ACADEMIC PLANNER & UNITIZATION OF SYLLABUS
ACADEMIC YEAR 2022-23
DEPARTMENT: Mathematics, CLASS: II Semester

MONTH/YEAR	WEEK	PORTIONS	Teachers
June 2022	1	Algebraic structure - Groups	**LP**
		Modular systems- properties of groups	**LP**
		Reduction formula for $\int \sin^n x\,dx$ where n is a positive integer	**DR**
		Relation between Cartesian and polar coordinates	**MSN**
	2	Subgroups, Necessary and sufficient condition for a subset to be a sub group	**LP**
		Centre of a group, Integral powers of an element of a group	**LP**
		Reduction formula for $\int \cos^n x\,dx$ where n is a positive integer	**DR**
		Angle between the radius vector and the tangent at a point on a curve	**MSN**
	3	Order of an element of a group,	**LP**
		properties of the order of a group	**LP**
		Problems om reduction formulae	**DR**
		Perpendicular from the pole on to the tangent, p-r equation of the curve	**MSN**
	4	Coset decomposition of a group, cyclic groups	**LP**
		Properties of cyclic groups, Index of a sub group	**LP**
		Reduction formula for $\int \sin^m x \cos^n x\,dx$ x	**DR**
		To determine pedal equation of a curve whose Cartesian eq is given,	**MSN**
MONTH/YEAR	**WEEK**		
July2022	1	Index of a subgroup of a group, Lagrange's Theorem	**LP**
		Consequences of Lagrange's Theorem	**LP**
		Problems on $\int \sin^m x \cos^n x\,dx$	**DR**
		Derivative of an arc length	**MSN**
	2	Definition of Normal subgroups, examples	**LP**

MONTH/YEAR	WEEK	PORTIONS	Teachers
		Theorems on Normal subgroups	**LP**
		Applications of Integral Calculus	**DR**
		Derivative of an arc length for polar, parametric curves	**MSN**
	3	Theorems on Normal subgroups	**LP**
		Theorems on Normal subgroups	**LP**
		Rectification (lengths of arcs of a curve)	**DR**
		Curvature of a plane curve	**MSN**
	4	Some results on Normal subgroups	**LP**
		Some results on Normal subgroups	**LP**
		Rectification (lengths of arcs of a curve)	**DR**
		Radius of curvature for different forms of curves	**MSN**
MONTH/YEAR	**WEEK**	**PORTIONS**	
August 2022	1	Centre of a group,	**LP**
		Problems on Normal subgroups	**LP**
		Area of plane curves: Quadrature	**DR**
		Radius of curvature in pedal forms, polar forms	**MSN**
	2	Quotient Group(Factor Group)	**LP**
		Theorems on Factor group	**LP**
		Area of plane curves: Quadrature	**DR**
		Centre of curvature	**MSN**
	3	homomorphism of groups	**LP**
		Theorem on homomorphism of groups	**LP**
		Surface area of revolution	**DR**
		Coordinates of the Centre of curvature in Cartesian form	**MSN**
	4	Properties of Homomorphism of groups	**LP**
		Kernel of a homomorphism	**LP**
		Surface area of revolution	**DR**
		evolutes	**MSN**

MONTH/YEAR	WEEK	PORTIONS	Teachers
September 2022	1	Isomorphism of groups	LP
		Properties on isomorphism of groups	LP
		Volume of revolution	DR
		Asymptotes, asymptotes parallel to coordinate axes	MSN
	2	Permutation group	LP
		Problems on Permutation group	LP
		Volume of revolution	DR
		Problems Asymptotes, asymptotes parallel to coordinate axes	MSN
	3	Cayley's theorem	LP
		Model paper discussion	LP
		Model paper discussion	DR
		Oblique asymptotes and problems	MSN
	4	Model paper discussion	LP
		Model paper discussion	LP
		Model paper discussion	DR
		envelopes	MSN

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS

ACADEMIC YEAR 2022-23

DEPARTMENT: Mathematics, CLASS: II Semester (OE) Commercial Mathematics

MONTH/YEAR	WEEK	PORTIONS	Teachers
June 2022	1	Sets - defn, types	KSR
		Fundamental principle of counting	KSR
		Percentage-defn	LP
	2	Operations on sets	KSR
		Factorial notation,Permutation ,problems	KSR
		Calculation of percentage	LP
	3	Venn diagrams	KSR
		Combination, problems	KSR
		Ratios, types	LP
	4	Relations	KSR
		Simple applications,random experiment	KSR
		Duplicate, Triplicate,Sub duplicate ratios	LP
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
July 2022	1	Types of relations	KSR
		Probability, sample spaces,events	KSR
		Proportion – defn ,properties	LP
	2	Problems on relations	KSR
		Rules of probability,problems	KSR
		Cross product and reciprocal property	LP
	3	Domain and range of a relation	KSR
		Occurrence of event- not, and,or	KSR
		United , continued proportion	LP
	4	Problems on domain and range	KSR
		Exhaustive events	KSR
		Problems on proportion	LP
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
August 2022	1	Functions-types	KSR
		Mutually exclusive events	KSR
		Problems on ratio	LP
	2	Problems on functions	KSR
		Axiomatic probability	KSR
		Problems on percentage	LP
	3	Problems on functions	KSR
		Probability of –and, or, not events	KSR

