GANPAT UNIVERSITY

FACULTY OF SCIENCE

TEACHING AND EXAMINATION SCHEME

Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV		
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020

Sr. No.	Subject Code	Subject Name	Teaching scheme											Examination scheme (Marks)					
			Credit						Hours (per week)						Theory			Practical		
			Lecture(DT)			Practical(Lab.)			Lecture(DT)			Practical(Lab.)			CE	SEE	Total	CE	SEE	Total
			L	TU	Total	P	TW	Total	L	TU	Total	P	TW	Total						
1	MMAT4FAS	Functional Analysis - II	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
2	MMAT4LIN	Lebesgue Integration	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
3	MMAT4GTH	Graph Theory	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
4	MMAT4MAM	Mathematical Methods	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
5	Discipline Specific Elective*		4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
	Total		20	05	25	--	--	--	20	05	25	-	--	--	200	300	500	--	--	--

*any one subject can be offered from the following list of discipline specific elective subjects.

Discipline Specific Elective

Sr.No.	Subject Code	Subject Name
1	MSEL4NTH	Number Theory
2	MSEL4FAN	Fourier Analysis
3	MSEL4PRS	Problem Solving
4	MOOCs courses from SWAYAM PORTAL	

Program Outcomes (POs)

After completion of M.Sc. in Mathematics, students will be able to

PO-1 Apply knowledge of Mathematics, in all the fields of learning including higher research and its extensions

PO-2 Exposes students to the applications of physical and mathematical principles

PO-3 Provides a systematic understanding of the concepts and theories of mathematical and computing and their application in the real world.

PO-4 Solves critical problems by applying the Mathematical tools.

PO-5 Work as a Mathematics professional, and qualify for training as a scientific researcher.

PO-6 Enhances Logical reasoning skills, arithmetic skills, aptitude skills communication skills, self-confidence for better employability

PO-7 Participate in scientific work and independently handle business functions using learned skills

PO-8 Provide high quality and relevant education in the field of Mathematics

PO-9 Select interpret and critically evaluate information from a range of sources that include books, scientific reports, journals, case studies and the internet

PO-10 Equipped with the axiomatic nature of mathematics, and enable themselves to work creatively within this framework

PO-11 Apply ethical principles and commit to professional ethics, responsibilities and norms of the society.

PO-12 Crack lectureship and fellowship exams approved by UGS like CSIR – NET and SET.

Program Specific Outcomes (PSOs)

PSO-1 Graduates will expand and extend their comprehension of cutting edge numerical ideas and models to improve their prosperity as mathematician and teacher.

PSO-2 To prepare the graduates for getting work in various territories, for example, Educational/Research establishments, Administrative positions, Industries, Banks, Insurance Companies since the effect of the subject concerned is extremely wide and set themselves up to break serious assessments, lectureship and fellowship tests endorsed by UGC like CSIR – NET and SET

PSO-3 To create critical thinking aptitudes for competitive tests, to upgrade thinking and systematic abilities, to create showing aptitudes by partaking in classes/meetings/workshops and to create expertise to think fundamentally on conceptual ideas of Mathematics.

PSO-4 Graduates will be able to work successfully and execute multidisciplinary research, perceive the need to take part in long lasting learning through proceeding with instruction and exploration, apply moral standards and focus on proficient morals, obligations and standards in the general.

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Programme	Master of Science				Branch/Spec.	Mathematics		
Semester	IV				Version	2.0.0.1		
Effective from Academic Year		2021-22			Effective for the batch Admitted in			July 2020
Subject code	MMAT4FAS	Subject Name			Functional Analysis - II			
Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

To analyse concepts related to operators on Hilbert spaces and Banach spaces.

Pre-requisites:

Basic knowledge of linear algebra and Banach space theory.

