Curvature • Radius of curvature in Cartesian and in Polar Coordinates • Jacobians.	26.08.2021 to 11.09.2021	5 Hrs 5Hrs 5 Hrs	-	-
Unit III	• Centre of Curvature • Evolutes & Involutes • Maxima and Minima of function of two variables.	16.09.2021 to 04.10.2021	5 Hrs 5Hrs 5 Hrs	-	-
Unit IV	• Hyperbolic functions • Relation between Hyperbolic functions • Relations between Hyperbolic Functions corresponding to relations between Circular functions • Inverse hyperbolic functions	08.10.2021 to 25.10.2021	3 Hrs 4 Hrs 4 Hrs 4 Hrs	-	-

Unit V	• Logarithm of a complex number • Summation of Trigonometric series • Difference method • Angles in arithmetic progression method • Gregory's series.	01.11.2021 to 27.11.2021	3 Hrs 4 Hrs 4 Hrs 2 Hrs 2 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 21.8.2021,15.9.2021,28.10.2021,1.12.2021
Assignment	24.8.2021,13.9.2021, 27.10.2021
Quiz	25.8.2021,6.10.2021, 29.10.2021(Objective Type Questions)
Seminar	14.9.2021,7.10.2021,28.10.2021,2.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	**:**	**Dr.P.Jamuna Devi**
Department	**:**	**Mathematics**
Programme	**:**	**M.Sc**
Programme Code	**:**	**PSM**
Name of the Paper	**:**	**OPTIMISATION TECHNIQUES**
Lecture Hours	**:**	**90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To enlighten the students in the field of operations research. • To help the students to apply OR techniques in business and management problems. • To provide the knowledge of various optimization techniques like integer programming, dynamic programming, decision theory and games theory. • To introduce the concept of Inventory models and queueing models. 5.To develop non-linear Programming algorithms.	• On completion of the course, learnerss should be able to • Understand the concept of integer programming and dynamic programming. • Analyse the problems based on decision theory and game theory. • Optimize solution of inventory models. • Solve queueing models. • Evaluate non linear Programming Problem	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Integer Linear Programming • Illustrative Applications of Integer Programming • Solution methods of Integer Programming • Branch and Bound Method • Cutting Plane Method • Zero–One Integer Problem	01.10.2021 to 19.10.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• Dynamic (Multistage) Programming Elements of the DP Model • TheCapitalBudgetingExample More on the Definition of the State Examples of DP Models and Computations • Problem of Dimensionality in Dynamic Programming Solution of Linear Programs by Dynamic Programming.	23.10.2021 to 12.11.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit III	• Inventory Models: • The ABC Inventory System • A Generalized Inventory Model • Deterministic Models. • Examples	13.11.2021 to 03.12.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit IV	• Queueing Models : Basic Elements of the Queueing Model • Role of the Poisson and Exponential Distributions Pure Birth and Pure Death Processes	04.12.2020 to 19.12.2020	5 Hrs 5 Hrs 5 Hrs	-	-

	• Queues with Combined Arrivals and Departures Specialized Poisson Queues				
Unit V	• Nonlinear Programming • Algorithms • Unconstrained Non linear Algorithms • Problem solving	21.12.2020 to 31.12.2020	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 28.10.2021,1.12.2021
Assignment	27.11.2021, 16.12.2021
Quiz	28.11.2021 and 29.12.2021(Objective Type Questions)
Seminar	2.12.2021 to 20.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.U.Elayarani**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Quantitative Aptitude**

Lecture Hours : **30 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To lean the problems solving techniques for aptitude problems • To enable to students prepare themselves for various competitive examinations. • To enhance the problem solving skills, to improve the basic mathematical skills and to help students who are preparing for any type of competitive examinations. • Arithmetic ability test helps measure one's numerical ability. • quantitative aptitude questions includes ranking from pure numeric calculations to critical arithmetic reasoning.	On Completing the syllabus, Learners will be able to • solve the problems based on numbers. • understand the concept of number and alphabet series and analogy • solving problems on coding and blood relations. • solving problems on sequential output tracing and direction sense test. • solving puzzle problems.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Blood Relation – • Puzzle Test	09.08.2021 to 27.08.2021	3	-	-
Unit II	• Number, Ranking and Time Series Test • Mathematical Operations	01.09.2021 to 21.09.2021	2 Hrs 1 Hr	-	-
Unit III	• Arithmetical Reasoning	25.09.2021 to 15.10.2021	3 Hrs	-	-
Unit IV	• Inserting the Missing character	20.10.2021 to 17.11.2021	3 Hrs	-	-
Unit V	• Data sufficiency – Logical Sequence of Words.	21.12.2021 to 31.12.2021	3 Hrs		

D. ACTIVITIES:

Activities Name	Details
Test	Unit Test Date 28.08.2021, 22.09.2021, 16.10.2021
Assignment	23.09.2021, 17.10.2021
Quiz	20.11.2021
Seminar	24.09.2021, 19.10.2021, 20.11.2021
Tutor Ward Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.U.Elayarani**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **Topology**

