GANPAT UNIVERSITY

FACULTY OF SCIENCE

TEACHING AND EXAMINATION SCHEME

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

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	MMAT2CAS	Complex Analysis - II	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
2	MMAT2DGY	Differential Geometry	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
3	MMAT2AAA	Abstract Algebra	4	1	5	--	--	--	4	1	5	-	--	--	40	60	100	--	--	--
4	MMAT2PDE	Partial Differential Equations	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	MSEL2ORH	Operations Research
2	MSEL2ACM	Applied Classical Mechanics
3	MSEL2PRS	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	II				Version	2.0.0.1			
Effective from Academic Year		2021-22			Effective for the batch Admitted in				July 2021
Subject code	MMAT2CAS	Subject Name			Complex 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:

The main aim is to make students familiar with the study of functions of a complex variable.

Pre-requisites:

Definition of convergence of sequence and series, Analytic function, Contour integrals, Function expansion.

Course Outcome:

COs	Description
CO1	Check the convergence of sequence and series of complex variable
CO2	Expand the function of complex variable as Taylor expansion, Laurent's series expansion
CO3	Identify zeros and singular points of functions
CO4	Evaluate residues and improper real integrals
CO5	Apply Argument Principle and Rouche's Theorem
CO6	Find Bi-linear transformation

Mapping of CO and PO/PSO

	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	1	2	2	3	3	0	3	2	2	2	2
CO2	2	2	2	3	2	2	2	3	3	2	0	2	1	1	1	1
CO3	2	3	2	2	2	1	2	2	3	3	0	2	1	1	2	1
CO4	3	3	3	3	3	1	2	3	2	3	0	2	2	2	2	1
CO5	3	2	3	2	3	2	1	3	2	3	0	2	1	1	1	1
CO6	3	2	2	3	3	1	2	3	3	3	0	1	0	0	1	0

Theory syllabus		
Unit	Content	Hrs
1	Convergence of sequence and series, Convergence of Taylor series, Laurent series and uniqueness, Absolute and Uniform Convergence of Power series.	15
2	Singularities of Complex function, Residues, Residues theorem, Residues at poles, Zeros and poles of order m, Behavior of functions near removable and essential singular points.	15
3	Evaluation of improper real integrals with Sines and Cosines function, Definite integrals with Sines and Cosines function.	15
4	Indented paths, Integration along a branch cut, Argument Principle, Rouche's Theorem, Bi-linear transformation.	15
Reference Books		
1	"Complex Variables and Applications", J. W. Brown and R. V. Churchill, McGraw-Hill Publ. Co.	
2	"Functions of One Complex Variable", J. B. Conway, Narosa Publ. House, New Delhi.	
3	"Foundations of Complex Analysis", S. Ponnusamy, Narosa Publ. House, New Delhi.	
4	"Complex Variables: Theory and Applications", H. S. Kasana, Prentice – Hall of India.	
5	"Complex Analysis", I. Stewart and David Tall, Cambridge University Press.	
6	"The Elements of Complex Analysis", B. Choudhary, New Age International Publishers.	

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Programme	Master of Science			Branch/Spec.	Mathematics		
Semester	II			Version	2.0.0.1		
Effective from Academic Year		2021-22		Effective for the batch Admitted in			July 2021
Subject code	MMAT2DGY	Subject Name		Differential Geometry			
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 course is to gives ample scope and leisure for building up Geometry Intuition by incorporating classical curves, and related results, along with the course.

Pre-requisites:

Differentiation and integration of functions of several variables, Invertible function, Norm structure.

Course Outcome:

COs	Description
CO1	Build up Geometry Intuition by incorporating classical curves and related results along with this course
CO2	Calculate the curvature, torsion of a curve as well as the first and second fundamental forms of a surface
CO3	Find the moving trihedron of a curve and its intrinsic-canonical equations
CO4	Find the osculating surface and the osculating curve at any point of a given curve
CO5	Derive the Gaussian curvature, the mean curvature, the curvature lines, the asymptotic lines, the geodesics of a surface.
CO6	Apply the mathematical tool of tensor calculus in the study of surfaces.