Course Outcome:

COs	Description
CO1	Construct orthonormal set and establish the method to obtain the classical system of polynomials
CO2	Find Fourier expansion of an element of a Hilbert space
CO3	Discuss the properties of Hilbert space
CO4	Generalize Schwartz's inequality hence conclude the convergence of a series in Hilbert space
CO5	Explain the properties of self-adjoint, positive and unitary operators
CO6	Find spectrum and numerical range of given operator

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	2	1	2	2	2	2	3	2	2	0	3	2	3	0	1
CO2	3	3	2	2	2	2	2	2	2	3	0	2	1	0	2	3
CO3	2	3	3	1	3	3	3	3	3	2	0	2	2	3	1	1
CO4	3	2	2	2	2	2	3	2	3	2	0	2	2	3	1	2
CO5	2	2	2	2	2	1	2	3	3	2	0	3	1	0	2	3
CO6	3	2	3	3	3	2	3	3	3	3	0	2	1	0	2	3

Theory syllabus		
Unit	Content	Hrs
1	Inner product spaces, orthonormal sets. Hilbert spaces.orthogonal complements, complete orthonormal sets in a Hilbert space .	15
2	Approximation and optimization. Projections and Riesz representation theorems.	15
3	Bounded operators and adjoints. Normal, unitary and self-adjoint operators.	15
4	Spectrum and Numerical Range. Compact self-adjoint operators.	15
Reference Books		
1	“Functional Analysis”, B. V. Limaye, New Age International (P) Ltd., 2001.	
2	“Introduction to topology and modern analysis”, G. F. Simmons, McGraw -Hill Book Co.1963;	
3	“Text book of Functional Analysis: A problem oriented approach”, V. K. Krishnan, Prentice Hall of India, 2001.	
4	“Functional Analysis-a first course”, Thamban Nair, Printice Hall of India, 2002.	
5	“Foundations of Functional Analysis”, S. Ponnusamy, Narosa Pub. House, 2004.	
6	“An introductory functional analysis with application”, E.Kreyszig, WSE edition, 1989.	

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Programme	Master of Science				Branch/Spec.	Mathematics		
Semester	IV				Version	2.0.0.1		
Effective from Academic Year			2021-22		Effective for the batch Admitted in			July 2020
Subject code	MMAT4LIN		Subject Name		Lebesgue Integration			
Teaching scheme					Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

The main objective of the course is to study the differential properties of functions of finite variation and absolutely continuous functions and characterize the absolutely continuous functions in terms of the indefinite integral of Lebesgue integrable functions.

Pre-requisites:

Basic knowledge of Lebesgue measure theory.

Course Outcome:

COs	Description
CO1	Appreciate the niceties provided by Lebesgue Integration theory.
CO2	Define Lebesgue integral for bounded functions, non-negative and unbounded functions
CO3	Compare Riemann integral with Lebesgue integral
CO4	Establish continuity theorem like Fatou's Lemma, BCT, MCT, LDCT
CO5	Derive countable additivity of the Lebesgue integral
CO6	Apply the fundamental theorem of calculus

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	1	2	1	2	2	2	2	3	3	2	0	2	1	2	3	0
CO2	2	2	2	2	2	3	2	2	3	3	0	1	2	1	3	0
CO3	2	2	2	2	2	3	2	3	2	3	0	1	0	3	1	2
CO4	3	2	2	2	2	3	2	2	2	2	0	2	2	1	3	0
CO5	3	2	2	2	3	2	2	3	2	3	0	2	1	2	3	0
CO6	3	3	3	3	3	3	3	3	3	2	0	3	2	1	0	3

Theory syllabus		
Unit	Content	Hrs
1	A quick review of the definition of Riemann integral, Lebesgue integral for bounded functions and its comparison with Riemann integral, properties of Lebesgue integral for bounded functions.	15
2	The Lebesgue integral of non-negative and unbounded functions, its properties, Lebesgue dominated convergence theorem, Fatou's Lemma and its consequences like Monotone convergence theorem and the countable additivity of the Lebesgue integral, Lebesgue integral on $(-\infty, \infty)$.	15
3	Monotonic function and its differentiability (assuming Vitali's covering theorem), functions of finite (bounded) variation on [a,b] and its properties, functions of finite variation on R.	15
4	Absolutely continuous functions on [a,b], differential properties of absolutely continuous function, the indefinite Lebesgue integral and the fundamental theorem of calculus.	15
Reference Books		
1	"Real Analysis", H.L.Royden, (3rd Edition) Mc. Millan, 1998.	
2	"An introduction to measure and integration", Rana, I. K., Narosa Publ. House, New Delhi, 1997.	
3	"Introduction to measure theory", De Barra G., Van Nostrand Reinhold Co., 1974	
4	"Methods of Real Analysis", Richard Goldberg – Oxford & IBH Publishing Company, 1964.	
5	"Theory of Functions of a real variable", I. P. Natanson, Frederic Ungar Publishing Co., New York 1964.	
6	"Real and Abstract Analysis", E. Hewitt and K. Stromberg , Springer Verlag, 1965.	

