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

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

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

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

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

R. Dr

PRINCIPAL

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

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

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

Unit /	Topic to be covered	Proposed	Lecture	Practical	Remarks
Modules		date	Hrs	Hrs	
Unit I	Subgroups	09.08.2021	4 Hrs	-	-
	Cyclic Groups	to			
	• Order of an Element	31.08.2021	3 Hrs		
	• Cosets and Lagrange's		4 Hrs		
	Theorem.		4 Hrs		
Unit II	Normal Subgroups and		4 Hrs	-	-
	Quotient Groups Isomorphism 	1.09.2021 to	2 Hrs		
	 Cayley's theorem 	20.09.2021	2 Hrs		
	Homomorphism		4 Hrs		
	 Fundamental theorem of homomorphism. 		3 Hrs		
Unit III	Rings -definition and		2 Hrs	-	-
	examples	21.09.2021			
	• Elementary properties, Isomorphism	to	2 Hrs		
	• Types of rings	20.10.2021	3 Hrs		
	characteristic of a ring Subrings Ideals		2 Hrs		
	Quotient rings		2Hrs		
	Homomorphism of rings		2Hrs		
Unit IV	• Vector Saces –Definition and		3 Hrs	-	-
	examples	21 10 2021	3 Hrs		
	Subspaces	to	3Hrs		
	Linear TransformationSpan of a set	20.11.2021	3 Hrs		

	•	Linear Independence		3Hrs		
Unit V	•	Basis and Dimension	22.12.2021	4 Hrs	-	-
	•	Rank and Nullity	to	2 Hrs		
	•	Matrix of a linear	21 12 2021			
		transformation.	51.12.2021	4 Hrs		
	•	Inner product Space		5 Hrs		

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			

R. Dom C

PRINCIPAL

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

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

C. PLAN OF THE WORK:

Unit /		Topic to be covered	Proposed	Lecture	Practical	Remarks
Modules			date	Hrs	Hrs	
IInit I	•	Conjugacy	01 10 2021 to	5 Hrs	-	-
onici		Couchy's Theorem for	19 10 2021 0	5 11 5		
	•	chalian Group	17.10.2021	5 Hrs		
				5 Hrs		
	•	Sylow's Theorems		5 11 5		
Unit II	•	Polynomial rings.	23.10.2021 to	5 Hrs	-	-
	•	Polynomial rings over	12.11.2021	5 Hrs		
		rational field.		0 1110		
	•	Polynomial rings over		5 Hrs		
		Commutative rings.				
Unit III	•	Dual spaces	13.11.2021 to	4 Hrs	-	-
	•	Properties	03.12.2021	2Unc		
	•	Modules.		51115		
	•	Fundamental theorem on		4 Hrs		
		finitely Generated		4 Hrs		
		modules		mis		
Unit IV	•	Extension fields	04.12.2021 to	5 Hrs	-	-
	•	Roots of polynomials	19.12.2021	E Hara		
	•	More About Polynomials.		5 H FS		
				5 Hrs		
Unit V		The Elements of Calaia	21 12 2021 to	2 Urc	_	_
Unit v	•	The clements of Galois	21.12.2021 to	5 111 5	-	-
			51.12.2021	3 Hrs		
	•	Fixed field		2Hrc		
	•	Normal extension		51115		
	•	Fundamental theorem of		3 Hrs		
		Galois elements		3 Hrs		
	•	Finite fields		5 111 5		

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

R. Dom >

PRINCIPAL

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

	Course Objectives Course Outcomes		Teaching Methodology
•	Course Objectives 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	 Course Outcomes 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. 	 Teaching Methodology Power Point E – Module Chalk & Talk Method Lecture Method Discussion Method Study Assignment Method, Problem Solving Method Seminar Method Demonstration Method
		 discontinuous functions, uniform continuous functions. State derivative function and Darboux's theorem Prove intermediate value theorems 	Demonstration Method