Lecture Hours : **45 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To study the concepts concerned with properties that are preserved under continuous deformations of objects. • To train the students to develop analytical thinking and the study of continuity and connectivity. • To enable the students to learn about the essentials of topological spaces . • To develop the properties of topological spaces in terms of continuity, connectedness, compactness etc. • To analyse about complete	Learners will be able to • Provide precise definitions and appropriate examples and counter examples • of fundamental • concepts in general • topology. • Acquire knowledge about various types of topological spaces and their • properties. • Appreciate the beauty of the mathematical	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

metric spaces.	results like Uryzohn's Lemma. • Demonstrate Tychonoff theorem • Analyse Compactness in Metric spaces.	

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	❖ Topological spaces – basis for a topology – the order topology – ❖ Product topology of XxY – The subspace topology ❖ Closed sets & Limit points – Continuous Functions.	09.08.2021 to 30.08.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit II	❖ The product topology – Metric topology ❖ Connected spaces – Connected sets in the real line – ❖ Compact spaces.	01.09.2021 to 21.09.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit IV	❖ The Tychonoff theorem ❖ Completely Regular Spaces ❖ The Stone – Cech – Compactification.	25.09.2021 to 15.10.2021	6 Hrs 5 Hrs 4 Hrs	-	-

D. ACTIVITIES:

Activities Name	Details
Test	Unit Test Date 28.08.2020, 22.09.2020, 16.10.2020, 18.11.2020, 20.12.2020
Assignment	23.09.2020, 17.10.2020,
Quiz	31.08.2021,20.11.20
Seminar	24.09.2020, 19.10.2020, 20.11.2020
Tutor Ward Meeting	Every Saturday

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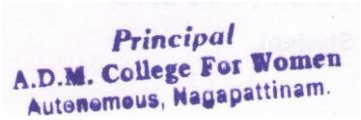

TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	**:**	**Mrs.U.Elayarani**
Department	**:**	**Mathematics**
Programme	**:**	**B.Sc (Chemistry)**
Programme Code	**:**	**USM**
Name of the Paper	:	**Allied Mathematics II**
Lecture Hours	**:**	**12 Hrs (1 Unit Only)**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To study the relation between the roots and coefficients. • To find the eigen values and eigen vectors of square matrices. • To know the different types of methods numerically to solve the given data. • To know about Hyperbolic functions	Learners will be able to • To find the roots using transformation of equations. • To find the inverse of a matrix using Cayley Hamilton's theorem. • To solve the algebraic equations numerically. • To find the inverse hyperbolic functions and its application.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit IV	• Interpolation – Newton's forward & backward difference interpolation formulae • Interpolation with unevenly spaced intervals – Lagrange's interpolating Polynomial • Divided differences – Newton's General Interpolating formula.	19.08.2020 to 28.10.2020	3 Hrs 3 Hrs 3 Hrs	-	-

ACTIVITIES:

Activities Name	Details
Test	Unit Test Date 30.10.2021
Assignment	20.09.2021
Quiz	-
Seminar	-
Tutor Ward Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **U.Elayarani**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **INTEGRAL EQUATIONS AND TRANSFORMS**

Lecture Hours : **45 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce the concept of calculus of variations and integral equations and their applications. • To study the different types of transforms and their properties. • To develop Fourier Transformations, method of Successive Approximations, • To understand the	On completion of the course, learners should be able to • Solve the linear integral equations . • Evaluate the solutions of Volterra and Fredholm integral equations. • Demonstrate on variational problems on moving	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

variational Problems with Fixed Boundaries. • To find solution of variational Problems with Moving Boundaries.	boundaries and fixed boundaries. • Find the Fourier transform ,finite sine and cosine transforms. • Apply Fourier transform in initial and boundary value problems	

C. <u>PLAN OF THE WORK:</u>

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Linear integral Equations – Definition Regularity conditions • Special kind of kernels – Eigen values and Eigen functions • Convolution integral – the inner of scalar product of two functions – Notation • Reduction to a system of Algebraic equations • Fredholm alternative, examples.	09.08.2021 to 30.08.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• An approximate method – Method of successive Approximations Iterative scheme -	01.09.2021 to 21.09.2021	5 Hrs 5 Hrs	-	-

	examples • Volterra Integral Equation – examples • Some results about the resolvent kernel.		5 Hrs		
Unit III	• Fourier Transform • Integral formula complex transform – cosine – sine transform • Property – linearity , Change of scale , shifting • Modulation theorem • Convolution theorem – problems.	25.09.2021 to 15.10.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 29.09.2021, 13.10.2021
Assignment	28.10.2021, 16.11.2021
Quiz	29.12.2021
Seminar	22.12.2021 to 24.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **U.Elayarani**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **ALGEBRA**

