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Syllabus Planning Record

Name of Staff – Basavraj G. Borkade

Year - 2019-20 Semester I [F.Y. Bsc - Calculus [Paper I]]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	July	27 13 days	Unit - I Real Number System	i) Real no System R and order Properties of R, Absolute value ii) AM - GM inequality iii) Cauchy - Schwarz inequality iv) Intervals and neighbourhoods v) Hausdroff Property vi) Bounded sets, Statement of l.u.b axiom, g.l.b axiom	02 02 01 01 01 02 02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
		24		vii) Supremum and infimum	02		
				viii) maximum and minimum	02		
2	Aug	12 days	Unit II				
			Sequences	i) Defn of sequence	01		
				ii) convergence of sequence	01		
				iii) every convergent sequence is bounded, Limit of convergent sequence and uniqueness of limit	03		
				iv) Divergent Sequences	01		
				v) algebra of convergent seq^n	01		
				vi) Sandwich Th^m	01		
				vii) monotone sequences	01		
				viii) Convergence of $(1+\frac{1}{n})^n$	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
3	Sept	18 / 10 days		ix) Defn of subsequence	02		
				x) subsequence of a convergent and converge of limit.	02		
			Unit III				
			Limits &	i) Domain and range of a fn,	01		
			Continuity	ii) injective fn, surjective fn	01		
				iii) bijective fn, composite of two fn Inverse of a bijective fn.	02		
				iv) Graphs of standard fn	01		
				v) Defn of limits fn	01		
		19		vi) algebra of limits	01		
				vii) limit of composite fn	01		
4	Oct	09 days		viii) Sandwich Thm	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat HO
				viii) left hand - limit & right hand limit	01		
				ix) non - existence of limits	01		
				x) continous fn of real valued	01		
				xi) Sequential Continuity Algebra of continuous fn	02		
				xii) Discontinuous fn	01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				— : Practicals : —			
1	July			1) Application based examples of Archimedean Property, intervals	03 1		
				2) Consequences of l.u.b axiom, Infimum and Supremum of Sets	03 1		
2	Aug			3) Calculating limits of Seq^n	03 1		
				4) Cauchy Seq^n, monotone	03 1		
3	Sept			5) Limit of a f^n and Sandwich Theorem	03 1		
				6) Continuous and discontinuous Function	03 1		

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Syllabus Planning Record

Name of Staff – Basavraj G. Borkade

Year - 2019-20 Semester III [S.Y.Bsc – Discrete Mathematics (Paper III)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June	24/11 days	Unit I Preliminary Counting	i) Finite and infinite sets, Countable and uncountable	03		
				ii) Addⁿ and multiplication Principle, Counting set of pairs	03		
				iii) Two ways counting	01		
				iv) Stirling no of first & Second kind, Simple recursion Formula	03		
2.	July	27/13 days		v) Pigonhole principle	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Application to geometry monotonic Seq^n.	03		
			Unit II Advanced Counting	i) Binomial and multinomial Th^m	02		
				ii) Pascal identity	01		
				iii) Standard identity	01		
				iv) Permutation and combination of Sets and multi Sets.	02		
				v) Circular permutation	01		
		24/13		vi) Non-negative and Positive integral Soln	02		
03	~~ABg~~ Aug	Aug 13 days		vii) Principle of Inclusion and Exclusion.	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				viii) derangements explicit formula for d_n.	02		
				ix) Various identities involving d_n.	01		
				x) deriving formula for Eulers phi fn $\phi(n)$.	01		
			Unit III Permutation and Recurrence Relation.	i) Permutations of objects S_n,	01		
				ii) composition of permutation	01		
				iii) disjoint cycles, every cycle	02		
				iv) even and odd permutation	02		
				v) rank and Signature of Permutation.	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
04	Sep	18/10 days		vi) cardinality of S_n, A_n	01		
				vii) Recurrence relation	01		
				viii) defn of Homo, non-Homogenous.	02		
				ix) linear and non-linear recurrence relation	02		
				x) Homogenous of Second degree using Algebric method	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				—: Practical :—			
1)	June			1) Derangment and rank Signature of Permutation	01		
2)	July			2) Recurrence relation	01		
				3) Problems based on Counting Principles, Two way Counting	01		
3)	Aug			4) Stirling no. of Second kind, Pigeon Hole Principle	01		
				5) Multinomial Thm, identities and combination of multiset	01		
4)	Sept			6) Inclusion-Exclusion Poinciple, Euler phi fn.	01		

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Syllabus Planning Record

Name of Staff – Basavraj G. Borkade

Semester – I

[T.Y. B.Sc – Integral Calculus (Paper I)]

Year - 2019-20

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 13 days	24 days	Unit I MULTIPLE Integrals	i) Defn of double integral	01		
				ii) Geometric interpretation as area and Volume.	01		
				iii) Fubini Thm, Iterated Int^n	02		
				iv) Scalar multiples, Products Quotients of integrable fn	01		
				v) Formulae for integral of sums & Scalar multiples	0,2		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Integrability of Continuous fn	01		
				vii) Domain additivity of the Integral.	02		
				viii) Change of Variable formula	01		
				ix) Polar, Cylindrical & Spherical	02		
02	July 19 days	27, days		x) Application to finding the Center of gravity and moments of Inertia.	02		
			Unit II				
			Line Integrals	i) Gradient Paths in R	01		
				ii) Smooth and Piecewise Smooth Paths	02		
				iii) closed Paths, Equivalence Paths	02		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				iv) Defn of line integral of Vector-field	01		
				v) Basic Properties of line integrals	01		
				vi) Path-additivity & change of Parameter	02		
				vii) Line integrals of the gradient vector field.	02		
				viii) Fundamental Thm of calc	01		
				ix) Greens Thm	01		
				x) Application of evaluation of line integrals.	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
03	Aug 16	24 days	Unit III Surface Integrals :-	i) Parametrized Surfaces	01		
				ii) Smoothly equivalent Parameterization	02		
				iii) Area of Such Surface	01		
				iv) Defn of Surface integrals of Scalar-valued fn	02		
				v) Curl and divergence of a vector field.	03		
				vi) Elementary identities involving Gradient.	03		
				vii) Stoke's Thm	01		
				ix) Gauss Divergence Thm	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dist. HC
				—: Practical :—			
1)	June			1) Pointwise and Uniform convergence of Sequence fn, Properties	03		
2)	July			2) Point wise and uniform convergence of Series of fn	03		
				3) Limit Continuity and derivability of fn of complex Variables	03		
3)	Aug			4) Analytic Fn, finding Harmonic Conjugate, Mobius transformation	03		
				5) Cauchy integral formula, Taylor Series, Power Series	03		
4)	Sept			6) Finding Isolated singularity removable, Pole and essential, Laurent Series, calculations of residue.	03		

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Syllabus Planning Record

Name of Staff- Bagavraj G. Borkade

Year- 2019-20 Semester V [T.Y.B.Sc - Algebra (Paper II)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 15 days	24 days	Unit I Quotient Spaces and orthogonal Linear Transformation.	i) Fundamentals of th^m Homomorphism of vector spaces ii) Dimension and basis of Quotient Space. iii) Orthogonal transformation iv) Translation and Reflection with respect of hyperplane v) Orthogonal metrices of R.	02 02 02 03 01		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Orthogonal tranformation in R is a reflection or a rotation	02		
				vii) Isometries (composites of orthogonal transformation	03		
02	July 15 days	27 days,	Unit II Eigenvalues and eigen Vectors	i) Finite dimensional real vector Space	01		
				ii) Eigen Value and Eigen Vector of x real metrices.	02		
				iii) The linear independance of eigenvector	01		
				iv) Transformation of matrix	01		
				v) Finite dimensional real vector Space	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dept. HC
				vi) Eigen Values of Similar matrices.	01		
				vii) Every Square matrix is Similar matrices.	02		
				viii) Upper triangular matrix	02		
				ix) diagonal matrix	01		
				x) Similar matrix, invariant Subspaces.	02		
			Unit III				
03	Aug 15 days	24 days	Diagonalisation	i) Geometric multiplicity	01		
				ii) Algebraic multiplicity of eigen Values of real matrix	02		
				iii) matrix diagonalizability of eigenvectors	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				iv) Algebraic & geometric multiplicities of eigen vector of coincide,	02		
				v) finite dimensional real vector	01		
				vi) Orthogonal diagonalisation and Quadratic	01		
				vii) Diagonalisation of real Symmetric matrices	02		
				viii) Application to real Quadratic Forms	01		
				ix) Rank & Signature of a Real Quadratic forms	02		
				x) positive definite & Semi definite matrices	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic —: Practicals :—	Total Lectures	Topic completed Yes/No	Sign Date HC
1)	June			1) Normal Subgroups and Quotient Groups	03		
2)	July			2) Cayley's Th^m and external direct product of groups	03		
3)	Aug			3) Rings, Subrings, Ideals, Ring Homomorphism and Isomorphism	03		
				4) Prime Ideals and Maximal Ideals	03		
4)	Sept			5) Polynomial Rings	03		
				6) Fields.	03		