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020
Subject code	MMAT4GTH	Subject Name	Graph Theory

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

The main objective of the course is to understand and appreciate the basic ideas of Graph theory and will be able to acquire skills to solve problems occurring in varied branches of knowledge through graph theory.

Pre-requisites:

Basic knowledge of set theory

Course Outcome:

COs	Description
CO1	Discuss the basic ideas of Graph theory
CO2	Acquire skills to solve problems occurring in varied branches of knowledge through graph theory
CO3	Apply the knowledge of walk, path in graphs to solve the real-life problem
CO4	Find the solutions of objects using graph painting
CO5	Transform the graphical problems into the matrix and can solve it easily
CO6	Solve the problems regarding network security using diagraphs

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	1	2	2	2	2	2	2	3	2	3	0	2	1	2	0	3
CO2	2	3	3	3	3	3	3	3	3	2	0	3	2	1	0	3
CO3	3	2	2	3	3	2	3	3	3	3	0	2	1	2	3	0
CO4	2	2	3	3	2	3	2	3	3	2	0	1	2	1	0	3
CO5	2	3	2	3	2	2	3	3	3	1	0	1	1	2	0	3
CO6	3	3	3	3	3	3	3	3	3	2	0	3	1	2	3	0

Theory syllabus		
Unit	Content	Hrs
1	Definition and elementary properties of graphs, Isomorphism of graphs, Subgraphs, Walks, Paths and Circuits, Connected, disconnected graphs and components, Euler graphs, Operations on graphs, Hamiltonian circuits.	15
2	Definition and properties of tree, Distance and Centers in a tree, Rooted tree, Binary tree and Spanning trees, fundamental circuits, Cut set and its properties. Fundamental circuit and cut-set, Matrix representation of graphs: Adjacency matrix, Incidence matrix, Circuit matrix, submatrices of *A(G)*, Cut-set matrix, Fundamental circuit matrix, Path matrix	15
3	Plane and Planar graphs, Euler's formula, Kuratowski's two graphs ,Chromatic number, Chromatic partitioning, Chromatic polynomial, Matchings and augmenting paths, The marriage problem, coverings, the four color problem.	15
4	Definition and types of Directed graph, Indegree and outdegree, Directed paths and connectedness, Euler digraphs, Trees with directed edges, Fundamental circuits in digraphs, Matrices A, B and C of digraphs, adjacency matrix of digraphs, Acyclic digraphs and decyclization	15

Reference Books	
1	"Graph Theory with applications to Engg. And Computer Science", Narsingh Deo: (Prentice-Hallof India Pvt. Ltd., New Delhi, 1999).
2	"A first look at graph theory ",John Clark and D.A. Holton: (Allied Publishing Ltd., 1991).
3	"Introduction to Graph Theory", Douglas B. West.
4	"Introduction to graph theory ", Robin J. Wilson.
5	"Graph Theory", Russell Merris, Wiley-Interscience, John Wiley & Sons, Inc., 2001.
6	"A textbook of Graph Theory", R. Balakrishnan, K. Ranganathan, Springer, 2012.

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020
Subject code	MMAT4MAM	Subject Name	Mathematical Methods

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

This course aims to handle various types of differential equations through Sturm-Liouville theory.

Pre-requisites:

Basic knowledge of Analysis

Course Outcome:

COs	Description
CO1	Derive the different type of Euler's equation
CO2	Convert differential equation into an integral equation and vice versa
CO3	Solve Abel's integral equations
CO4	Explain Fredholm integral equations for separable kernels.
CO5	Examine Bessel's equation, Laguerre's equation and Hermite equation
CO6	Discuss the types of differential equations through Sturm-Liouville theory

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	2	2	2	2	3	2	3	2	2	0	3	3	0	1	2
CO2	2	3	2	2	3	2	2	3	3	2	0	3	2	3	0	1
CO3	2	2	2	2	2	1	2	2	2	2	0	2	3	0	1	2
CO4	2	2	3	2	2	2	2	3	2	3	0	3	2	3	0	1
CO5	3	3	3	3	3	2	3	3	3	3	0	3	3	0	1	2
CO6	3	3	3	3	3	2	3	3	3	3	0	3	2	3	0	1