Lecture Hours : **45 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To Study advanced concepts in Group Theory. • To gain the knowledge about Polynomial Rings over Fields. • To learn about dual spaces. • To understand the extension fields and finite fields. • To interpret the elements of Galois Theory.	On completion of the course, learners should be able to • understand Sylow's theorem and its applications • analyze the various types of polynomials • develop the knowledge about modules • evaluate the roots and characteristics of polynomials. • apply finite fields in Galois Theory	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• A Counting Principle • Normal Subgroups and Quotient Groups • Homomorphism • Permutation Groups , Another Counting Principle • Sylow's theorems.	09.08.2021 to 30.08.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• Polynomial Rings • Polynomial Rings over Rational Field • – Polynomial Rings over Commutative Rings.	01.09.2021 to 21.09.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit III	• Vector Spaces and Modules: • Dual Spaces • Inner Product Spaces • Modules	25.09.2021 to 15.10.2021	5 Hrs 5 Hrs 5 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 29.09.2021, 13.10.2021
Assignment	28.10.2021, 16.11.2021
Quiz	29.12.2021
Seminar	22.12.2021 to 24.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Mrs.U.Elayarani**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Operations Research**

Lecture Hours : **15 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To find the solution of the LPP using graphical method • To understand different types of LPP • To solve Transportation Problem using various methods • To introduce Assignment Problem and solve it • To explore the concepts of Network Analysis and rules of network construction	• Analyse and solve linear programming models of real life situations. • Understand the problem solving method of Simplex and Big M Method. • Learn the applications of Transportation Problem. • Learn to solve Assignment problems. • Use PERT and CPM in solving Network Analysis problems.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	❖ Mathematical formulation of an AP ❖ The Assignment algorithm ❖ The Traveling Salesman Problem.	09.08.2021 to 27.08.2021	5 Hrs 5 Hrs 5 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 25.08.2021
Assignment	19.8.2021
Quiz	-
Seminar	-
Tutor Ward Meeting	Every Saturday

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr.L.JENNATHUNNISHA**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Real Analysis**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce Real Number System • To explore the concepts of neighborhoods and its related parameters. • To define continuous functions • To define Derivative and algebra of derivatives • To derive mean value theorems	• Learners will be able to state the nature of number system and field axioms • Define open sets, closed sets, limit points, closure and interior of a set, compactness and connectedness • Differentiate continuous and discontinuous functions, uniform continuous functions. • State derivative function and Darboux's theorem • Prove intermediate value theorems	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Absolute value in R • Supremum and Infimum of a set • Some Subsets of R • Countable and Uncountable sets.	09.08.2021 to 27.08.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit II	• Types Continuity of Functions • Types of discontinuous functions • Algebra of Continuous functions • Intermediate Value theorem • Inverse function theorem and Uniform continuity of a function.	28.08.2021 to 14.09.2021	4Hrs 2Hrs 2Hrs 4Hrs 3 Hrs	-	-
Unit III	• Derivability • Algebra of derivatives • Inverse function theorem • Darboux theorem	15.09.2021 to 31.09.2021	5 Hrs 4 Hrs 2 Hrs 4Hrs	-	-
Unit IV	• Rolle's Theorem • Mean value theorems on derivatives • Taylor's theorem with remainder	01.10.2021 to 20.10.2021	5Hrs 5Hrs 5 Hrs	-	-

Unit V	• Riemann integration: Definition and Darboux's theorem • Conditions of Integrability: integrability of continuous and monotonic functions • Properties of Integrable functions • Integral functions, Continuity and derivability of Integral functions, The first Mean value Theorem, fundamental theorem of integral calculus.	21.10.2021 to 20.11.2021	3Hrs 4 Hrs 4 Hrs 4Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 28.8.2021,15.9.2021,31.10.2021,21.11.2021
Assignment	24.8.2021,12.9.2021, 27.10.2021
Quiz	30.8.2021,6.10.2021, 29.11.2021(Objective Type Questions)
Seminar	14.9.2021,7.10.2021,28.10.2021,2.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr.L.JENNATHUNNISHA**

Department : **Mathematics(S.F)**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Algebra**

Lecture Hours : **30 Hrs**

B ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To introduce the concept of Algebra from the basic set theory and functions, etc. • To introduce the concept of Group theory and Rings. • To facilitate a better understanding of vector space. • To solve problems in linear algebra.	Learners will be able to • gain the knowledge of sets, mapping, relations, groups and subgroups. • interpret the notion of normal groups and isomorphism. • analyze the concepts of homomorphism and isomorphism for rings and field. • recognize the facts of vector space and linear independence. • calculate the basis, dimension, matrix of the linear transformation and inner product space.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C.PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Introduction –Definitions and Examples • Subgroups – Cyclic groups • Order of an element – • Cosets and Lagrange's Theorem	9.08.2021 to 15.09.2021	4 Hrs 4Hrs 5Hrs 5 Hrs	-	-
Unit II	• Normal subgroups and quotient groups • Finite groups and Cayley's theorem • Isomorphism and homomorphism	16.09.2021 to 20.10.2021	6 Hrs 6Hrs 4Hrs	-	-