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Syllabus Planning Record

Name of Staff – Pooja Natharam Patil

Semester III [Algebra III - S.Y. Bsc (Paper II)

Year - 2019-20

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June 19	24	Unit I linear transformations and Matrices	1) Review of linear transformation	03		
				2) The matrix units, row operations, elementary matrices, elementary matrices are invertible and an invertible matrix is a product of elementary matrices.	03		
				3) Row space, column space Rank, operations.	03		
2.	July 14	27		4) Equivalence of rank of an $m \times n$ matrix A and rank of L.T.	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				5) The solution of non-homogeneous system.	03		
			Unit II Determinants	1) Def^n, types, Properties, Determinant of a matrix as determinant of its column vectors (or row vectors.)	04		
				2) Existence and uniqueness of determinant.	04		
				3) Linear dependence and independence of vectors in $\mathbb{R}^n$ using determinants.	04		
3.	August 12	24		4) Determinant as area and volume.	03		
			Unit-III Inner Product Space	1) Dot product in $\mathbb{R}^n$	03		
				2) Inner product on vector space	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
4.	Sept 08	18		3) Norm of vector in a inner product space. 4) Cauchy-Schwartz inequality, Triangle inequality, Orthogonality, Orthogonality of vectors, Pythagoras thm. 5) Orthogonal & Orthonormal bases. Gram-schmidt orthogonalization process. —X—X—X—X—	03 03 03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				—: Practicals :—			
1.	June			1) Rank - Nullity Theorem	01		
2.	July			2) System of linear equations	01		
				3) Determinants, calculating det of 2x2 matrices, nxn diagonal, upper triangular matrices using def^{n} and Laplace expansion	01		
3.	August			4) Finding inverses of nxn matrices using adjoint.	01		
				5) Inner-product spaces, examples Orthogonal complements in $\mathbb{R}^2$ & $\mathbb{R}^3$.	01		
4.	Sept.			6) Gram-Schmidt method.	01		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

[F.Y. Bsc – Algebra I (Paper II)]

Year - 2019-20 Semester I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	July 14	27	Unit-I Integers and Divisibility	i) Statements of well-ordering property of non-negative integers.	02		
				ii) Principle of finite Induction (first and second)	02		
				iii) Binomial theorem for non-negative exponents	02		
				iv) Divisibility of integers	02		
				v) G.C.D. & L.C.M.	02		
				vi) Congruences – Def^n & properties	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat Hr
				vii) Euler's ϕ-function	02		
2.	August 12	24	Unit-II Functions and Equivalence Relations	i) Function - Def^n, Types, properties, examples.	03		
				ii) Equivalence relations	03		
				iii) Partition	03		
				iv) Congruence - an equivalence relation on $\mathbb{Z}$.	03		
3.	Sept 07	18	Unit-III Polynomials	v) Residue classes	03		
				i) Polynomial - Def^n, Algebra, properties, degree.	02		
				ii) Division Algorithm	02		
4.	Oct 08	19		iii) G.C.D. & it's Properties	02		
				iv) Euclidean Algorithm	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				v) Roots of polynomial	02		
				vi) Fundamental thm of Algebra	01		
				vii) Multiplicity	02		
				viii) n^{th} root of unity & sum of n^{th} root of unity.	02		
				—: Practicale :—			
1	July		Unit I	[1] Mathematical Induction	01		
				[2] Division Algorithm & Euclidean Algorithm in Z, Primes and the fundamental thm of Arithmetic	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
2	August		Unit II	3 Functions (direct and inverse image) · Injective, Surjective, bijective function. Find inverse of bijective function.	01		
				4 Congruences and Euler's ϕ Fermat's, Fermat's little thm, Euler's thm and Wilson's thm.	01		
8	sept		Unit III	5 Equivalence Relation	01		
				6 Factor thm, Relation bet' roots and coefficients of polynomials, Factorization and Reciprocal Polynomials.	01		

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Syllabus Planning Record

Name of Staff - Pooja Nathuram Patil

Year - 2019 - 20 Semester III [S.Y. Bsc - Calculus III (Paper I)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 10	24	Unit I Functions of several variables	1] The Euclidean inner product on $\mathbb{R}^n$ & Euclidean norm functions on $\mathbb{R}^n$.	04		
				2] Functions	03		
				3] Directional derivatives and partial derivatives of scalar fields.	04		
2	July 13	27		4] Mean value thm for derivatives of scalar fields	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Differentiation (Unit II)	1] Differentiability of a scalar field.	03		
				2] Gradients of scalar field	04		
				3] Chain rule for scalar field	04		
3.	August 12	24		4] Higher order partial derivatives, mixed partial derivative	04		
			Unit III Applications	1] Second order Taylor's formula for scalar fields	03		
				2] Differentiability of vector field	02		
				3] Mean value inequality	03		
4.	Sept 10	18		4] Hessian matrix, Maxima, minima and saddle points.	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				5] Second derivative test for extrema of functions of two variables	02		
				6] Method of Lagrange Multipliers	02		
				: Practicals :-			
1.	June		1]	Sequence in $\mathbb{R}^2$ & $\mathbb{R}^3$, limits and continuity of scalar fields and vector field using def^n & other ideas	01		
2.	July		2]	Computing directional, partial derivatives & mean value thm of scalar field.	01		
			3]	Total derivatives, gradient, levels sets and tangent planes.	01		
3.	August		4]	Chain rule, higher order derivatives & mixed partial derivatives	01		
			5]	Taylor's formula	01		
4.	Sept.		6]	Maxima, minima, saddle point, extrema	01		

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Syllabus Planning Record

Name of Staff – Prof. Nutan. N. mhatre

Year - 2019 – 2020 Semester : TY BSc (metric Topology) Sem VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
			Unit - I Complete metric spaces	Definition of complete metric space Examples of complete metric spaces. completeness property in subspaces. Nested Interval theorem In IR, cantor's Intersection Theorem. Applications of cantor's Intersection theorem. The set of real numbers is uncountable. Density of rational numbers		Yes	

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign
				(Between any two real numbers there exists a rational number), Bolzano weierstrass Theorem : Every bounded sequence of real numbers has a convergent subsequence , Intermediate value theorem : let be continuous and assume that and are of different signs say, such that be a closed and bounded interval and let finite subset such that number of open intervals of the given family. finite intersection property of closed sets for compact metric space, hence every		Yes	

S.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign
			Unit - II connected sets	separated sets - definition and examples, disconnected sets, disconnected and connected metric space, connected subset of metric space. connected subset of IR, A subset of IR is connected if and if it is an interval. A continuous image of a connected is connected, characterization of a connected space, viz. a metric space is connected if and only if every continuous function from to 1, -1 is a constant function. path connectedness in IR,		Yes	

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				definition and examples, A path connected subset of $\mathbb{R}$ is connected, convex sets are path connected, connected components, An example of a connected subset of $\mathbb{R}$ which is not path connected.			
			Unit III Sequence and series of functions	sequence of functions – pointwise and uniform convergence of sequence of real-valued functions, examples. uniform convergence implies pointwise convergence, example to show converse properties of uniform convergence. continuity of the uniform limit of a sequence of continuous function,		Yes	

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				condition under which integral and the derivative of sequence of functions converge to the integral and derivative of uniform limit on a closed and bounded interval. Examples. consequences of these properties for series of functions, term by term differentiation & integration. power series in $\mathbb{R}$ centred at origin and at some point $\mathbb{R}$, radius of convergence, region of convergence Uniform convergence, term by term differentiation and integration of power series Examples uniqueness of series representation, function represented			

Sr. No.	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date of
				by power series, classical functions defined by power series such as exponential, cosine and sine functions, the basic properties of these functions.			