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

Topic to be covered	Proposed	Lecture	Practical	Remarks
	date	Hrs	Hrs	
Absolute value in R	09.08.2021 to	4 Hrs	_	
Supremum and Infimum	27.08.2021	1110		
of a set		3 Hrs		
 Some Subsets of R 		4 Hrs		
 Countable and 				
Incountable sets		4 Hrs		
Types Continuity of		4 Hrs		
• Types continuity of		71115		
Types of discontinuous	28.08.2021 to	2 Hrs		
• Types of discontinuous	17.09.2021	2 Hrs		
Algebra of Continuous				
• Algebra of continuous		4 Hrs		
Intermediate Value		3 Hrs		
• Intermediate value				
 Invorse function theorem 				
Inverse function theorem				
a function				
a Iulictioli.	18 09 2021 to	5 Hrs	_	
Algebra of derivatives	06 10 2021	5 1115		
Algebra of derivatives	00.10.2021	4 Hrs		
Inverse function theorem		2 Hrs		
• Darboux theorem		4 Hrs		
Rolle's Theorem	07.10.2021 to	5 Hrs	-	-
 Mean value theorems on 	29.10.2021			
derivatives		5 Hrs		
• Taylor's theorem with		5 Hrs		
remainder				
	Topic to be covered•Absolute value in R•Supremum and Infimum of a set•Some Subsets of R•Countable and Uncountable sets.•Types Continuity of Functions•Types of discontinuous functions•Algebra of Continuous functions•Intermediate Value theorem•Inverse function theorem and Uniform continuity of a function.•Derivability•Algebra of derivatives•Inverse function theorem and Uniform continuity of a function.•Taylor's theorem•Taylor's theorem with remainder	Topic to be coveredProposed dateabsolute value in R09.08.2021 toSupremum and Infimum of a set27.08.2021Some Subsets of R-Countable and Uncountable setsTypes Continuity of Functions28.08.2021 toTypes of discontinuous functions17.09.2021functions17.09.2021Algebra of Continuous functions-Intermediate Value theorem-Inverse function theorem and Uniform continuity of a function.18.09.2021 toDerivability18.09.2021 toAlgebra of derivatives06.10.2021Mean value theorem and unit form commis-Mean value theorem theorem07.10.2021 toMean value theorem son derivatives29.10.2021Taylor's theorem with remainder-	Topic to be coveredProposed dateLecturedateHrsAbsolute value in R09.08.2021 to 27.08.2021 to 3 Hrs4 HrsSupremum and Infimum of a set27.08.2021 4 Hrs3 HrsSome Subsets of R4 HrsCountable and Uncountable sets.4 HrsUncountable sets.28.08.2021 to 17.09.20212 HrsTypes Continuity of Functions28.08.2021 to 17.09.20212 HrsAlgebra of Continuous functions17.09.20212 HrsIntermediate Value theorem3 Hrs3 HrsInverse function theorem a function.18.09.2021 to 06.10.20215 HrsAlgebra of derivatives barboux theorem07.10.2021 to 2 Hrs5 HrsInverse function theorem a function.07.10.2021 to 2 Hrs5 HrsMean value theorems on derivatives29.10.20215 HrsMean value theorem son derivatives29.10.20215 HrsTaylor's theorem with remainder5 Hrs5 Hrs	Topic to be coveredProposed dateLecture HrsPractical HrsAbsolute value in R09.08.2021 to 27.08.20214 Hrs-Supremum and Infimum of a set27.08.2021 4 Hrs3 Hrs-Some Subsets of R4 Hrs4 Hrs-Countable and Uncountable sets.4 Hrs4 Hrs-Types Continuity of Functions28.08.2021 to 17.09.20212 Hrs2 HrsAlgebra of Continuous functions28.08.2021 to 17.09.20212 Hrs-Intermediate Value theorem3 HrsInverse function theorem and Uniform continuity of a function.18.09.2021 to 06.10.20215 Hrs-Operivability18.09.2021 to 06.10.20215 Hrs-Nalgebra of derivatives unctions07.10.2021 to 2 Hrs5 Hrs-Inverse function theorem and Uniform continuity of a function.07.10.2021 to 2 Hrs5 Hrs-Nean value theorem theorem07.10.2021 to 2 Hrs5 Hrs-Rolle's Theorem terivatives29.10.2021 to 5 Hrs5 Hrs-Mean value theorems on derivatives29.10.2021 to 5 Hrs5 Hrs-Taylor's theorem with remainder5 Hrs

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

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

R.D.