D.ACTIVITIES:

Activities Name	Details
Test	Unit Test Date 21.92021,25.10.2021,28.11.2021,1.12.2021
Assignment	18.9.2021,12.11.2021,
Quiz	29.9.2021,5.12.2021(Objective Type Questions)
Seminar	15.10.2021,7.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A.GENERAL INFORMATION

Name of the Faculty : **Dr.L.JENNATHUNNISHA**

Department : **Physics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Algebra, Analytical Geometry of 3D and Trignometry Trigonometry**

Lecture Hours : **60 hrs**

B. <u>ABOUT THE COURSE:</u>

Course Objectives	Course Outcomes	Teaching Methodology
• To gain the knowledge about the summation of series • To find inverse of a matrix using Cayley Hamilton theorem. • To understand straight line and sphere • To know the expansion of sin $n\theta$, cosine $n\theta$ • To acquire the knowledge about hyperbolic and inverse hyperbolic functions.	• To know the relation between binomial exponential and summation of series. • To analysis and evaluate the Eigen values and Eigen vectors • To recognize three dimensional shapes in the world around them • To finding trigonometric functions using definition and identities • To apply the formulas for derivatives and integrals of the hyperbolic and inverse hyperbolic functions	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C.PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Binomial, Exponential and logarithmic series • Summation and approximation related problems only.	09.08.2021 to 27.08.2021	6Hrs 6 Hrs	-	-
Unit II	• Eigen values and Eigen Vectors • Verifications of Cayley – Hamilton's Theorem – Simple Problems.	28.08.2021 to 14.09.2021	6 hrs 6 hrs	-	-
Unit III	• Right line – Coplanar lines – conditions for the co planarity of lines - Number of arbitrary constants in the equations of the straight line - the shortest distance between the two lines • Spheres – Definitions – the sphere through four given points – Equations of a circle.	15.09.2021 to 31.09.2021	6 Hrs 6 Hrs	-	-
Unit IV	• Expansion of Sin θ ,Cos $n\theta$ and tan $n\theta$, • $\sin^n\theta, \cos^n\theta$,$\sin^n\theta\cos^m\theta$– Simple problems.	01.10.2021 to 20.10.2021	6 Hrs 6 Hrs	-	-
Unit V	• Hyperbolic functions – Relations between	21.10.2021 to	6 Hrs	-	-

	hyperbolic functions and circular Trigonometry • Inverse hyperbolic functions – Simple problems	20.11.2021	6Hrs		

A. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 28.8.2021,15.9.2021,31.10.2021,21.11.2021
Assignment	24.8.2021,12.9.2021, 27.10.2021
Quiz	30.8.2021,6.10.2021, 29.11.2021(Objective Type Questions)
Seminar	14.9.2021,7.10.2021,28.10.2021,2.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Dr.I.Jannathul Firthouse**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Algebra**

Lecture Hours : **60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To acquire the knowledge of basic abstract system of mathematics. • To understand the concepts of subgroups, normal subgroups, isomorphism and homomorphism. • To study the algebraic systems with two binary operations and properties of rings up to isomorphism. • To learn the concepts of vector spaces, subspaces and linear independence. • To explore the concepts of basis and dimension, matrix of a linear transformation and the inner product space.	• Gain the knowledge of sets, mapping, relations, groups and subgroups • Interpret the notion of normal groups and isomorphism. • Analyze the concepts of homomorphism and isomorphism for rings and field. • Recognize the facts of vector space and linear independence • Calculate the basis, dimension, matrix of the linear transformation and inner product space	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit III	• Definition and examples • Elementary properties of rings • Types of rings • Characteristics of rings • Subrings • Ideals • Quotient rings • Homomorphism of rings.	09.08.2021 to17.09.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit IV	• Introduction • Definition and examples • Subspaces • Linear transformation • Span of a set • Linear independence.	18.09.2021 to 10.10.2021	4 Hrs 2 Hrs 2 Hrs 4 Hrs 3 Hrs	-	-
Unit V	• Basis and dimension • Rank and Nullity • Matrix of a linear transformation • Inner product space	11.10.2021 to 24.12.2021	5 Hrs 4 Hrs 2 Hrs 4 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 21.8.2021,15.9.2021,28.10.2020,1.12.2021
Assignment	24.8.2021,12.9.2021, 27.10.2021
Quiz	25.8.2021,6.10.2021, 29.10.2021(Objective Type Questions)
Seminar	14.9.2021,7.10.2021,28.10.2021,2.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : Dr.I.Jannathul Firthouse