Sr.No	Month	April Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
			Practicals	1) Examples of Complete metric spaces 2) Cantor's Theorem and Applications 3) Continuous functions on metric spaces 4) Uniform continuity, fixed point theorem 5) Examples of connected sets and connected metric spaces. 6) path connectedness, convex sets, equivalent Condition for connected set using continuous function. 7) Miscellaneous theory questions.		yes	

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Syllabus Planning Record

Name of Staff – Prof. Nuton · N· mhatre

Year - 2019-2020 Semester S·Y· Bsc (calculus) sem IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
			Unit-I Riemann Integration	Approximation of area, Upper/Lower Riemann integral on a closed and bounded interval, Criterion of Riemann integrability, if $a<c<b$ then $f \in R[a,b]$, if and only if $f \in R[a,c]$ and $f \in R[c,b]$ and $\int_a^b f = \int_a^c f + \int_c^b f$ Properties :- i) $f, g \in R[a,b] \Rightarrow f+g, \lambda f \in R[a,b]$		Yes	

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Sr. No.	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				ii) $\int_a^b (f+g) = \int_a^b f + \int_a^b g$.			
				iii) $\int_a^b \lambda f = \lambda \int_a^b f$.			
				iv) $f \in R[a,b] \Rightarrow \lvert f \rvert \in R[a,b]$ and $\left\lvert \int_a^b f \right\rvert \leq \int_a^b \lvert f \rvert$.			
				v) $f \geq 0, f \in C[a,b] \Rightarrow f \in R[a,b]$			
				vi) If f is bounded with finite number of discontinuities then $f \in R[a,b]$, generalize this if f is monotone then $f \in R[a,b]$			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
			Unit-II Indefinite and improper integrals	Continuity of $F(x)=\int_a^x f(t)\,dt$ where $f \in R[a,b]$, Fundamental Theorem of Calculus, Mean Value theorem, Integration by parts, Lebnitz rule, Improper integrals-type 1 and type 2, Absolute Convergence of improper integrals, Comparison tests, Abel's and Dirichlet tests.		yes	

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign. Date
			Unit - III Applications	(1) β and γ functions and their properties, relationship between β and γ function (without proff). (2) Applications of definite Integras: Area between curves, finding volumes by sicing, volumes of solids of revolution - Disks and washers, cylindrical shells, lengths of plane curves, Areas of surfaces of revolution		Yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date of
			Practicals	1) calculation of upper sum, lower sum and Riemann integral. 2) Problems on properties of Riemann integral 3) Problems on fundamental theorem of calculus, mean value theorem, integration by parts, Leibnitz rule. 4) Convergence of improper integrals, applications of comparison tests, Abel's and Dirichlet's tests, and function 5) Beta Gamma functions 6) problems on area, volume, lengths.		Yes	

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date of
				7) Miscellaneous theoretical's questions based on full paper.			

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

Year - 2018-19 Semester V [T.Y.Bsc – Numerical Analysis -I(Paper IV)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 13	24	Unit I : Error Analysis and Transcedental & Polynomial Equations	1) Measure of Errors	03		
				2) Types of Errors	02		
				3) Taylor's series examples	03		
				4) Roots	02		
				5) Iterative method	01		
				6) Iteration methods based on first degree equation	02		
				7) Rate of convergence	02		
2	July 18	27					

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit - II Transcendental and Polynomial equation.	1) Iteration method based on second degree	03		
				2) Iterative methods for polynomial equations	03		
				3) Descart's rule of sign	03		
				4) Method for multiple root and complex root	04		
				5) Convergence of above all methods.	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat Hr
3	August 15	24	Unit III linear system of Equations.	1) Matrix representation of linear system	03		
				2) Direct method	02		
				3) Pivot elts, forward and backward substitution method	03		
				4) Triangulization method	02		
				5) Iteration method	02		
				6) Eigen value problem	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures /	Topic completed Yes/No	Sign Date HC
				—: Practicals :—			
1	June			1) Newton - Raphson method, secant method, Regula Falsi method, Iteration method	03		
2	July			2) Mullers method, chebyshev method Multipoint Iteration method	03		
3	August			3) Descart's rule of sign, Birge-viela method, Bairstrow method	03		
				4) Gauss Elimination method Forward and Backward substitution method.	03		
				5) Triangularization methods	03		
4	Sept			6) Jacobi - Iteration method for symmetric matrices and power method.	03		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

Year - 2018-19 Semester V [T.Y. Bsc – Topology of Metric spaces Paper III]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June 12	24	Unit I Metric Spaces	i) Defⁿ, examples.	03		
				2) Distance metric induced by the norm.	02		
				3) Metric subspaces	01		
				4) Open balls & open set in a Metric space, examples.	03		
				5) Properties	02		
				6) distance of a point from a set	02		
2.	July 19	27		7) Diameter of a set in a metric space and bounded set	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
3.	August 15	24	Unit II closed sets, limit points & sequences	1) closed ball in a metric space	03		
				2) closed set	02		
				3) limit point of a set	02		
				4) Sequence in metric space	03		
				5) Characterization of limit points and closure points in terms of sequences.	03		
				6) Dense subsets.	02		
			Unit III Compact sets	1) Def^n of compact metric space using open cover	03		
				2) Examples	03		
				3) Properties	02		
				4) Heine Borel thm	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat HC
4.	Sept 12	18		5) Equivalent statements for compact sets in IR	04		
				—: Practicals :—			
1	June			i) Examples of Metric spaces	03		
2	July			2) Open balls and open sets in Metric space	03		
				3) Subspace, closed sets and closure Equivalent Metrics & Norm	03		
3	Augut			4) Sequences convergent and Cauchy sequence in a M.sp.	03		
				5) limit points, diameter of a set, dense sets and seperability	03		
4	Sept			6) Examples of compact sets.	03		

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Syllabus Planning Record

Name of Staff – Prof. Basavraj Gorakha Borkade Class : F.Y.B.Sc

Year - 2018 - 19 Semester I Sub :- Calculus

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1	July 26	08	Unit I :- Real Numbers :	• Real number System and order properties of R, absolute value Properties AM- GM inequality.	02	Yes	
				• Cauchy-Schwarz inequality,	01	Yes	
				• Intervals and neighbourhood	01	Yes	
				• Hausdroff Property, Bounded Sets, Continuum Property	02	Yes	
				• Supremum and infimum	01	Yes	
				• Maximum and minimum	01	Yes	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
2.	August (23)	11	• Sequences :-	• Definition of a Sequence and examples.	02	Yes	
				• Convergence of Sequence, every convergent Sequence is bounded.	01	Yes	
				• Limit of Sequence	01	Yes	
				• uniqueness of limit if it exists	01	Yes	
				• Divergent Sequence	01	Yes	
				• Convergence of Standard $c^{1/n}$, $n^{1/n}$, e^n etc.	02	Yes	
			Unit II Sequences (Contd)	• Algebra of Convergent Sequence	01	Yes	
				• Sandwich thm, monotone Regn	01	Yes	
				• monotone Convergence thm	01	Yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
3.	Sep (19)	12	Unit III:. Limits of functions:.	• Convergent of $(1+\frac{1}{n})^n$.	02	Yes	
				Subsequences: Defn, Subsequence of a Convergent and converges to the same limit.	02	Yes	
				• Cauchy Sequence: Defn, every convergent Sequence is a Cauchy Sequence and converse.	02	Yes	
				• Graphs of some standard fn such as $\|x\|$, e^x, $\log x$, $\frac{1}{x}$, ax^2+bx+c	01	Yes	
				$\lfloor x \rfloor$ (Flooring Fun^n), $\lceil x \rceil$ (ceiling Fn), x^n $(n \geq 3)$, $\sin x$, $\cos x$, $\tan x$,	01	Yes	
				$x \sin \frac{1}{x}$, $x^2 \sin \frac{1}{x}$ over suitable intervals.	01	Yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
4.	oct (23)	14	· Continuous Functions:	· limit of fn, evaluation of limit	01	Yes	
				· ε-δ def, uniqueness of limit	01	yes	
				· Algebra limits, composite fn	01	Yes	
				· Sandwich Thm, left hand, Right hand thm	02	Yes	
				· Continuity of a real valued fn on a Set in terms of limits	02	yes	
				· Continuity of a real valued fn,	01	Yes	
				· Sequential continuity,	01	Yes	
				· Algebra of continuous fn.	01	yes	
				· Discontinuous fn	01	Yes	
				· essential discontinuity	01	Yes	