PRINCIPAL

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

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

C. PLAN OF THE WORK:

Unit /		Topic to be covered	Proposed	Lecture	Practical	Remarks
Modules			date	Hrs	Hrs	
Unit I	•	Basic Topology: Finite,	20.09.2021	5 Hrs	-	-
		Countable and	to	5 H		
		Uncountable sets	07.10.2021	5 Hrs		
	•	Metric spaces		3 Hrs		
	•	Compact sets		2 Hrs		
	•	Perfect sets & connected		- 1110		
		sets.				
Unit II	•	Continuity: Limits of	08.10.2021	4 Hrs	-	-
		Functions & Continuous	to	4 Hrs		
		Functions	30.10.2021	11115		
	•	Continuity and Compactness		4 Hrs		
	•	Continuity and		3 Hrs		
		Connectedness				
	•	Discontinuities				
	•	Monotonic Functions &				
		Infinite Limits and Limits at				
		infinity.				
Unit III	•	. The Riemann Stieltjes	01.11.2021	3 Hrs	-	-
		integral -Definition and	to	4 Hrs		
		Existence of the integral	24.11.2021			
	•	Properties of the integral		4 Hrs		
		functions		4 Hrs		
	•	Integration and				
		Differentiation				
	•	Rectifiable Curves				
Unit IV	•	Sequences and Series of	25.11.2021	3 Hrs	-	-
		Functions: Discussion of	to			
		Main Problem – Uniform	15.12.2021			
		Convergence		3 Hrs		
	•	Uniform Convergence and				

		Continuity		3 Hrs		
	•	Uniform Convergence and		2 Hrc		
		Integration & Uniform		5 1115		
		Convergence and				
		Differentiation		3 Hrs		
	•	Equicontinuous Families of		0 1110		
		Functions				
	•	The Stone - Weierstrass				
		Theorem.				
Unit V	•	Functions of Several	16.12.2021	3 Hrs	-	-
		Variables: Linear	to	3 Hrs		
		Transformations	04.01.2022	5 1115		
	•	Differentiation		3 Hrs		
	•	The Contraction Principle		3 Hrs		
	•	The Inverse Function				
		Theorem		3 Hrs		
	•	The Implicit Function				
		Theorem.				

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
Seminar	
Tutor Ward Meeting	Monthly Once
Mentor Mentee Meeting	Weekly Once

R. Don 0

PRINCIPAL

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

 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 Find the complete solution of a non-homogeneous differential equation as a 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. 		Course Objectives	Course Outcomes	Teaching
 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 				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		3 Hrs	-	-
	 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		
Unit III	 Partial Differential Equations: Formation of equations by elimination of constants and arbitrary functions General, Complete and singular integral 	30.10.2021 to 16.12.2021	3 Hrs 3 Hrs		
	 (Geometrical meaning not expected) Solutions of first order equations of the standard forms 		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

R. Dr >

PRINCIPAL

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

	Course Objectives		Course Outcomes	Т	eaching Methodology
•	To find the solution of the	•	Analyse and solve linear	•	Power Point
	LPP using graphical		programming models of real	•	E – Module
	method		life situations.	•	Chalk & Talk Method
•	To understand different	•	Understand the problem	•	Lecture Method
	types of LPP		solving method of Simplex	•	Discussion Method
	m 1 m		and Big M Method.	•	Study Assignment
•	To solve Transportation				Method,
	Problem using various	•	Learn the applications of	•	Problem Solving
	methods		Transportation Problem.		Method
•	To introduce Assignment	•	Learn to solve Assignment	•	Seminar Method
	Problem and solve it		problems.		
•	To explore the concepts	•	Use PERT and CPM in solving		
	of Network Analysis and		Network Analysis problems.		
	rules of network				
	construction				

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

Unit /	Topic to be covered	Proposed	Lecture Hrs	Practical	Remarks
Modules		date		Hrs	
Unit I	Mathematical Formulation of		3 Hrs	-	-
	L.P.P	09.08.2021			
	Graphical Solution method	to	3 Hrs		
	Some exceptional cases	08.09.2021			
	General Linear Programming		3 Hrs		
	Problem		3 Hrs		
	Canonical and Standard form of				
	LPP		1 Hrs		
	• Simplex method		2 Hrs		
Unit II	Use of Artificial Variables		1 Hr	-	-
	• Two Phase Method	09.09.2021	3 Hrs		
	• Duality in Linear Programming	to	3 Hrs		
	problem	11.10.2021			
	• General primal, Dual Pair		3 Hrs		
	• Formulating a dual Problem		2 Hrs		
	• Duality and Simplex Method		2 Hrs		
	Dual Simplex Method		1 Hr		
Unit III	General Transportation problem		2Hrs	-	-
	• Finding Initial Basic feasible	12.10.2021	4 Hrs		
	Solution	to	4 Hrs		
	• Test for Optimality	19.11.2021	2 Hrs		
	Transportation Algorithm		2Hrs		
	MODI Method		1Hr		
Unit V	Network and Basic Components		2 Hrs	-	-
	Rules of Network Construction	20.112021	2 Hrs		
	• Time Calculations in Networks	to	4 Hrs		
	Critical Path Analysis	31.12.2021	4 Hrs		
	• PERT Calculations.		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				