Department : Mathematics

Programme : B.Sc

Programme Code : USM

Name of the Paper : Operations Research

Lecture Hours : 90 Hrs

B. <u>ABOUT THE COURSE:</u>

Course Objectives	Course Outcomes	Teaching Methodology
• To find the solution of the LPP using graphical method • To understand different types of LPP • To solve Transportation Problem using various methods • To introduce Assignment Problem and solve it • To explore the concepts of Network Analysis and rules of network construction	• Learners will be able to • Analyse and solve linear programming models of real life situations. • Understand the problem solving method of Simplex and Big M Method. • Learn the applications of Transportation Problem. • Learn to solve Assignment problems. • Use PERT and CPM in solving Network Analysis problems.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Linear Programming Problem • Mathematical Formulation of L.P.P • Graphical Solution • General Linear Programming Problem • Canonical and Standard form of LPP • Simplex method	09.08.2021to 13.09.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit II	• Use of Artificial Variables • Two Phase Method • Duality in Linear Programming problem • General primal Dual Pair • Formulating a dual Problem • Dual Simple Method	14.09.2021 to 18.10.2021	3 Hrs 5 Hrs 3 Hrs 3 Hrs	-	-
Unit III	• Transportation Problem • Finding Initial Basic feasible Solution • Test for Optimality • MODI Method	20.10.2021 to 30.10.2021	3 Hrs 5 Hrs 3 Hrs 3 Hrs		
Unit IV	• Assignment problem • Mathematical formulation of an AP	01.11.2021 to 25.11.2021	4 Hrs 2 Hrs		

	• The Traveling Salesman Problem		2 Hrs 4 Hrs 3 Hrs		
Unit V	• Network Scheduling by PERT / CPM • Time Calculations in Networks • Critical Path Analysis • PERT Calculations.	30.11.2021 to 25.01.2022	5 Hrs 4 Hrs 2 Hrs 4 Hrs		

D. ACTIVITIES:

Activities Name	Details
Test	Unit Test Date: 28.08.2021, 14.09.2021
Assignment	17.09.2021 and 29.10.2021
Quiz	20.10.2021(Objective Type Questions)
Seminar	23.10.2021 to 30.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	**:**	**Dr.I.Jannathul Firthouse**
Department	**:**	**Mathematics**
Programme	**:**	**B.B.A**
Programme Code	**:**	**UBA**
Name of the Paper	**:**	**Allied Operations Research**
Lecture Hours	**:**	**60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To define and formulate linear programming problems and appreciate their limitation • To train the students in network problems. • To train the students to solve the assignment problems, transportation problems. • To solve LPP using appropriate	• Formulate the given simplified description of a suitable real work problem as a linear programming models in general , standard and canonical forms • Solve Transportation and assignment Problems • Know Principles of Construction of Mathematical; Model of Conflicting situations and Mathematical Analysis • Methods of Operations Research be able to choose rational option in practical decision making problems	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

techniques and optimization solvers. • To develop mathematical skills to analyzed and solved integer programming and network models arising from a wide range of applications.	using standard mathematical models of Operations Research • Have Skills in Analysis of Operations Research objectives ,Mathematical Methods and Computerized systems	

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Definition of L.P.Pand Graphical Solution Method • Charteristic Feature of O.R • Canonical and Standard form of O.R • Linear programming formulations and graphical solution of two variables-Canonical and Standard forms of LPP	09.08.2021to 13.09.2021	4 Hrs 3 Hrs 4 Hrs 4 Hrs	-	-
Unit II	• Simplex method • Simplex method for <,=,> constraints • Charner's method of	14.09.2021 to 18.10.2021	3 Hrs 5 Hrs 3 Hrs	-	-

	penalties • Two phase simplex method		3 Hrs		
Unit III	• Transportation problems • Mathematical formulation of the problem • Degeneracy Transportation problem • Transportation Algorithm • Unbalanced Transportation Problem- Assignment algorithm	20.10.2021 to 30.10.2021	3 Hrs 5 Hrs 3 Hrs 3 Hrs	-	-
Unit IV	• Sequencing Problems • Processing of n jobs through two machines • Processing of n jobs and k machines • Processing of 2 jobs and through m machines	01.11.2021 to 25.11.2021	3 Hrs 4Hrs 4Hrs 4Hrs	-	-
Unit V	• Networks • Rules of Network Construction • Time calculations in Networks • CPM computation	30.11.2021 to 25.01.2022	3 Hrs 4Hrs 4Hrs 4Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date: 28.08.2021, 14.09.2021
Assignment	17.09.2021 and 29.10.2021
Quiz	20.10.2021(Objective Type Questions)
Seminar	23.10.2021 to 30.11.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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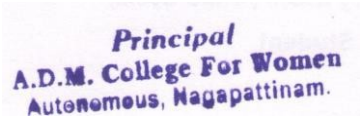

TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Ms.P.Udhaya**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **USM**