Sr.No	Month	Avail. Working Days	Topic Practice	Sub Topic	Total Lectures	Topic completed Yes/No	Sign & Date HO
	July		Unit I	1] Cauchy - Schwartz inequality, Hausdroff Property	3	Yes	
				2] Convergence of Sequence, Limit of Sequence.	3	Yes	
	Aug		Unit II	3) Sandwich thm, monotone Sequence	3	Yes	
				4) Cauchy Sequence convergence Sequence	3	Yes	
	Sep		Unit III	1) Limit of Function	3	Yes	
				2) Continuous function	3	Yes	

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Syllabus Planning Record

Name of Staff – Prof. Basavraj Genaba Borkade , Class :- S.Y. B.Sc.

Year - 2018-2019 USMT 303 Semester III Sub :- Discrete Mathematics

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1	June		Unit I • permutation and Recurrence relation	1] Permutation of objects, Sn, Composition, results such as every permutation is a product of disjoint cycles, every cycle is a product of transpositin, even and odd rank		Yes	
2.	July			2] Recurrence Relation, Def^n of non-Homogenous, linear, non linear recurrence relation.		Yes	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date HOD
3	August		Unit II : Preliminary Counting	1] Finite and Infinite Sets, Countable and Uncountable Sets $\mathbb{N}, \mathbb{Z}, \mathbb{N}\times\mathbb{N}, \mathbb{R}$		Yes	
				2] Addition and multiplication Principle, Counting sets of pairs		Yes	
				3] Stirling no. of second kind. Simple recursion Formulae satisfied by $S(n,k)$ for $k = 1, 2 \cdots, n-1, n$		Yes	
				4) Pigeonhole Principle and its strong form, its application to geometry, monotonic Sequence etc.		Yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
4.	Sep		Unit III :. Advanced Counting	1] Binomial and Multinomial Th^m Pascal identity, standard ex such as the following emphasis on combinatorial • $\sum_{k=0}^{r} \binom{m}{k}\binom{n}{r-k} = \binom{m+n}{r}$ • $\sum_{i=r}^{n} \binom{i}{r} = \binom{n+1}{r+1}$ • $\sum_{i=0}^{n} \binom{k}{i}^2 = \binom{2k}{k}$ • $\sum_{i=0}^{n} \binom{n}{i} = 2^n$		Yes	
5.	Oct			2] Permutation and Combination of Sets and multi-Sets, Circular Permutation, emphasis on problem solved.		Yes	

Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
			3) Non-negative and Positive Solution of eqn $x_1+x_2+\dots+x_n=n$		Yes	
			4) Principle of Inclusion and exclusion its application, dearrangements, Explicit formula for d_n, deriving formula For Euler's Function, $(\phi)(n)$.		Yes	

.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HO
	June		Unit I	1 Permutation of objects In & Rank and signature of a permutation.	03		
	July			2. Recurrence Relation	03		
	Aug		Unit II	3. Finite and infinite sets	03		
				4. Pigeonhole principle and its strong form.	03		
			Unit III	5. Binomial & multinomial thm	03		
	Sept			6. Principle of inclusion and exclusion.	03		

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Syllabus Planning Record

Name of Staff- Pooja Nathuram Patil

F.Y.B.Sc. [Algebra-Maths II]

Year- 2018-19

Semester I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1	July	26	Unit I: Integers and Divisibility.	1) Statements of Well-ordering Property of Non-negative Integers.	01	YES	
				2) Principle of finite induction (First and second)	01	YES	
				3) Binomial theorem for non-negative exponents	01	YES	
				4) Pascal Triangle	01	YES	
				5) Divisibility in integers	01	YES	
				6) Division Algorithm	01	YES	
				7) G.C.D. & L.C.M. of 2 integers	01	YES	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
2	August	23		8) Basic properties of g.c.d. such as existence and uniqueness of g.c.d. of integers a & b and that the g.c.d. can be expressed as $ma+nb$, $m, n \in \mathbb{Z}$ Euclidean Algorithm	01	YES	
				9) Primes	01	YES	
				10) Euclid's Lemma	01	YES	
				11) Fundamental thm of arith-metic	01	YES	
				12) Congruences - Definition and elementary properties	02	YES	
				13) Euler's ϕ - function, statements of Euler's thm	02	YES	
				14) Fermat's thm and Wilson thm & Applications	02	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
3	Sep.	19	Unit-II Functions and Equivalence Relations.	1) Definition of function domain, co-domain and range of a function	02	Yes	
				2) composite functions example	01	Yes	
				3) Direct image $f(A)$ and inverse image $f^{-1}(A)$ of a function f.	02	Yes	
				4) Injective, surjective and bijective functions.	01		
				5) Composite of injective, surjective, bijective functions	01		
				6) Invertible functions	01		
				7) Bijective functions are invertible and conversely.	01		
				8) Examples of function including constant, identity function, projection, inclusion,	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign & Date HOI
				Binary operation as a function, Property, examples.			
				9) Equivalence relations.	02	YES	
				Equivalence classes, properties such as two equivalence classes are either identical or disjoint			
				10) Definition of partition, every partition gives an equivalence relation and vice versa.	01	YES	
				11) Congruence, an equivalence relation on $\mathbb{Z}$.	01	YES	
				12) Residue classes, Partition on $\mathbb{Z}$, Addition modulo n, Multiplication modulo n, examples conjugate classes.	01	YES	
4	Oct	23	Unit III Polynomials	1) Definition of polynomial, Polynomial over F where	01	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				F=Q, R or C Algebra of polynomials 2) Degree of polynomial, Basic properties 3) Division Algorithm in F(X) and g.c.d. of two polynomials and its basic properties (W.P)	01		
				4) Euclidean Algorithm (W.P) Applications, Root of polynomial, Relation between roots and coefficients	01		
				5) Multiplicity of a root 6) Remainder thm, Factor thm	01		
				7) A polynomial of degree n over F has a most n roots.	01		
				8) Complex roots of polynomial 9) statements of fundamental thm of Algebra.	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
				10) A constant polynomial in $R[x]$ can be expressed as a product of linear and quadratic factors in $IR[x]$.	01	YES	
				11) Simple consequences such as $\sqrt{p}$ as an irrational no. where p is prime no.	01	YES	
				12) nth root of unity.	01	YES	
				13) Sum of nth root of unity.	01	YES	

Sr.No	Month	Avail. Working Days	Topic Practicals	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
	July		Unit I	1) Mathematical induction	03	YES	
				2) Division Algorithm and Euclidean algorithm in $\mathbb{Z}$, Primes and the fundamental thm of Arithmetic.	03	YES	
	August		Unit II	3) Fuctions - Injective, Surjective and bijectives	03	YES	
				4) Congruences and Ewes's function, Feamat's little thm			
	Sep		Unit III	5) Equivalence relations	03	YES	
				6) Factor thm, relation between roots and coefficients of polynomial, factorization and reciprocal polynomials	03	YES	

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Syllabus Planning Record

Name of Staff- Pooja Nathuram Patil

S.Y. Bsc [Algebra III - Maths]