Theory syllabus		
Unit	Content	Hrs
1	Functionals, Euler's equation, other forms of Euler's equation, some special forms of Euler's equation, geodesics. Isoperimetric problems, several dependent variables, functionals involving higher order derivatives.	15
2	Integral equations, types of integral equations, conversion of differential equation into an integral equation and vice versa, solution of integral equation, Integral equations of convolution type, Abel's integral equations, integrodifferential equation.	15
3	Compact operators, some properties of compact operators, compact operators on C[a, b] and L^2[a, b], Fredholm integral equations, Fredholm alternative theorem, solutions of Fredholm integral equations for separable kernels.	15
4	Bessel's equation, Laguerre's equation, Hermite equation, Sturm-Liouville equations, Conversion of various types of differential equations into Sturm-Liouville equation, their solutions.	15

Reference Books	
1	"Higher Engineering Mathematics", B. S. Grewal, Khanna Publs, 3rd Edition, Delhi.
2	"An elementary course on variational problems in calculus", N. Kumar, , Narosa ublishing House, New Delhi, 2005.
3	"Calculus of variations with applications", A. S. Gupta, , Prentice-Hall of India, New Delhi, 1999.
4	"Integral Equations and Applications", S. G. Mikhlin.
5	"Functional analysis", B. V. Limaye, , 2nd Edition, New Delhi, 1996.
6	"Introduction to Ordinary Differential Equations", A. L. Rabenstein, Academic Press, London, 1972.

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020
Subject code	MSEL4NTH	Subject Name	Number Theory

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

To make students familiar and friendly with the properties of positive integers. On this line, we cover some special structures (of numbers) such as: Euclidean domains, unique factorization domains.

Pre-requisites:

Basic knowledge of set theory and number system.

Course Outcome:

COs	Description
CO1	Develop an algorithm about dividing an integer by another integer
CO2	Apply Mobius and Tau function on positive integers
CO3	Apply integer function to the calendar to obtain the day of the week on a particular date
CO4	Obtain primitive roots for primes and composite
CO5	Solve the linear Diophantine equation and Pell's equation
CO6	Examine the system of linear congruence equations using Chinese remainder theorem

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	2	2	2	2	2	2	2	3	2	0	2	3	1	2	0
CO2	2	2	2	2	2	1	2	2	3	2	0	2	1	2	0	3
CO3	3	2	2	2	3	2	2	2	3	3	0	2	2	3	1	0
CO4	3	2	2	2	3	3	3	3	3	2	0	3	1	2	0	3
CO5	3	2	3	3	3	2	3	3	3	1	0	3	2	3	0	1
CO6	3	3	3	3	3	2	3	3	3	3	0	3	2	3	1	0

Theory syllabus		
Unit	Content	Hrs
1	**Divisibility:** Foundations, division algorithm, greatest common divisor, Euclid's algorithm. Fundamental theorem, Properties of primes.	15
2	**Arithmetical functions:** The function [x], multiplicative functions, Euler's (totient) Function phi (n), the Mobius function mu (n), the function tau (n) and sigma (n). Brief Introduction of convolution of arithmetical functions, Perfect numbers.	15
3	**Congruences**: Definitions, Chinese-Remainder theorem, the theorem of Fermat and Euler, Wilson's theorem, Lagrange's theorem, Primitive roots, Indices.	15
4	**Miscellaneous topics:** Finite, infinite continued fractions, linear Diophantine equations ax + by = c , Pell's equations, Pythagorean triples, brief introduction of Fermat's last Theorem.	15
Reference Books		
1	"Elementary number Theory", David M. Burton (Second edition) Universal Book stall. New Delhi.	
2	"An introduction to the Theorey of Numbers", Ivan Nivan, H.S.Zuckermann, H.L.Montgomery.. (5^{th} edition) John Wiley & Sons Inc.	
3	"Introduction to Theory of Numbers", Alan Baker. (Cambridge Uni.Press.Cambridge).	
4	"Introduction to Analytic Number Theory", Apostol Tom M., Springer.	
5	"An Introduction to Theory of Numbers", Hardy G. H. and Wright E. M., Oxford University Press.	
6	"A Course in Number Theory and Cryptography", N. Koblitz, Springer.	

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020
Subject code	MSEL4FAN	Subject Name	Fourier Analysis

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

This course is intended to provide an introduction to certain aspects of Fourier Series and related topics.