R. On

PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

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

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
Ouiz	15.11.21.10.12.21
Seminar	20.12.21 to 30.12.21
Tutor Ward Meeting	- Every Saturday

R. Don PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

Unit IV	•	Definition and algebraic		3 Hrs	
		operations	15.112021		
	•	Types of Matrices	to	4 Hrs	
	•	Transpose of a	06.122021		
		matrix,Singular matrix		4 Hrs	
		,Symmetric, Skew- symmetric,			
		Orthogonal, Hermitian, Skew-			
		Hermitian ,Adjoint matrix			
	•	The Inverse of the matrix			
		Reciprocal matrix Reversal		4 Hrs	
		law for the inverse of a			
		product			
	•	Orthogonal matrices and its			
		properties Unitary matrix			
		Rank of the matrix		3 Hrs	
Unit V	•	Simultaneous linear equations	07.12.21		
		(except proof of the theorems)	to		
	•	Eigen values and Eigen	30.12.21		
		vectors			
	•	Cayley Hamilton's			
		theorem(Statement only)			

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				

R. Don o PRINCIPAL

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

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

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

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

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				

R. Dom

PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

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

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

R. Don C

PRINCIPAL

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

	leaching 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 Learners will be able to To apply Leibnitz's Theorem for finding nth derivative of product of functions. To sketch curves in Cartesian polar coordinate systems. To calculate the limit and examine the continuity of the functions 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. <u>PLAN OF THE WORK:</u>

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

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

R. Dom

PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

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

D. ACTIVITIES:

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		

R. Dom C >

PRINCIPAL

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

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

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

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

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

R. Don 0 PRINCIPAL

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

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

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

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

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

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

R. Dom C PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

ACTIVITIES:

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

R. Dom

PRINCIPAL

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

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

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

C. PLAN OF THE WORK:

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

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

D. ACTIVITIES:

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

R. Dom C PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

D. ACTIVITIES:

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		

R. Dom 1

PRINCIPAL

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

Course Objectives	Course Outcomes	Teaching Methodology
• To find the solution of	Analyse and solve linear	Power Point
the LPP using	programming models of	• E – Module
graphical method	real life situations.	• Chalk & Talk 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 	 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. 	 Lecture Method Discussion Method Study Assignment Method, Problem Solving Method Seminar Method

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

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

D. ACTIVITIES:

Details
Unit Test Date 25.08.2021
19.8.2021
-
-
Every Saturday

R. Dom 1

PRINCIPAL

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

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

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

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

Unit V	• Ri	emann integration:		3Hrs	-	-
	De	efinition and	21.10.2021 to			
	Da	arboux's theorem	20.11.2021			
	• Co	onditions of		4 Hrs		
	In	tegrability:				
	int	tegrability of				
	CO	ntinuous and				
	m	onotonic functions				
	• Pr	operties of				
	In	tegrable functions		4 Hrs		
	• In	tegral functions,				
	Co	ontinuity and				
	de	erivability of Integral		4Hrs		
	fu	nctions, The first				
	M	ean value Theorem,				
	fu	ndamental theorem				
	of	integral calculus.				

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

R. Dr PRINCIPAL

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

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

C.PLAN OF THE WORK:

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

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

R. Dom PRINCIPAL

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

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

C.PLAN OF THE WORK:

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

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

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		

R. Dom

PRINCIPAL

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

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

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

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

D. ACTIVITIES:

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

R. Dom PRINCIPAL

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

C. PLAN OF THE WORK:

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

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

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		

R. Dom

PRINCIPAL

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

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

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

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

Unit /	Topic to be covered	Proposed	Lecture	Practical	Remarks
Modules		date	Hrs	Hrs	
Unit I	• Definition of L.P.Pand		4 Hrs	-	-
	Graphical Solution	09.08.2021to			
	Method	13.09.2021			
	• Charteristic Feature of		3 Hrs		
	O.R				
	Canonical and				
	Standard form of O.R		4 Hrs		
	• Linear programming				
	formulations and				
	graphical solution of		4 Hrs		
	two variables-				
	Canonical and				
	Standard forms of LPP				
Unit II	Simplex method		3 Hrs	-	-
	• Simplex method for	14.09.2021 to	5 Hrs		
	<,=,> constraints	18.10.2021			
	• Charner's method of		3 Hrs		
	penalties				
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	• Two phase simplex		3 Hrs		
	method				
Unit III	Transportation	20.10.2021 to	3 Hrs	-	-
	problems	30.10.2021			
	Mathematical				
	formulation of the		5 Hrs		
	problem				
	Degeneracy				
	Transportation		3 Hrs		
	problem				
	Transportation				
	Algorithm				
	Unbalanced		3 Hrs		
	Transportation				
	Problem- Assignment				
	algorithm				
Unit IV	Sequencing Problems		3 Hrs	-	-
	• Processing of n jobs	01.11.2021 to	4Hrs		
	through two machines	25.11.2021			
	• Processing of n jobs		4Hrs		
	and k machines				
	• Processing of 2 jobs		4Hrs		
	and through m				
	machines				
Unit V	Networks	30.11.2021 to	3 Hrs	-	-
	• Rules of Network	25.01.2022	4Hrs		
	Construction				
	• Time calculations in		4Hrs		
	Networks				
	• CPM computation		4Hrs		
		1	1	1	1