Year - 2018 - 19

Semester III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June	16	Unit I Linear transformations and matrices	1) Review of linear transformation kernel and image of a linear transformation, Rank. Nullity theorem Linear isomorphisms, inverse of a linear transformation isomorphism, Any n-dimensional real vector space is isomorphic to IR^n.	03	YES	
				2) The matrix units, row operations, elementary matrices, elementary matrices are invertible and an invertible matrix is a product of elementary	03	YES	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date c HOD
2	July	26		matrices. 3) Row space, column space of an $m \times n$ matrix, row rank and column rank of a matrix, Equivalence of the row and the column rank, Invariance of rank upon elementary row or column operations.	04	YES	
				4) Equivalence of rank of an $m \times n$ matrix A and rank of the linear transformation $L_A : \mathbb{R}^n \to \mathbb{R}^m$ $(L_A(X) = AX)$. The dimension of solution space of the system of linear eq^{n}s $AX = 0$ equals $n - \text{rank}(A)$.	05	YES	
				5) The solutions of non-homogeneous system of linear equations represented by $AX = B$, Existence of a solution when $\text{rank}(A) = \text{rank}(A|B)$ The general solution of the syst	04	YES	

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
8	August	23	Unit-II Determinant	is the sum of a particular solution of the system and the solution of the associated homogeneous system 1) Definition of determinant as an n-linear skew symmetric function from $\mathbb{R}^n \times \mathbb{R}^n \times \cdots \times \mathbb{R}^n \to \mathbb{R}$ such that determinant of $(E^1, E^2, \ldots, E^n)$ is 1, where E^i denotes the ith column of the $n \times n$ identity matrix I_n. Determinant of a matrix as determinant of its column vectors. Determinant as area and volume.	06	YES	
				2) Existence and uniqueness of determinant function via permutations, computation of determinant of 2×2, 3×3 matrices, diagonal matrices, Basic results on determinants such as $\det(A^t) = \det(A)$,	06	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
4	Sep	19		$\det(AB) = \det(A)\det(B)$, Laplace expansion of a determinant, Vandermonde determinant, determinant, determinant of upper triangular and lower triangular matrices. 3) Linear dependence and Independence of vectors in $\mathbb{R}^n$ using determinants. The existence and uniqueness of the system $AX=B$, where A is an $n \times n$ matrix with $\det(A) \neq 0$, cofactors and minors, Adjoint of an $n \times n$ matrix A, Basic results such as $A\,\text{adj}(A) = \det(A) I_n$, An $n \times n$ real matrix A is invertible iff $\det(A) \neq 0$, $A^{-1} = \frac{1}{\det(A)} \text{adj}(A)$ for an invertible matrix A, Cramer's rule.	04	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				4) Determinant as area and volume	02	YES	
			Unit III Inner product space.	1) Dot product in $\mathbb{R}^n$, def" of general inner product on a vector space over $\mathbb{R}$: Examples of inner product including the inner product $\langle f,g\rangle = \int_{-\pi}^{\pi} f(x)g(x)dx$ on $C[-\pi,\pi]$, the space of continuous real valued functions on $[-\pi,\pi]$.	04	YES	
5	Oct	23		2) Norm of vector in an inner product space. Cauchy-Schwartz Inequality, Triangle inequality, Orthogonality of vector Pythagoras thm and geometric applications in $\mathbb{R}^2$, Projections on a line, The projection being	04	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				the closest approximation, Orthogonal complements of a subspace Orthogonal complements in $\mathbb{R}^2$ and $\mathbb{R}^3$.			
				3) Orthogonal sets and orthonormal sets in an inner product space, Orthogonal and orthonormal bases.	03	YES	
				4) Gram-Schmidt orthogonalization process, Simple examples in $\mathbb{R}^3$, $\mathbb{R}^4$.	03	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	June		Unit I	1) Rank - Nullity thm & linear transformation	03		
	July			2) Homogeneous & Non-homo-geneous system and it's solutions	03		
	Aug		Unit II	3) Determinant as area and volume	03		
	Sept			4) Existence and uniqueness of determinant function via permutations.	03		
			Unit III	5) Invertible matrix and Cramer's rule	03		
	oct			6) Orthogonality of vector Pythagoras thm and geometric Application in $\mathbb{R}^2$	03		

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Syllabus Planning Record

Name of Staff – Pooja Natthuram Patil

S.Y. Bsc [Calculus III - Math:I]

Year - 2018-19

Semester III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1	June	16	Unit I Functions of several variables	1) The Euclidean inner product on $\mathbb{R}^n$ and Euclidean norm function on $\mathbb{R}^n$, distance between two points, open ball in $\mathbb{R}^n$, definition of an open subsets of $\mathbb{R}^n$, nbd of a point in $\mathbb{R}^n$, sequences in $\mathbb{R}^n$, convergence of sequences – These concepts should be specifically discussed for n=3 and n=3	03	Yes	
				2) Functions from $\mathbb{R}^n \to \mathbb{R}$ (scalar field) and from $\mathbb{R}^n \to \mathbb{R}^m$ (vecto	03	Yes	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				field), limits, continuity of functions, basic results on limits and continuity of sum, difference, scalar multiples of vector fields, continuity and components of a vector fields.			
2	July	26		3) Directional derivatives and partial derivatives of scalar fields	03	YES	
				4) Mean value thm for derivatives of scalar fields.	02	YES	
			Unit II Differentiation	1) Differentiability of scalar field at a point of $\mathbb{R}^n$ and on an open ball subset of $\mathbb{R}^n$, the total derivative, uniqueness of total derivatives of functions such as $f(x,y) = x^2+y^2$, $f(x,y,z) = x+y+z$.	08	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
3	August	23		differentiability at a point of a function f implies continuity and existences of direction derivatives of f at the point the existence of continuous partial derivatives in a nbd of a point implies differentiability at the point. 2) Gradient of a scalar field. Geometric properties of gradient Level sets and tangent planes 3) Chain Rule for scalar fields 4) Higher order partial derivatives mixed partial derivatives, sufficient condition for equality of mixed partial derivatives.	04 02 05	YES YES YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
4	Sep.	19	Unit III Applications	1) Second Order Taylor's formula for scalar field.	03	YES	
				2) Differentiability of vector field Def^n of differentiability of a vector field at a point. Jacobian matrix, differentiability of a vector field at a point implies continuity. The chain rule for derivatives of vector field.	08	YES	
5	Oct	23		3) Mean value inequality.	02	YES	
				4) Hessian matrix, Maxima, minima and saddle points.	02	YES	
				5) Second derivative test for extrema of functions of two variable	02	YES	
				6) Method of Lagrange Multi-plier.	02	YES	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
1	June		Unit 1	1) Conuity and compoonent of vector field.	03	YES	
2	July			2) Directional deerivative and partial deerivative of scalar field.	03	YES	
3	Aug.		Unit 2	3) Differeentiability and Geometric properties of gradient level sets and tangent plane.	03	YES	
4.	Sep			4) Higher order partial derivatives and mixed partial derivative.	03	YES	
			Unit 3	5) Second order Taylor's formula for scalar field.	03	YES	
5	Oct			6) Hessian matrix, Maxima & minima and saddle point.	03	YES	

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

F.Y.B.Sc. [Linear Algebra – MathsII]