Name of the Paper : **Discrete Mathematics**

Lecture Hours : **75 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To know Formal Languages • To understand the concept of permutations and Combinations • To study about Finite State Machines • To gain the knowledge of Numeric Functions • To know the concept of Recurrence Relations.	• understand the basic concepts of Formal Languages. • Permutations and Combinations. • acquire knowledge about Finite State Machines • understand Numeric Functions • understand Recurrence Relations.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Languages • Phrase structure grammars • Types of grammars	21.02.2022 to 05.03.2022	5Hrs 4Hrs 4Hrs	-	-
Unit II	• Introduction • The Rules of sum and Product Permutations • Combinations • Generation of permutations and combinations.	07.03.2022 to 22.03.2022	3Hrs 4Hrs 4Hrs	-	-
Unit III	• Introduction • Finite State Machines • Finite State Machines as Models of Physical systems • Equivalent Machines • Finite State Machines as language recognizers.	23.03.2022 to 09.04.2022	4Hrs 4Hrs 4Hrs	-	-
Unit IV	• Introduction • Manipulation of Numeric functions • Asymptotic behaviour of Numeric functions • Generating functions	10.04.2022 to 25.04.2022	4Hrs 5Hrs 3 Hrs	-	-
Unit V	• Introduction • recurrence relations • linear recurrence relations with constant co – efficients Homogeneous solutions Particular solutions • Total solution	26.04.2022 to 12.05.2022	4Hrs 4Hrs 4Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date: 21.03.2022, 10.04.2022,28.04.2022,15.5.22
Assignment	22.03.2022, 10.04.2022, 22.04.2022
Quiz	01.04.2022,19.05.2022
Seminar	23.03.2022,11.04.2022,22.04.2022,18.05.2022
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Monthly Once

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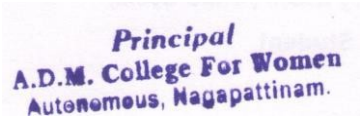

TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Ms.P.Udhaya**

Department : **Mathematics**

Programme : **B.sc**

Programme Code : **PSM**

Name of the Paper : **Differential Equations and Laplace Transforms**

Lecture Hours : **60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To study the concepts of linear equations. • To study the basic concepts of partial differential equations. • To know the standard forms of first order equations. • To understand the concepts of Laplace Transform. • To find the inverse Laplace transform of the given functions	• To solve the linear differential equations. • To find the complete solution of partial differential equations. • To find the solutions of first order equations of the standard form. • To find the Laplace transform of the given functions. • To solve the ordinary differential equations using inverse Laplace transform.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method

C. PLAN OF THE WORK:

Unit / Modules	• Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Linear equations with constant coefficients • Evaluation of particular integral of x^k where k is a positive integerand $e^{ax}f(x)$, where f(x) is any function of x • second order linear equations with variable coefficients • Simple Problems.	21.02.2022 to 05.03.2022	5 Hrs 4Hrs 4Hrs	-	-
Unit II	• Partial differential Equations • Formation of equations by elimination of constants and arbitrary functions • Definition of General, Particular, Complete and singular integral (Geometrical meaning not expected) • Lagrange's method of solving the linear equations (Pp+Qq=R) Simple Problems • Solutions of first order equations of the standard forms F(p,q)=0, F(x,p,q)=0, F(y,p,q)=0, F(z,p,q)=0, F(x,p)=F(y,q) • Clairaut's form • Simple Problems.	07.03.2022 to 22.03.2022	3Hrs 4Hrs 4Hrs	-	-

Unit III	• Definition • Laplace transform of functions e^{at}, cosat ,sinat, t^n where n is a positive integer • Shifting theorems • Laplace transform of $e^{-at}f(t)$–Laplace transform of $e^{-at}cosbt$,$e^{-at}sinbt$ and $e^{-at}f(t)$ • Laplace transform of $f(t)$and$f'(t)$ • Simple Problems	23.03.2022 to 09.04.2022	4Hrs 4Hrs 4Hrs	-	-
Unit IV	• Inverse transform of standard forms • Application to the solution of ordinary differential equations with constant coefficient involving the above transformations • Simple Problems.	10.04.2022 to 25.04.2022	4Hrs 5Hrs 3 Hrs	-	-
Unit V	• Gradient of a vector • Directional derivative • Unit normal vector • tangent plane • Divergence and Curl • solenoidal & irrotaional vectors- Double Operators • Properties connecting grad., div., and curl of a vector.	26.04.2022 to 12.05.2022	4Hrs 4Hrs 4Hrs	-	-

D. ACTIVITIES:

Activities Name	Details
Test	Unit Test Date: 24.03.2022, 12.04.2022,29.04.2022
Assignment	22.03.2022, 10.04.2022, 22.04.2022
Quiz	01.04.2022,19.05.2022
Seminar	13.04.2021 to 29.04.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty	**:**	**Ms.P.Udhaya**
Department	**:**	**Mathematics**
Programme	**:**	**B.Sc**
Programme Code	**:**	**USM**
Name of the Paper	**:**	**Gender studies**
Lecture Hours	**:**	**12 hrs**