Pre-requisites:

Basic knowledge of Analysis.

Course Outcome:

COs	Description
CO1	Find the way general functions may be represented or approximated by sums of simpler trigonometric functions
CO2	Provide an efficient way to compute convolution-based operations such as polynomial multiplication and multiplying large numbers
CO3	Represent continuous-time periodic signals using Fourier series
CO4	Determine the behavior of the function in the immediate neighborhood of the point
CO5	Establish certain consequence thereof concerning approximation by trigonometric polynomial
CO6	Determine the infinite sum of the series using Fourier series

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	2	2	2	2	2	2	3	2	2	0	2	3	1	2	0
CO2	3	2	1	2	2	3	2	2	3	3	0	1	3	0	2	1
CO3	2	3	3	2	3	2	3	3	3	2	0	2	2	0	1	3
CO4	3	2	2	2	2	2	2	3	2	3	0	2	2	3	1	0
CO5	3	2	2	2	2	3	2	3	2	3	0	1	1	2	3	0
CO6	2	3	3	3	3	2	3	3	3	3	0	3	0	3	2	1

Theory syllabus		
Unit	Content	Hrs
1	Elementary properties of Fourier coefficients, the uniqueness theorem and the density of trigonometric polynomials, Convolution and Fourier coefficients.	15
2	Convolution as a smoothening process, Approximate identities for convolution, Complex homomorphisms and Fourier coefficients.	15
3	The Dirichlet and Fejer kernels, the localization principle, Uniform and mean summability and applications.	15
4	Convex, Quasi-convex and BV sequences, Convergence of Sine and Cosine series, Sine and Cosine series as Fourier series.	15
Reference Books		
1	“Fourier Series”, R. E. Edwards, Springer.	
2	“Trigonometric Series ”, A. Zygmund, Cambridge University Press, 1968	
3	“An Introduction to Harmonic Analysis ”, Y. Katznelson, Dover publications, 1968.	
4	“Fourier Analysis ”, T. W. Korner, Cambridge University Press, 1989	
5	“A Treatise on Trigonometric series, Vol.I & II”, N. K. Bary, Pergamon Press, 1964.	
6	“Fourier Analysis: An Introduction”, Elias M. Stein and Rami Shakarchi, 2003.	

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	IV	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2020
Subject code	MSEL4PRS	Subject Name	Problem Solving

Teaching scheme						Examination scheme (Marks)			
(Per week)	Lecture(DT)		Practical(Lab.)		Total		CE	SEE	Total
	L	TU	P	TW					
Credit	4	1	--	--	5	Theory	40	60	100
Hours	4	1	--	--	5	Practical	--	--	--

Objective:

The objective of this paper is to develop and enhance the problem solving skills of the students. The focus will be on using the theory results skillfully to solve the mathematical exercises.

Pre-requisites:

The focus will be on using the theory results skill fully to solve the mathematical exercises. The students opting for this paper are expected to have good understanding of Mathematics.

Course Outcome:

COs	Description
CO1	Develop and enhance the problem solving skills
CO2	Discuss the properties of operator theory
CO3	Appreciate the niceties provided by Lebesgue Integration theory.
CO4	Determine the infinite sum of the series using Fourier series
CO5	Discuss types of differential equations through Sturm-Liouville theory
CO6	Solve the problems regarding network security using diagraphs

Mapping of CO and PO/PSOs:

	PO - 1	PO - 2	PO - 3	PO - 4	PO - 5	PO - 6	PO - 7	PO - 8	PO - 9	PO - 10	PO - 11	PO - 12	PSO-1	PSO-2	PSO-3	PSO-4
CO1	2	3	3	3	3	2	3	3	3	3	0	3	2	3	1	0
CO2	3	3	2	2	2	3	2	3	3	3	0	3	3	1	2	0
CO3	2	2	2	2	2	2	2	3	2	3	0	3	2	3	0	1
CO4	2	3	3	3	3	3	3	3	2	3	0	3	3	0	1	2
CO5	3	3	3	3	3	2	3	3	3	3	0	3	2	3	0	1
CO6	3	3	3	3	3	3	3	3	3	3	0	3	3	0	1	2

Theory syllabus

Problems form topics of the syllabus of current semester which appear in recent syllabus of CSIR UGC NET exam.

References

1	Model question papers available at http://csirhrdg.res.in/csirnetmqs.htm