Year - 2018-19 Semester II

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1.			Unit I : System of Linear Eqn and Matrices	• Parametric eqn of lines and planes	02		
				• Homo and non-Homogeneous linear eqn	02		
				• Geometrical interpretation for $(m,n) = (1,2), (1,3), (2,2), (3,3)$	03		
				• n-tuples real numbers, Sum, Scalar	01		
				• Matrices with real entries, addⁿ Scalar multiplication	02		
				• Types of matrices : Zero, identity, Scalar, diagonal, upper, lower, Symmetric, skew.	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit II Vector Spaces	• Elementary row operation, row-echelon matrix, non trivial soln	02		
				• Defn of real vector Space	02		
				• R[x], Space of m n matrices over R, non trivial if m<n.	02		
				• Subspace : R^2 and R^3 as lines plane passing through origin, Set of 2x2, 3x3 UTM, lower, diagonal	01 03		
				• arbitrary intersection of subspaces	02		
				• linear Combination, Vector Space linear Span (L)(S) of a non-empty Subset S vector Space.	03		
				• The vector V_i is a linear combination of the vector V_j's	01 01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit III Basis and Linear Transformation	• Basis of a Vector Space, Dim, maximal linearly independent subset	02		
				• Two basis of a Vector Space have the same no of element	02		
				• n Dimensional vector Space	01		
				• W_1 and W_2 are subspaces of a vector space (W_1+W_2)	01		
				• $\dim(W_1+W_2) = \dim W_1 + \dim W_2 - \dim(W_1 \cap W_2)$	01 02		
				• Linear transformation, kernel, properties.	02		
				• W are Vector Spaces with $\{v_1, v_2 \ldots, v_n\}$ and $\{w_1, w_2, \ldots w_n\}$	02		
				• Rank nullity theorem	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Practicle				
			Unit I	1) Matrices with real entries and types of matrices	03		
				2) Row echelon matrix Gaussian elimination method.	03		
			Unit II	3) Subspace	03		
				4) Linearly Independent / Linearly depent Sets in a Vector Space	03		
			Unit III	5) Basis of a Vector Space & Dim of a Vector Space	03		
				6) Linear Transformation	03		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

S.Y. B.Sc [Algebra IV - Maths III]

Year - 2018-19 Semester IV

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1.			Unit I: Groups and Subgroups	1) Definition of group, Abelian group, order of group	03		
				2) Finite and infinite group	02		
				3) Examples of group: i) $\mathbb{Z}, \mathbb{Q}, \mathbb{R}, \mathbb{C}$ under addition	04		
				ii) $\mathbb{Z}_n$, the set of residue classes modulo n under multi			
				iii) $U(n)$			
				iv) klein-4-groups			

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				4) Properties of groups	03		
				5) Subgroups	03		
2.		1	Unit II: Cyclic groups and cyclic subgroups	1) Cyclic subgroup of a group cyclic groups (Examples)	08		
				2) Properties of cyclic group	07		
3.			Unit III: Lagrange's thm and Group homomorphism	1) Definition of coset & properties	03		
				2) Group homomorphism and its properties	03		
				3) Group Isomorphism and its properties	03		
				4) Group automorphism and its properties	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				5) Kernel and image of a group homomorphism	02		
				6) Examples including inner automorphism.	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date r HOD
			Unit I	1) Abelian group and order of groups	03		
				2) Subgroups	03		
			Unit II	3) cyclic group and subgroup	03		
				4) Properties of cyclic subgroups.	03		
			Unit III	5) Lagrange's thm	03		
				6) Group homomorphism.	03		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

S.Y B.Sc [Calculus IV - Maths

Year - 2018-19 Semester IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
1.			Unit I: Riemann Integration	1) Approximation of Area	03		
				2) Upper/Lower Riemann sums and properties	03		
				3) Definition of Riemann integral on a closed and bounded interval.	03		
				4) Properties	03		
				5) bounded function and monotone function.	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
2			Unit II: Indefinite and Improper integrals	1) Continuity of F[x]	01		
				2) Fundamental thm of Calculus	02		
				3) Mean value thm	02		
				4) Integration by parts	02		
				5) Leibnitz rule	01		
				6) Improper integrals	02		
				7) Comparison test	02		
				8) Abel's and Dirichlet's test	03		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit III : Application	1) β & Γ functions and their properties.	03		
				2) Relation between β & Γ functions.	02		
				3) Applications of definite Integral : i) Area between curves ii) Finding volumes by slicing iii) volumes of solids of revolution - Disks and Washers iv) Cylindrical shells v) Length of plane curves vi) Areas of surfaces of revaluation.	10		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit I	1) Riemann Integration and it's properties	03		
				2) Bounded and Monotone functions.	03		
			Unit II	3) Fundamental thm of Calculus & Mean value thm	03		
				4) Comparison test and Abel's and Dirichlet's test	03		
			Unit III	5) β & τ functions and their properties	03		
				6) Application of definite Integrals.	03		

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Syllabus Planning Record

Name of Staff - Prof. Basavraj Gerappa Borkade

Year - 2018-19 Semester II F.Y.B.Sc [Calculus II - Maths]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
			Unit I Series	• Series $\sum_{n=1}^{\infty} a_n$ of real no. Simple Series, Sequence of Partial series	03		
				• Convergence of Series, Divergent Series	02		
				• Cauchy criterion, divergence of Harmonic Series, $\sum_{n=1}^{\infty} \frac{1}{n^p}$ $(p>1)$	03		
				• Comparison Test, alternating Test	02		
				• Leibnitz Thm, $\sum_{n=1} \frac{(-1)^n}{n}$	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
				• absolute Series, conditionally	02		
				• Ratio's test, Root Test	01		
			Unit II Limits & continuity of function	• Defn of Limit $\lim_{x \to a} f(x)$ of a function $f(x)$	02		
				• evaluation of limit of Simple fn	02		
				• Continuity of a real valued fn	01		
				• Sequential Continuity	01		
				• Algebra of continuous fn & Discontinuous fn	02		
				• Intermediate value Thm	02		
				• Differentiation of real valued Function of one variable	02		
				• chain rule, higher order, Leibnitz	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit III Application of differentiation	• Defn of local minimum, necessary condition, Stationary points.	02		
				• Second derivative Test	02		
				• Concepting of function from first and Second derivative, Concave.	01		
				• Rolle's Thm, lagranges and Cauchy mean value Thm.	02		
				• Monotone increasing and decreasing	02		
				• L-hospital rule without proof	01		
				• Taylors theorem	01		
				• Taylors polynomial application	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w Date HOI
			Practicle				
			Unit I	1) Series and Sequence of Partial	03		
				2) Leibnitz Theorem	03		
			Unit II	3) evaluation of limit of simple function using ϵ-δ defn	03		
				4) Differentiation of real valued function of one variable	03		
			Unit III	5) local maximum and local minimum & Concavity of fn.	03		
				6) Lagrange's and Cauchy's mean value & Taylor polynomial	03		

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Syllabus Planning Record

Name of Staff – Prof. Basavraj Genaba Bastade

S.Y.B.Sc [Maths – III]

Year - 2018 – 2019

Semester IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
			Unit I : First order and First degree Diff. eqn	1) Def^n of a differential eqn, order, degree, ordinary diff eq^n and Partial 2) Existence and Uniquences th^m for the Sol^n of a second order initial value. 3) Def^n of Lipschitz fn 4) Review of Sol^n of Homo and non-Homogeneous Diff eq^n of first order and first degree.	02 02 01 02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
				5) Notation of first degree, Non-exact eqn.	01		
				i) $\frac{1}{Mx+Ny}$ is an I.F	01		
				ii) $\frac{1}{Mx-Ny}$ is an I.F	01		
				6) Linear and Reducible linear eqn of first Order, finding soln & orthogonal trajectories. Population growth.	02 01 02		
			Unit II	Second Order Linear Differential eqn:-			
				i) Homogeneous and non-Homogeneous S.O.L.E. The Space of soln as a vector space. Wronskian and linear independence of the soln	02 01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
				3) The general soln of Homo & non Homogenous. eqn	02		
				• Complementary fn	01		
				• Particular integrals.	01		
				2) The Homogenous eqn with constant coefficients, auxillary fn	02		
				• The general soln real & distinct roots	01		
				• real and equal roots	01		
				• complex roots & auxillary eqn	01		
				4) Non-Homogenous eqn: The method of undetermined coefficient. The method of Variation of eqn	01 01 01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wi Date HOD
			Unit III	Linear System of ODEs			
				• Existence and uniqueness Thm to be stated clearly when needed in the	03		
				• Study of Homo linear System of ODEs in two variables.	02		
				• Let $a_1(t)$, $a_2(t)$, $a_3(t)$ continuous real valued fn.	01		
				• Fix $t_0 \in (a,b)$ Unique Soln			
				• $x = x(t)$, $y = y(t)$ valid through $[a,b]$	01		
				$\frac{dx}{dt} = a_1(t)x + b_1(t)y$	01		
				$\frac{dx}{dt} = a_2(t)x + b_2(t)y$	01		
				• Wronskian $W(t)$ Homo L system ODEs	02		
				• Two linearly independent Soln	02		
				• Explicit soln of Homo linear Syst	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w/ Date & HOD
			Practical				
			Unit I	1) Soln of Homogeneous and Non-Homogeneous differential eqn of first order and first degree	03		
				2) Linear and reducible linear eqn of first order.	03		
			Unit II	3) The general soln of Homo & Non Homogeneous diff second order eqn	03		
				4) Real and equal roots and complex root	03		
			Unit III	5) Wronskian W(t) of two soln of Homogeneous linear System ODE's	03		
				6) Explicit soln of Homogeneous linear System with constant coefficient in two variables.	03		