Mapping of CO and PO/PSO

	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
CO 1	2	2	1	1	2	2	1	2	2	2	0	1	0	0	1	1
CO 2	3	3	2	2	3	2	3	3	3	3	0	2	0	0	1	1
CO 3	3	3	2	2	2	3	2	1	2	2	0	1	0	0	1	1
CO 4	3	3	2	2	3	2	2	2	2	3	0	2	0	0	1	1
CO 5	3	3	3	3	3	3	3	3	3	3	0	2	0	0	1	1
CO 6	3	2	2	3	2	2	2	2	2	3	0	1	0	0	1	1

Theory syllabus		
Unit	Content	Hrs
1	Space curves, Planar curves, Parameterization, Closed curve, Simple closed curve, Curvature, Torsion, Signed curvature, Frenet-Serret equations, Fundamental theorem of curve theory.	15
2	Isoperimetric Inequality, The Four Vertex Problem, Surfaces: smooth surfaces, Tangents, Normals, Quadratic surface, First fundamental form, Length of the curve on surfaces, Isometries of surfaces, Conformal mappings of surfaces, Surface area.	15
3	Second fundamental form, Normal and principal curvature, Meunier's theorem, Euler's theorem, Gaussian and mean curvature.	15
4	Gauss equation, Christoffel symbols, Codazzi-Mainardi equations, Theorem of Egregium, Geodesics, Local Gauss Bonnet theorem.	15
Reference Books		
1	“Elementary Differential Geometry”, Andrew Pressly, SUMSeries.	
2	“Introduction to Differential Geometry”, A. Goetz, Addison Wesley, Publ. Co.	
3	“Differential Geometry in Three Dimensions”, C. E. Weatherburn, Cambridge University Press.	
4	“Elementary Differential Geometry”, Barrett O’Neill, Academic Press, New York.	
5	“Differential Geometry of curves and surfaces”, Manfredo P. do Carmo, Prentice-Hall, Inc. New Jersey.	
6	“Elements of Differential Geometry”, R. S. Millman and G D Parker, Prentice Hall. Inc. New Jersey.	

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Programme	Master of Science			Branch/Spec.	Mathematics		
Semester	II			Version	2.0.0.1		
Effective from Academic Year		2021-22		Effective for the batch Admitted in			July 2021
Subject code	MMAT2AAA	Subject Name		Abstract Algebra			
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 course is to study group structure and some related applications of groups. It also provides the basis for further studies.

Pre-requisites:

Equivalence class, Definitions and properties of Group.

Course Outcome:

COs	Description
CO1	Apply the conceptual structure of group theory
CO2	Analyze permutation groups
CO3	Identify isomorphic nature of group
CO4	Explain Sylow theorems and its applications
CO5	Check simplicity test of group
CO6	Recognize problem-solving and critical thinking skill

Mapping of CO and PO/PSO

	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
CO 1	2	1	1	1	2	2	1	2	2	3	0	2	1	2	2	2
CO 2	3	3	2	3	3	3	3	3	3	2	0	3	1	1	2	1
CO 3	3	2	3	2	2	2	3	3	3	3	0	3	2	1	2	2
CO 4	3	2	3	2	3	3	2	3	3	3	0	3	1	1	2	1
CO 5	3	3	2	2	2	2	2	3	3	2	0	3	1	1	1	1
CO 6	3	3	3	3	3	3	3	3	3	3	0	3	1	1	2	1

Theory syllabus		
Unit	Content	Hrs
1	Permutation groups, Alternating group of degree n, Group isomorphisms and their properties, Cayley's theorem, Automorphisms, An application of cosets to permutation groups.	15
2	External direct products and their properties, The group of units modulo n as an external direct product, Normal subgroups, Factor groups and their applications.	15
3	Internal direct products, Group homomorphisms and their properties, Isomorphism theorems, Fundamental theorem of finite abelian groups, The isomorphism classes of abelian groups.	15
4	Conjugacy classes, The class equation, Sylow theorems and their applications, Simple groups, Composition factors of a finite group, Nonsimplicity tests, Index theorem, Embedding theorem, The simplicity of A5.	15
Reference Books		
1	"Contemporary Abstract Algebra" - Joseph A. Gallian, Narosa Publishing Hous.	
2	"Basic Abstract Algebra", P. B. Bhattacharya, S. K. Jain and S. R. Nagpaul, Cambridge University Press, South Indian Edition.	
3	"Topics in Algebra", I. N. Herstein, Wiley Eastern. Ltd., New Delhi.	
4	"Algebra", M. Artin, Prentice Hall of India.	
5	"Basic Algebra", Vol. II', N. Jacobson, Hundastan Publ. Co., Delhi.	
6	"Algebra", Thomas W., Hungerford, Springer.	

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Programme	Master of Science			Branch/Spec.	Mathematics		
Semester	II			Version	2.0.0.1		
Effective from Academic Year		2021-22		Effective for the batch Admitted in			July 2021
Subject code	MMAT2PDE	Subject Name		Partial Differential Equations			
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 course is to introduce partial differential equations, particularly the second order equations of mathematical physics.

Pre-requisites:

Partial derivative, Variable separable method, Types of solution.

Course Outcome:

COs	Description
CO1	Identify second order linear and non-linear partial differential equation
CO2	Form Pfaffian differential equations
CO3	Apply Charpit's method and Jacobi's method
CO4	Solve Cauchy problem
CO5	Classify nature of second ordered partial differential equations and its canonical form
CO6	Application of separation of variable method.