MONTH/YEAR	WEEK	PORTIONS	Teachers
		Miscellaneous problems on ratio and proportion	**LP**
	4	Binary operation-problems	**KSR**
		Conditional probability	**KSR**
		Miscellaneous problems on ratio and proportion	**LP**
September 2022	1	Revision of question bank	**KSR**
		Revision of question bank	**KSR**
		Revision of question bank	**LP**
	2	Revision of question bank	**KSR**
		Revision of question bank	**KSR**
		Revision of question bank	**LP**

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS
ACADEMIC YEAR 2022-23
DEPARTMENT: Mathematics, CLASS: Fourth Semester

MONTH/YEAR	WEEK	PORTIONS	Teachers
June 2023	1	Formation pf PDE	SBS
		Elimination pf arbitrary constant	SBS
		Definition of Laplace transform standard properties	MSN
		Fourier Series definition Euler's formula	KSR
	2	Elimination of arbitrary functions	SBS
		Elimination of arbitrary functions	SBS
		Laplace transform of standard functions	MSN
		Periodic functions ,Fourier coefiicients	KSR
	3	Linear P.D.E of first order	SBS
		Linear P.D.E of first order-problems	SBS
		Transforms of periodic functions	MSN
		Fourier Series of functions with period 2pi	KSR
	4	Firstorder nonlinear p.d.e type I	SBS
		Reducible to type I	SBS
		Inverse Laplace tranforms	MSN
		Fourier Series of functions with period 2pi	KSR
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
July2023	1	Firstorder nonlinear p.d.e type II	SBS
		Reducible to type II	SBS
		Inverse Laplace tranforms	MSN
		Fourier series of functions with period 2L	KSR
	2	Firstorder nonlinear p.d.e type III	SBS
		Reducible to type III	SBS
		Inverse Laplace tranforms	MSN
		Fourier series of even and odd functions	KSR
	3	Firstorder nonlinear P.D.E type III &IV	SBS
		Reducible to type III&IV	SBS
		The convolution theorem	MSN
		Half range – expansion-sine -cosine	KSR
	4	Charpits method	SBS
		Charpits method	SBS
		Transforms of derivatives	MSN
		Finite Fourier transforms	KSR

MONTH/YEAR	WEEK	PORTIONS	Teachers
August2023	1	Second order linear pde in two variables wirhe constant coefficients	SBS
		Finding complementary function	SBS
		Transforms of derivatives	MSN
		Finite Fourier transforms cosine and sin	KSR
	2	Finding complementary function	SBS
		Finding particular integral	SBS
		Transforms of derivatives	MSN
		Finite Fourier transforms cosine and sin	KSR
	3	Finding particular integral	SBS
		Solving linear PDE with constant coefficients	SBS
		Transforms of integrals	MSN
		Transforms derivatives	KSR
	4	Non-homogeneous linear equations with constant coefficients	SBS
		Problem on the above	SBS
		Transforms of integrals	MSN
		Inverse Fourier tranforms	KSR
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
Sept 2023	1	Solutions of one dimensional heat and wave equation using Fourier series	SBS
		Wave equation -problems	SBS
		Trans form of Heaviside function	MSN
		Inverse Fourier tranforms	KSR
	WEEK	**PORTIONS**	**Teachers**
	2	Heat equation –problems on it	SBS
		Heat equation –problems on it	SBS
		Transforms of unit step function	MSN
		Revision Class	KSR
	WEEK	**PORTIONS**	**Teachers**
	3	Revision classes	SBS
		Solving previous QP	SBS
		Solving previous QP	MSN
		Solving previous QP	KSR
	WEEK	**PORTIONS**	**Teachers**
	4	Solving previous QP	SBS
		Solving previous QP	SBS
		Solving previous QP	MSN
		Solving previous QP	KSR

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS
ACADEMIC YEAR 2022-23
DEPARTMENT: Mathematics, CLASS: Fourth Semester (OE) Quantitative Mathematics