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Syllabus Planning Record

Name of Staff - Prabiksha Pramod Patil

Year - 2019 - 2020 Semester - V

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	June	A.D - 16 W.D - 09	Unit - I 1.1 Molecular Symmetry	1.1.1 Introduction & Importance of Symmetry in chemistry	01	Yes	
				1.1.2 Symmetry elt & symmetry operation	03	Yes	
				1.1.3 Concept of Point Group	02		
			1.2 MOT for Heteronuclear	1.2.1 Comparison bet Homo & Heteronuclear diatomic mol.	02	Yes	
	July	A.D 17 W.D 13	diatomic mole	1.2.2 Mol. like CO, NO & HCl	03		
				1.2.3 Molecular OT for H_3 & H_3^+	02		
				1.2.4 molecular shape to Mo's (BeH_2 & H_2O)	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit - II 2.1 Structure of solids	2.1.1 Explanation of terms: crystal lattice, Pt, unit cell & lattice constant.	02		
				2.1.2. closest packing of rigid spheres (hcp, ccp), packing density in simple cubic, bcc, fcc.	04		
				Relationship bet^n density, radius & lattice parameter.	01		
				2.1.3 Stoichiometric point defects in solids.	03		
			2.2 Superconductivity	2.2.1 Discovery of superconductivity	01		
	August	A.D - 23 W.D - 15		2.2.2 Explanation of tran. Temp. Meissner effect			
				2.2.3 Diff. types of superconduc-	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				2.2.4 Brief Application of superconductors	01		
			Unit - III Chemistry of Inner transition element	3.1 Introduction:	02		
				3.2 Chemistry of 'Ln' with reference to i) Ionization ii) O.S, iii) Ability iv) Mag. & Spectral Properties.	05		
				3.3 Occurrence, extraction & separation of 'Ln'	05		
	Sep.	A.D-18 W.D-12		3.4 Application of lanthanides	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit - IV 4.1 Chemistry of Non-aq. Solvent	4.1.1. classification of solvent	02		
				4.1.2 characteristics study of liquid ammonia, H_2O_4 w.r.t i) acid-base reaⁿ ii) Redox reaⁿ	03		
			4.2 Comparative chemistry of Group 16.	4.2.1 Electronic confi., trends in physical properties, allotropy	03		
				4.2.2 Manufacture of H_2SO_4 by contact process	01		
	Oct	A.D - 23 W.D - 10		4.2-2 Man. of H_2SO_4 by contact process	01.		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
			4.3 - Comparative Chemistry of Group '17'	4.3.1 Electronic Confi, general characteristics, anomalous behaviour of F^-, (VSEPR theory)	03		
				4.3.2 chemistry of interhalogens with reference to Preparation, properties & Stru.	02		
			Rivision of all topics		04		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	July	04 05		Inorganic Preparation 1) Preparation of Potassium diaquobis-(oxalato)cuprate 2) Ferrous ethylenediammonium sulphate 3) bisacetylacetonatocopper Determination of % purity of the given water soluble salt & qualitative analysis. • $MgSO_4$	01 01 01 02		
	August	04		• $CaSO_4$ • $Pb(NO_3)_2$	02 02		

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Syllabus Planning Record

Name of Staff – Prabiksha Pramod Patil

Year - 2019 - 2020 Semester - III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
01	June	A.D-16 W.D-08	Organic chem 3.1 Reaction & reactivity of halogenated hydrocarbon	3.1.1. Alkyl Halides: Nucleophilic sub. Reaction: SN^1, SN^2, SN^i, factors	03	yes.	
				3.1.2 Aryl Halides SNAr Mech., benzyne mechanism	01	yes.	
				3.1.3 organomagnesium & organolithium compound	03	yes.	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date etc
			3.2 Alcohols, Phenols & Epoxides.	3.2.1. Nomenclature	01.		
	July	A.D-27 W.D-12		Preparation: Hydration of alkenes, hydrolysis, Red? Acidity of alcohols, Rea? of alcohols.	02		
				3.2.2 - Phenol Preparation, physical properties, Resonance stabilization, Rea? of phenols.	02		
				3.2.3 - Epoxide Nomenclature, Methods of	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			1.2 Electro-chemistry	1.2.1 Conductivity, equi. & molar conductivity & variation with dilution for weak & strong electrolyte.	02		
				1.2.2 Kohlrausch law	01		
				1.2.3 Application of conductance measurement:	02		
				1.2.4 Transference number & its experimental determination using moving boundary method	02		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				Preparation, ring opening rea^n			
			Physical chemistry.	1.1 Chemical Thermodynamics			
				1.1.1 Free energy function	02		
				1.1.2 Gibb's-Helmholtz eq^n, vant' Hoff rea^n	02		
				1.1.3 Partial Molal properties, Chemical Potential	01		
	August	A.D-28 W.D-10		1.1.3 Variation with Press & Temp, Gibb's Duhem eq^n	01		
				1.1.4 Concept of fugacity	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	Sep.	A·D -18 W·D -10	Inorganic chemistry- Chemical Bonding	2.1 Non - Directional Bonding			
				2.1.1 Ionic bond	01		
				2.1.2 Types of Ionic crystals			
				2.1.3 Radius Ratio	01		
				2.1.4 Lattice energy			
				2.1.5 Kapustinski Eqn.	02		
				2.1.6 Born - Haber cycle			
				2.2 Directional Bonding			
				2.1.1. Covalent Bonding	01		
				2.2.2 Interaction bet two hydrogen atom & B.Eding.			
				2.2.3 Correction applied to the system	02		
				2.2.4 Homonuclear diatomic			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				molecule He_2 & Ne_2 2.2.5 Resonance & the concept of formal charge. 2.2.6 Bonding in polyatomic species 2.2.7 Equivalent & non-equi orbitals 2.2.8 Contribution	02 01		
	Oct	A.P-23 M.D-1P		2.3 Molecular orbital theory. 2.3.1. Comparing atomic orbital & Mols. 2.3.2 LCAO-MO approach	01 01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				2.3.3 Wave mechanical treatment for MO's (H_2^+ & H_2)	02		
				2.3.4 MOT ~~for~~ & B.O & Magnetic properties: with reference to O_2, O_2^+, O_2^-, O_2^{2-}	01		
			Rivision of all topics		05		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	July	W.D = 25		To determine the amount of HCl in the given sample potentiometrically.	01		
				Compare the strength of HCl & H_2SO_4 by studying kinetics of acid hydrolysis of methyl acetate	02		
				Nickel dimethyl glyoxime	01		
				Tris(ethylenediamine) nickel thiosulphate	01		
	August	W.D - 09		Sodium Hexanitrocobaltate	01		

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[chemistry - II]