B. ABOUT THE COURSE:

Course Objectives	Teaching Methodology
• To make boys and grils aware of each others strength and weakness. • To develop sensitivity towards both genders in order to lead an ethically enriched life. • To promote attitudinal change towards a gender balanced ambience and women.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit-I	• Concepts of Gender	21.02.2022 to 05.03.2022	2 hrs		
Unit-II	• Womens Studies VS Gender studies	07.03.2022 to 22.03.2022	2 hrs		
Unit-III	• Areas of Gender studies	23.03.2022 to 09.04.2022	3 hrs		
Unit-IV	• Women Development and Gender Empowerment	10.04.2022 to 25.04.2022	2 hrs		
Unit-V	• Womens Movements and Safeguarding Mechanism	26.04.2022 to 12.05.2022	3 hrs		

D. ACTIVITIES:

Activities Name	Details
Test	Unit Test Date: 24.03.2022, 12.04.2022,29.04.2022
Assignment	22.03.2022, 10.04.2022, 22.04.2022
Quiz	01.04.2022,19.05.2022
Seminar	13.04.2021 to 29.04.2021
Tutor ward	Monthly Once
Mentor Meet	Weekly Once

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A. GENERAL INFORMATION

Name of the Faculty : **Ms.P.Udhaya**

Department : **Mathematics**

Programme : **M.Sc**

Programme Code : **PSM**

Name of the Paper : **Fluid Dynamics**

Lecture Hours : **90 hrs**

B. ABOUT THE COURSE:

Course Objectives	Teaching Methodology
• To give the students an introduction to the behavior of fluids in motion. • To give the students a feel of the applications of Complex Analysis in the analysis of the flow of liquids. • To study the concepts viscosity and laminar flow. • To study the Navier – Stokes equations of Motion of a Viscous Fluid. • To study the energy dissipation due to viscosity.	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit-I	• Real fluids and Ideal Fluids Velocity of a Fluid at a point Streamlines and Path lines; Steady and Unsteady Flows Velocity potential • Vorticity vector • Local and Particle Rates of Change • Equation of continuity • Worked examples Acceleration of a Fluid	21.02.2022 to 05.03.2022	2Hrs 5Hrs 4Hrs 4Hrs		
Unit-II	• Pressure at a point in a Fluid at Rest • Pressure at a point in Moving Fluid • Conditions at a Boundary of Two Invisid Immiscible Fluids Euler's equation of motion Bernoulli's equation • worked examples • Introduction Sources, Sinks and Doublets • Axi-Symmetric Flows: Stokes stream function	07.03.2022 to 22.03.2022	3Hrs 4Hrs 4Hrs 4Hrs		
Unit-III	• Meaning of Two-		2Hrs		

	Dimensional Flow Use of cylindrical Polar coordinates • stream function • complex potential for Two-Dimensional, Irrotational Incompressible Flow • complex velocity potentials for Standard Two Dimensional Flows • Some worked examples Milne-Thomson circle theorem and applications.	23.03.2022 to 09.04.2022	5Hrs 4Hrs 4Hrs		
Unit-IV	• Theorem of Blasius - Stress components in Real fluid relation between Cartesian • components of stress • Translational Motion of Fluid Element • Rate of Strain • Quadric and Principal Stresses • some further properties of the rate of strain quadric • stress analysis in fluid motion relations between stress and rate of strain • coefficient of viscosity	10.04.2022 to 25.04.2022	3Hrs 4Hrs 4Hrs 4Hrs		

	and laminar flow				
Unit-V	• The Navier –Stokes equations of Motion of a Viscous Fluid Some solvable problems in viscous flow • steady viscous flow in tubes of uniform cross section • diffusion of vorticity • energy dissipation due to viscosity	26.04.2022 to 12.05.2022	4Hrs 4Hrs 4Hrs 3Hrs		

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date: 24.03.2022, 12.04.2022,29.04.2022
Assignment	22.03.2022, 10.04.2022, 22.04.2022
Quiz	01.04.2022,19.05.2022
Seminar	13.04.2021 to 29.04.2021
Tutor ward	Monthly Once
Mentor Meet	Weekly Once

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Teaching PLAN - ODD SEMESTER 2021-22

A. GENERAL INFORMATION

Name of the Faculty : **Ms. S.P.Nivetha**

Department : **Mathematics**

Programme : **B.Sc (Mathematics)**

Programme Code :