MONTH/YEAR	WEEK	PORTIONS	Teachers
April 2023	3	Number system: Introduction	**LP**
		Theory of equations: Introduction & Basic defns	**MSN**
		Quantitative Aptitude: Introduction and simple problems	**KSR**
	4	Operations on numbers	**LP**
		Linear equations , problems	**MSN**
		Percentage, average, problems	**KSR**
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
May 2023	1	Tests on divisibility, problems	**LP**
		Quadratic equations , problems	**MSN**
		Average speed, problems	**KSR**
	2	Problems on tests on divisibility,HCF,LCM	**LP**
		Simultaneous equations in 2 variables, problems	**MSN**
		Speed, Time, problems	**KSR**
	3	Problems on HCF and LCM	**LP**
		Simple application problems	**MSN**
		Time-distance problems	**KSR**
	4	Problems on decimals	**LP**
		Application problems on different types of equations	**MSN**
		Problems on Time-Distance	**KSR**
June 2023	1	Problems on fractions	**LP**
		Problems on ages	**MSN**
		Application problems on Time-Distance	**KSR**
	2	Problems on simplification of decimals and fractions	**LP**
		Problems on conditional ages	**MSN**
		Application problems on trains	**KSR**
	3	Problems on square roots	**LP**
		Application problems on conditional age calculations	**MSN**
		Problems on work and time	**KSR**

MONTH/YEAR	WEEK	PORTIONS	Teachers
	4	Problems on cube roots	**LP**
		Problems on present and past age calculations	**MSN**
		Application problems on work and time	**KSR**
MONTH/YEAR	**WEEK**	**PORTIONS**	**Teachers**
July 2023	1	Application problems on square roots and cube roots	**LP**
		Application problems on past and present age calculations	**MSN**
		Problems on work and wages	**KSR**
	2	Problems on surds	**LP**
		Revision on main chapters	**MSN**
		Problems on clock and calendar	**KSR**
	3	Problems on indices	**LP**
		Revision of Question Bank	**MSN**
		Application problems on clock and calendar	**KSR**
	4	Solving Model papers	**LP**
		Revision of model papers	**MSN**
August 2023	1	Solving the model papers	**KSR**
		Mock test in unit 1	**LP**
		Mock test in unit 2	**MSN**
		Mock test in unit 3	**KSR**

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS
ACADEMIC YEAR 2022-23
DEPARTMENT: Mathematics, CLASS: VI Semester B.Sc
SUBJECT: PAPER-7

MONTH/YEAR	WEEK	PORTIONS	Teachers
April 2023	3	Vector space – Examples Properties Total differential equationsNecessary condition for the equation *Pdx*+ Q*dy*+*Rdz*= 0 to be integrable Lab:1 (a) Expressing a vector as a linear combination of given vectors (b)Linear dependence and independence of vectors	**DR, MSN LP SBS,KSR**
	4	Criterion for a subset to be a subspace Problems on subspaces Total differential equations problems. Lab:2 (a) Basis and Dimension (b) Linear Transformation	
	4	linear span of a set linear combination Simultaneous equations Lab 3: Matrix of Linear Transformation	
May 2023	1	linear combination problems linear independence and dependence Simultaneous equations Lab 4: Linear Transformation of a matrix	
	2	Theorems and problems Basis and dimensions– Standard properties Formation of partial differential equation Lab 5: Basis and kernel of a Linear Transformation, Rank-Nullity Theorem	**MSN LP SBS KSR**
	3	Examples illustrating concepts and results Basis and dimensions problems	

MONTH/YEAR	WEEK	PORTIONS	Teachers
		Continuation of Formation of partial differential equation. Lab 6: Total Differential Equation	
	4	Internal Test for students	
June 2023	1	Linear transformations – properties matrix of a linear transformation Equations of First Order Lagrange's linear equation – Charpit's method Lab 7: PDE Type1 and Type2	**MSN** **LP** **SBS** **KSR**
	2	Change of basis – range and kernel, –rank and nullity Rank – Nullity theorem Continuation of Charpit's method –problems, Standard types of first order non-linear partial differential equation (By known substitution). Lab 8: PDE Type 3 and Type 4	
	3	Rank – Nullity theorem problems Non-singular and singular linear transformations - Standard properties – Examples Standard types of first order nonlinear partial differential equation (By known substitution). Lab 9: Second order linear PDE in two variables with constant coefficients	
	4	Definition of orthogonal curvilinear coordinates. Fundamental vectors or base vectors Scale factors or material factors - quadratic differential form, Spherical curvilinear system : Cartesian, Cylindrical conversion of Cylindrical to orthogonal Spherical polar coordinates-theorem Solution of second order linear partial differential equations in two variables with constant coefficients by finding complementary function and particular integral	