Mapping of CO and PO/PSO

	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
CO 1	2	2	3	3	3	2	2	3	2	2	0	3	2	1	2	2
CO 2	2	3	3	3	3	2	2	3	2	3	0	3	1	1	1	1
CO 3	2	2	3	3	3	1	2	3	2	2	0	3	1	1	2	1
CO 4	3	3	3	3	3	2	3	3	3	3	0	3	2	1	2	2
CO 5	3	3	3	3	3	1	3	2	3	3	0	3	2	1	2	2
CO 6	1	2	3	3	3	2	2	3	2	3	0	3	2	2	2	2

Theory syllabus		
Unit	Content	Hrs
1	Partial differential equations of first order, Pfaffian differential equations, compatible system of first order partial differential equations, Charpit's Method, Jacobi's Method, Cauchy problem.	15
2	Origin of second order partial differential equations, Second order linear partial differential equations with constant coefficients, Solutions when f(x, y) to be polynomial, exponential, sine and cosine functions, General method for homogeneous equations.	15
3	Classification of second ordered partial differential equations and canonical form. Nonlinear second order partial differential equations: solution by Monge's method, special case and general case.	15
4	Second order partial differential equations with variable coefficients, Method of changing variables for special type of equations. Separation of variable Method: solution of Laplace, Wave and diffusion equations, Solution of these equations in different coordinate systems.	15
Reference Books		
1	"Elementary Course in Partial Differential Equations", T. Amarnath, Narosa Publ. House, New Delhi.	
2	"Elements of Partial Differential Equations", I. N. Sneddon, McGraw- Hill Publ. Co.	
3	"Partial Differential Equations", Phoolan Prasad and R. Ravindran, Wiley Eastern.	
4	"Advanced Differential Equations", M. D. Raisinghania, S. Chand & Co.	
5	"Higher Engineering Mathematics", B. S. Grewal, and J. S. Grewal, Khanna Publ., New Delhi.	
6	"Elements of Partial Differential Equations", Pavel Drabek, Gabriela Holubova, DE GRUYTER.	

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Programme	Master of Science			Branch/Spec.	Mathematics		
Semester	II			Version	2.0.0.1		
Effective from Academic Year		2021-22		Effective for the batch Admitted in			July 2021
Subject code	MSEL2ORH	Subject Name		Operations Research			
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 course is to explore various mathematical programming algorithms to solve real life problems.

Pre-requisites:

Development of Operations research, Characteristics and phases, Types of models.

Course Outcome:

COs	Description
CO1	Formulate and solve the linear programming problem containing two decision variables using graphical method
CO2	Formulate and solve the linear programming problem containing more than two decision variables using the simplex method
CO3	Execute real-life transportation problem
CO4	Demonstrate and solve assignment problem
CO5	Explain a game of strategies with or without saddle point
CO6	Apply Johnson's algorithm and graphical method to determine optimal job sequence that optimizes production capacity

Mapping of CO and PO/PSO

	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	3	3	3	3	2	3	3	3	0	2	3	3	3	2
CO2	2	3	3	3	3	2	3	3	3	2	0	3	2	2	3	2
CO3	3	3	3	3	3	3	2	2	3	3	0	2	3	3	3	2
CO4	2	2	3	3	3	3	2	3	2	2	0	2	3	3	3	2
CO5	3	3	3	3	3	3	3	3	3	3	0	2	2	1	2	1
CO6	3	3	3	3	3	3	3	3	3	3	0	2	3	3	3	3

Theory syllabus		
Unit	Content	Hrs
1	Linear Programming Problem: formulation, Graphical solution, Simplex method, Artificial variables techniques, Big– M method, Duality Principle.	15
2	Transportation problem: Formulation, Optimal solution, Unbalanced transportation problem, Degeneracy, Maximization case. Assignment problem: Formulation, Optimal solution, Variants of Assignment Problem.	15
3	Theory of games: Introduction, Minimax (maximin), Criterion and optimal, Strategy, Solution of game with saddle points, Rectangular games without saddle points, Dominance Principle, $m \times 2$ and $2 \times n$ games.	15
4	Production scheduling (Job sequences): Introduction, Johnson's algorithm for n jobs 2 machines, Johnson's algorithm for N jobs m machines, 2 jobs machines using graphical method.	15
Reference Books		
1	"Operations Research -Theory and Application", J.K. Sharma, 4th Edition, Macmillan Publishers India Ltd.	
2	"Operation Research", N.H. Shah, Ravi Gor, Hardik Soni, PHI Publ.	
3	"Operation Research: an introduction", Hamdy and Tahia, Prentice-Hall, 1997.	
4	"Operation Research: Theory & Applications", J. K. Sharma, Third Eddition-2007.	
5	"Operation Research: Techniques for Management", V. K. Kapoor, S. Chand.	
6	"Introduction to Operations Research", F. S. Hiller, G. J. Liberman, Mcgraw Hills Publication.	