Name of the Paper : **Statistical Methods and Business**

Lecture Hours : **90 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To impart the knowledge about collection and condensation of data. • To study the various types of averages • To enable the students to compute various measures of dispersion • To impart the knowledge about the degree of relationship between variables and estimate unknown variable from known variables • To impart the knowledge about the basics of Index numbers	• Learners will be able to • The methods of data collection ,classification and tabulation • The applications of averages • The problems related to measures of dispersion • The applications of correlation and regression • The uses and applications of the index numbers	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Statistics- definition – scope – functions and limitations of statistics • Primary and secondary data –definition methods of collecting primary data – sources of secondary data • Classification of data- types of classification and formulation of frequency table • Tabulation – definition parts of table – rules and kinds of tables	02.08.2021 to 18.08.2021	4 Hrs 4 Hrs 4 Hrs 3 Hrs	-	-
Unit II	• Measures of central tendency • Arithmetic mean Geometric mean and harmonic mean • Simple problems	19.08.2021 to 06.09.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit III	• Measures of dispersion range quartile deviation and standard deviation and their coefficients simple problems • Skewness types and	07.09.2021 to 25.09.2021	5 Hrs 5 Hrs	-	-

	methods karl pearson and bowley's coefficient of skewness • Kurtosis definition types		5 Hrs		
Unit IV	• Definition simple correlation types of correlation methods of correlation • Scatter diagram karl pearsons coefficient of correlation. Spearmans rank correlation simple problems • Linear regression lines of regression simple problems	27.09.2021 to 16.10.2021	5 Hrs 5 Hrs 5 Hrs	-	-
Unit V	• Index numbers definition uses construction unweighted index number simple aggregative method and simple average of Fishers index numbers • Time reversal and factor reversal test simple problems	18.10.2021 to 05.11.2021	3 Hrs 2 Hrs 5 Hrs 5 Hrs	-	-

D. <u>ACTIVITIES:</u>

Activities Name	Details
Test	Unit Test Date 26.08.2021,15.09.2021, 08.10.2021
Assignment	20.08.2021,13.09.2021, 20.10.2021
Quiz	16.9.2021, 08.11.2021 (Objective Type Questions)
Seminar	25.8.2021, 14.09.2021, 15.10.2021, 24.11.2021, 10.12.2021
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

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TEACHING PLAN

A. GENERAL INFORMATION

Name of the Faculty : **Ms. S.P.Nivetha**

Department : **Mathematics**

Programme : **B.Sc**

Programme Code : **BMAP2**

Name of the Paper : **Operations Research**

Lecture Hours : **60 Hrs**

B. ABOUT THE COURSE:

Course Objectives	Course Outcomes	Teaching Methodology
• To define and formulate linear programming problems and appreciate their limitation. • To train the students in Network problems. • To train the students to solve the assignment problems, Transportation problems. • To solve LPP using appropriate techniques and optimization solvers. • To develop mathematical skills to analyzed and solved integer programming and network models arising from a wide range of applications.	• Learners will be able to • Formulate the given simplified description of a suitable real work problem as a linear programming models in general, standard and canonical forms. • Solve transportation and assignment problems. • Know Principles of construction of Mathematical; Model of Conflicting situations and Mathematical analysis. • Methods of Operations Research be able to	• Power Point • E – Module • Chalk & Talk Method • Lecture Method • Discussion Method • Study Assignment Method, • Problem Solving Method • Seminar Method • Demonstration Method

	choose rational option in practical decision making problems using standard mathematical models of Operations Research. • Have Skills in analysis of Operations Research objectives, Mathematical Models and Computerized systems	

C. PLAN OF THE WORK:

Unit / Modules	Topic to be covered	Proposed date	Lecture Hrs	Practical Hrs	Remarks
Unit I	• Operations Research: Introduction – Nature and Characteristics features of OR –OR and Decision making • Linear Programming formulations and graphical solution of two variables • Canonical and standard forms of LPP	08.10.2021 to 18.10.2021	3 Hrs 3 Hrs 3 Hrs	-	-
Unit II	• Simplex Method: Simplex method for <, =, > constraints • Charner's Method of penalties • Two Phase method.	19.08.2021 to 09.09.2021	3 Hrs 3 Hrs 3 Hrs	-	-
Unit III	• Transportation problems: Mathematical formulations of the problem • Degeneracy transportation	13.09.2021 to 25.09.2021	2 Hrs 2 Hrs	-	-

	problems • Transportation Algorithm Unbalanced Transportation problem • Assignment Algorithm		3 Hrs 3 Hrs 2Hrs		
Unit IV	• Sequencing problems: Processing of n jobs through two machines • Processing of n jobs and k machines • Processing of 2 jos and through m machines	05.10.2021 to 22.10.2021	3 Hrs 3 Hrs 3 Hrs	-	-
Unit V	• Networks: Rules of Network constructions • Time calculations in networks • CPM computations • PERT computations	30.10.2021 to 24.11.2021	3 Hrs 3 Hrs 3 Hrs 3 Hrs	-	-

ACTIVITIES:

Activities Name	Details
Test	Unit Test Date: 01.09.2021,25.09.2021,01.12.2021
Assignment	20.09.2021, 5.12.2021
Quiz	27.12.2021(Objective Type Questions)
Seminar	09.12.2021 to 25.12.2021
Tutor Ward Meeting	Monthly Once

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