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	

R. Dom

PRINCIPAL

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

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

C. PLAN OF THE WORK:

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

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

R. Dom

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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

: 60 Hrs

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

Lecture Hours

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

C. PLAN OF THE WORK:

Unit /	•	Topic to be covered	Proposed date	Lecture	Practical	Remarks
Modules				Hrs	Hrs	
Unit I	•	Linear equations with	21.02.2022 to	5 Hrs	-	-
		constant coefficients	05.03.2022			
	•	Evaluation of particular				
		integral of $x^{\boldsymbol{k}}$ where \boldsymbol{k} is a		4Hrs		
		positive integerand eaxf(x),				
		where f(x) is any function				
		of x				
	•	second order linear		411		
		equations with variable		4Hrs		
		coefficients				
	•	Simple Problems.				
Unit II	•	Partial differential	07.03.2022 to	3Hrs	-	-
		Equations	22.03.2022			
	•	Formation of equations by				
		elimination of constants				
		and arbitrary functions				
	•	Definition of General,		4Hrs		
		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		4Hrs		
		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.				

Unit III	•	Definition		4Hrs	-	-
	•	Laplace transform of	23.03.2022 to			
		functions e ^{at} , cosat ,sinat, t ⁿ	09.04.2022			
		where n is a positive				
		integer		4Hrs		
	•	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		4Hrs		
		f(t)andf'(t)				
	•	Simple Problems				
Unit IV	•	Inverse transform of		4Hrs	-	-
		standard forms	10.04.2022 to			
	•	Application to the solution	25.04.2022			
		of ordinary differential		5Hrs		
		equations with constant				
		coefficient involving the				
		above transformations		2 Цля		
	•	Simple Problems.		3 HIS		
Unit V	•	Gradient of a vector	26.04.2022 to		-	-
	•	Directional derivative	12.05.2022	4Hrs		
	•	Unit normal vector				
	•	tangent plane		4Hrs		
	•	Divergence and Curl				
	•	solenoidal & irrotaional		4Hrs		
		vectors- Double Operators				
	•	Properties connecting				
		grad., div., and curl of a				
		vector.				

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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PRINCIPAL

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

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

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

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

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

R. Dom C

PRINCIPAL

Principal A.D.M. College For Women Autonomous, Nagapattinam.

TEACHING PLAN

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

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

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

Unit /	Topic to be covered	Proposed	Lecture	Practical	Remarks
Modules		date	Hrs	Hrs	
Unit-I	Real fluids and Ideal	21.02.2022	2Hrs		
	Fluids Velocity of a Fluid	to			
	at a point Streamlines	05.03.2022	5Hrs		
	and Path lines; Steady		4Hrs		
	and Unsteady Flows		4Hrs		
	Velocity potential				
	Vorticity vector				
	• Local and Particle Rates				
	of Change				
	• Equation of continuity				
	• Worked examples				
	Acceleration of a Fluid				
Unit-II	• Pressure at a point in a	07.03.2022	3Hrs		
	Fluid at Rest	to	4Hrs		
	• Pressure at a point in	22.03.2022	4Hrs		
	Moving Fluid		4Hrs		
	• 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				
Unit-III	• Meaning of Two-		2Hrs		

	Dimensional Flow Use	23.03.2022		
	of cylindrical Polar	to	5Hrs	
	coordinates	09.04.2022	4Hrs	
	• stream function		4Hrs	
	• 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.			
Unit-IV	• Theorem of Blasius -		3Hrs	
	Stress components in	10.04.2022	4Hrs	
	Real fluid relation	to	4Hrs	
	between Cartesian	25.04.2022	4Hrs	
	• 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			

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

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

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

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

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

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

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

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

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

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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