MONTH/YEAR	WEEK	PORTIONS	Teachers
		Lab 10: Second order linear PDE in two variables with constant coefficients	
	4	The Spherical coordinate system is orthogonal curvilinear coordinate system. (without proof) Problems based on spherical coordinate system Solution of one – dimensional heat equations. Lab 11: One Dimensional Heat Equation Using Fourier Series	
July2023	1	The Spherical coordinate system is orthogonal curvilinear coordinate system. (without proof) Problems based on spherical coordinate system Solution of one – dimensional heat equations. Lab 11: One Dimensional Heat Equation Using Fourier Series	**MSN** **LP** **SBS** **KSR**
	2	Model question papers revision Solution of one – dimensional wave equations using Fourier series Revision of the topics, preparatory test on the topics Lab 12: One Dimensional Heat Equation Using Fourier Series ion	
	3	Revision Model papers discussion Lab 13: preparatory exam	
	4	Revision of the topics, preparatory test on the topics Model question papers revision Solution of one – dimensional wave equations using Fourier series Lab 12: One Dimensional Heat Equation Using Fourier Series ion	

ACADEMIC PLANNER & UNITIZATION OF SYLLABUS
ACADEMIC YEAR 2022-23
DEPARTMENT: Mathematics, CLASS: VI Semester B.Sc PAPER-8

MONTH/YEAR	WEEK	PORTIONS	TEACHERS
April 2023	2	Numerical solutions of algebraic and Transcendental equations – method of successive bisection Complex numbers-Cartesian and polar form-geometrical representation Complex-Plane-Euler's formula- = cos + *i*sin LAB: Some problems on CauchyRiemann equations (polar form).	**DR, MSN LP, ,SBS ,KSR**
	3	Method of false position Functions of a complex variablelimit, continuity, differentiability of a complex function LAB: Implementation of MilneThomson method of constructing analytic functions(simple examples)	
	4	Newton-Raphson method Analytic function Cauchy-Riemann equations in Cartesian and Polar forms Sufficiency conditions for analyticity(Cartesian form only) LAB: Illustrating orthogonality of the surfaces obtained from the real and imaginary parts of an analytic function	
May 2023	1	Numerical solutions of non homogeneous system of linear of algebraic equations in three variables by Gauss Jacobi method Harmonic function-standard properties of analytic functions Construction of analytic function when real or imaginary part is given by Milne-Thomson method. LAB: Verifying real and imaginary parts of an analytic function being harmonic (in polar coordinates).	
	2	Numerical solutions of nonHomogeneous system of linear algebraic equations in three variables by Gauss-Seidel method.	**DR, MSN LP, ,SBS ,KSR**

MONTH/YEAR	WEEK	PORTIONS	TEACHERS
		Construction of analytic function when real or imaginary part is given-Milne Thomson method. Complex integration-propertiesproblems. LAB: Illustrating the cross ratio preserving property in a transformation.	
	3	Computation of largest Eigen value of a square matrix by power method. Cauchy's Integral theorem-proof using Green's theorem- direct consequences Cauchy's Integral formula with proof-Cauchy's generalised formula for the derivatives with proof LAB: Illustrating that circles are transformed to circles by a bilinear transformation	
	4	Solutions of initial value problems for ordinary linear first NewtonRaphson method order differential equations by Taylor's series Applications for evaluation of simple line integrals Cauchy's inequality with proof – Liouville's theorem with proof. Fundamental theorem of algebra with proof. LAB: Examples connected with Cauchy's integral theorem. Solving algebraic equation (Bisection method).	
June2023	1	**INTERNAL TEST**	**TEACHERS**
	2	Euler's method Transformations – conformal transformation Elementary transformations namely Translation, rotation,magnification and inversion – examples LAB: Solving algebraic equation (Regula-Falsi and NewtonRaphson methods).	**LP, SBS,MSN ,KSR**

MONTH/YEAR	**WEEK**	**PORTIONS**	**TEACHERS**
	3	Euler's modified method The bilinear transformation(B.T.)cross ratio Invariant points of a B.T.-properties LAB: Solving system of equations (Jacobi and Gauss-Seidel methods)	
	4	th Runge-Kutta 4 order method (i) B.T. sets up a one to one correspondence between the extended z-plane and the extended w-plane. (ii) Preservation of cross ratio under a B.T. LAB: : Solving for largest eigenvalue by Power method.	
	4	Revision (iii) A B.T. transforms circles onto circles or straight lines. Problems on finding a B.T., and finding images under a B.T.and invariant points of a B.T. LAB: Solving ordinary differential equation by modified Euler'smethod. Solving ordinary differential equation by Runge- th Kutta method of 4 order	
July 2023	1	Solving model papers Discussion of transformations w = , w = sin w=coshz, w= LAB: MOCK TEST IN PRACTICALS	**LP ,SBS,MSN ,KSR**
	2	Solving model papers Revision-- Solving model papers LAB: PREPARATORY IN PRACTICALS	