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Programme	Master of Science			Branch/Spec.	Mathematics		
Semester	II			Version	2.0.0.1		
Effective from Academic Year		2021-22		Effective for the batch Admitted in			July 2021
Subject code	MSEL2ACM	Subject Name		Applied Classical Mechanics			
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 course is to introduce the variational principle to real physical situations.

Pre-requisites:

The basic concept of Physics such as rigid body, motion, central force and torque. In addition, mathematical concept of algebra, trigonometry, calculus etc.

Course Outcome:

COs	Description
CO1	Apply the variational principle to real physical situations.
CO2	Derive Lagrangian formulation of two-body central force problem
CO3	Find degrees of freedom for the generalized coordinates
CO4	Discuss Eulerian angles as rotational generalized coordinates
CO5	Familiarise with angular momentum and kinetic energy of rotating rigid body
CO6	Derive Euler's equation of motion and Torque free motion

Mapping of CO and PO/PSO

	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
CO 1	3	3	3	3	3	2	3	3	3	2	0	3	3	3	3	2
CO 2	2	2	2	2	2	2	3	2	3	3	0	1	2	2	3	2
CO 3	3	3	2	3	3	1	3	3	3	2	0	2	1	1	2	1
CO 4	2	2	2	2	2	2	3	2	3	3	0	1	2	2	2	1
CO 5	3	2	3	2	3	1	3	2	3	2	0	1	3	3	3	2
CO 6	3	3	2	2	3	2	2	2	3	3	0	2	2	2	3	2

Theory syllabus		
Unit	Content	Hrs
1	Lagrangian formulation of two body central force problem, Equations of motion and first integral, Kepler problem, Derivation of laws of planetary motions.	15
2	Kinematics of rigid bodies, Degrees of freedom, Generalized coordinates for translation, Rotation group of a rigid body, Euler's theorem, Eulerian angles as rotational generalized coordinates, Infinitenisin of rotations.	15
3	Dynamics of rigid bodies, Angular momentum and kinetic energy of rotating rigid body, Moment of inertia, Euler's equation of motion, Torque free motion of symmetric top, Precession and nutation.	15
4	Rotating coordinate axes, Coriolis force, Small oscillations. Introduction to nonlinear dynamics and chaos.	15

Reference Books	
1	"Classical Mechanics", Goldstein, H., Poole, C. and Safko, J., Pearson Education, Inc.
2	"Classical Mechanics with Introduction to Nonlinear Oscillations and Chaos", Bhatia, Narosa Publ.
3	"Classical Mechanics", C. R. Mondal, Prentice Hall of India Pvt. Ltd.
4	"Classical Mechanics", Tai L. Chow, John Wiley and Sons Inc.
5	"Classical Mechanics-System of Particles and Hamiltonian Dynamics", Walter greiner, Springer.
6	"Methods of Analytic Mechanics", Leonard Meirovitch, Dover Publications Inc., 2007.

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Programme	Master of Science	Branch/Spec.	Mathematics
Semester	II	Version	2.0.0.1
Effective from Academic Year	2021-22	Effective for the batch Admitted in	July 2021
Subject code	MSEL2PRS	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 students opting for this paper are expected to have good understanding of Mathematics.

Course Outcome:

Name of CO	Description
CO1	Apply Fundamental theorem of Algebra and maximum modulus principle
CO2	Distinguish the nature of neighborhoods, open sets, close sets, basis and sub-basis and identify the homeomorphic nature of topologic
CO3	Explain the fundamental concepts of advanced linear algebra and their role in modern mathematics and applied contexts
CO4	Explain the physical phenomena in terms of differential equation and solve it in terms of power series
CO5	Find an approximation of problems using Picard's method
CO6	Apply problem-solving using advanced algebraic techniques applied to diverse situations in physics, engineering and other mathemati

Mapping of CO and PO/PSO

	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	1	2	1	1	1	2	1	0	1	0	2	2	1	3	1
CO2	2	1	2	1	2	1	3	1	0	1	0	1	1	1	3	1
CO3	2	1	2	1	1	1	1	1	0	2	0	1	2	2	3	2
CO4	3	2	2	2	2	2	2	1	0	2	0	2	2	2	3	2
CO5	3	2	2	2	2	2	3	1	0	3	0	1	1	1	3	1
CO6	3	2	2	3	2	2	3	1	0	3	0	1	3	3	3	3

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