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Syllabus Planning Record

Name of Staff – Prathiksha Pramod Patil

Year - 2019 -2020 Semester – I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
01	July	A.D.-9 W.D-14	Unit - I (Physical chem)	Chemical kinetics. • Rate of reaⁿ, rate const, order & Molecularity of reaⁿ, Integrated rate eqⁿ of 1st & 2nd order reaⁿ	04		
				• Determination of order of reaⁿ by a) Integration method b) Graphical method c) Ostwald's Isolation Method d) Half time method	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				Liquid State: Surface tension: Introduction, methods of determination of surface tension by drop No. method Viscosity tension: Introduction, methods of determination of surface tension by drop No. method. Refractive index: Introduction, Molar refraction	02 02 02		
	AUGUST A.D-19 W.D-08 10			Liquid crystals: Introduction classification	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	Sep.	5	Unit - II Comparative chemistry of main group Elements.	Metallic & non metallic nature, o.s. Electronegativity, Anomalous behaviour of 2nd periods elements. allotropy, contention diagonal relationship Comparative chemistry of carbides, nitrides & hydroxide	03 03 01 04		
	Sep.	A.D-18 W.D-08		Some Imp. compounds - $NaHCO_3$, Na_2CO_3, NaCl, NaOH, CaO, $CaCO_3$, oxide of 'C', oxide & oxyacids of 'S' & 'N' w.r.t environmental aspects.	04		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit - III Stereochemistry	. Fischer projection, Newman & Sawhorse projection formulae.	04		
	Oct - A.D - 23 W.D - 11			. Geometrical isomerism in alkene & cycloalkanes. . optical isomerism . conformation analysis of alkanes (ethane, propane & n-butane) relative stability with energy diagram	03 04 04		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	July	1 W.D 24		Qualitative Analysis: semi-micro inogonic qualitative analysis	04		
	Agust	W.D=4		Redox titration: To determine the % of copper(II) present in a given sample. Characterization of org. Com. • succinic acid • β-Naphthol • m-nitroaniline	01 03		
	sep	W.D=3		• m-dinitrobenzene • thiourea	02		

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Syllabus Planning Record

Name of Staff – Nitish Sanjay Agarwal

Year - 2019-20 Semester V^th

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 16	08	1 Molecular spectroscopy	1.1 Rotational spectroscopy	06	✓	
				1.2 Vibrational spectrum.	02	✓	
				1.3 Vibrational Rotational spectrum of Diatomic molecule			
	July 26	12		1.4 Raman spectroscopy.			
				Practical Practical -1 chemical kinetics Practical-2 - Activated charcoal	02	✓	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
	~~August~~ ~~28~~ August 2-3	~~12~~ 12	2. Chemical Thermodynamics	2.1 Colligative Properties 2.1.2.1 Elevation in boiling point - molar mass	04	✓	
				2.1.2.2 Depression in freezing point - Beckmann, Rast method	03	✓	
				2.1.3 Osmotic pressure - Van't Hoff factor, R.O. Berkeley & Hartley's method.	02	✓	
				2.2 Chemical kinetics. 2.2.1 : Collision theory of Reaction rates.	03	✓	
				2.2.2 classification of reactions slow, fast & Ultrafast reactn	03	✓	
				Practical pH metry - Isoelectric point,			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w Date HOI
			3. Nuclear chemistry	3.1 Introduction - units of radioactivity.	01	✓	
	Sep. 19	10		3.2 Measurement of radioactivity G.M. Counter, Scintillation	02	✓	
				3.3 Use of Radioisotopes as tracers	02	✓	
				3.4 Nuclear reac^n. transmutat^n Q value, threshold Energy	03	✓	
	Oct 10	10		3.5 Fission process - power reactor & Breeder reactor. 3.6 Thermonuclear reacns - fusion proces.	05	✓	
				Practicals 1. Conductometry - velocity constant of alkaline hydrolysis of ethyl acetate.			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat H
	July 26	12	4. Surface chemistry	4.1.1 Adsorption Types of adsorpn isotherm, Freundlich, langmuir & BET eqn, Determinan of Surface area. 4.2.1 Introducn to colloids. 4.2.2 electrical properties	08	✓	
	oct (10)	05		4.2.3 colloidal electrolytes 4.2.4 Surfactants. Practical → Potentiometry Determinan of solubility product	07.	✓	

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Syllabus Planning Record

Name of Staff – ,Sujit Dattatrey Patil

Year - 2019 - 20 Semester V

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	June	A-D-16	Introduction to quality concepts, Chemical calculations & Sampling	1.1. Quality in Analytical Chemistry	5		
		W-D-08		1.2. chemical calculations	4		
				1.3. Sampling	6		
	July	AD-27		1 * Sampling of solids * Sampling of Liquids * Sampling of Gases.			
		WD-18	Unit II Classical Methods of Analysis (Titrimetry)	2.1 Redox Titrations	8		
				2.2. complexometric Titration	7		

practicals

1. Spectrophotometric estimation of fluoride.

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
			Unit - III	3.1. Atomic spectroscopy			
	August	A.D -23, W.D-15	~~Atomic Spectroscopy~~ Optical Methods	Flame Emission spectroscopy & Atomic Absorption spectroscopy.	7		
				3.2. Molecular Fluorescence & phosphorescence Spectroscopy	4		
				3.3. Turbidimetry & Nephelometry	4		
	Sept.	A.D-18	Practical:	Estimation of Mg content in Talc			
		W.D-12	Unit - IV Methods of Separation - I	4.1. Solvent extraction	6		
				4.2. High performance liquid chromatography * Introduction	6		

Practical :- To determine the amount persulphate in the given sample

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	Oct.	AD-23 W.D-19		Qualitative & quantitative Application of HPLC 4.3. High performance Thin Layer chromatography (HPTLC)	3		
			Practical:-	* Determination of COD of water sample. * To determine the amount of Sulphate in given water Sample turbidimetrically.			

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Syllabus Planning Record

Name of Staff – ,Sujit Dattatrey Patil

Year - 2019 - 20 Semester VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
01	June	A.D-16 W.D-08	Unit - I Introduction to Analytical chemistry & Statistical	1.1. Role of Analytical chemistry 1.2. Significance of sampling in Analytical chemistry * Terms involved in sampling	9		
	July	A.D-27 W.D-12	Treatment of Analytical data	* Types of sampling * sampling techniques. 1.3 Results of Analysis	6		
			practical	Tools of Analytical Chemistry. - II			

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No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
			Unit - III Classical Methods of Analysis	2.1. Titrimetric Methods * Types of titrimetry * Tools of Titrimetry * calculations in Titrimetry	7		
				2.2. Neutralisation Titrations * Determination of End points * construction of Titration curve	8		
August	~~August~~ A.D-23 W.D-10			2.3 Gravimetric Analysis * Introduction * Types of Gravimetric methods. * precipitation Gravimetry	7		
			practicals:	* Gravimetric estimation of Nickel (II) * Colometric determination of Cu.			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	Sept.	A.D -18 W.D. 10	Unit - III Instrumental Methods - I	* Basic concepts * Types of Analytical Instruments	03		
				* spectrometry Basic Terms.	04		
	Oct.	A.D-23 W.D- 10		* Instrumentation for absorption Spectroscopy	05		
				* Applications of UV -visible Spectrophotometry	03		
			Practical	* Estimation of Aspirin			
				* Gravimetric estimation of barium ions using $K_2Cr_2O_7$			

Name of staff - Mr. Sanjay Agarwal.

Year - 2019-20

Chemistry - I

Semester - I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat H
	July (26)	12	Unit - I Chemical Thermodynamics (Physical)	1) Thermodynamic terms	05	Yes.	
				ii) First law of thermodynamics	03	Yes.	
				iii) Thermodynamics	04	Yes.	
			2) chemical calculations.	Expressing conc^n of sol^n. Normality, molality, molarity, formality, mole fraction	02	Yes	
	August (23)	12		weight ratio, volume ratio, wt to vol^m ratio, ppm, ppb, milliequivalents	03	Yes.	
			Practicals:	1) To Prepare 0.1 N succinic acid & Std. NaOH	02	Yes	
				2) To determine enthalpy of dissolution of salt	02	Yes.	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat H
			1) Periodic Table & Periodicity	Long form of Periodic table, classification transition & inner transition etc : Periodicity : Atomic & ionic size, ionization enthalpy Pauling Mullikan & Alred Rochow electronegativities.	05	Yes	
			unit - III 1) Basic of organic chemistry	i) classification & Nomenclature of organic comp.	04	Yes	
			Practicals!	Commercial analysis of i) mineral acid	02	Yes	
				ii) organic acid	02	Yes.	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat Hi
			unit - II Atomic structure	a) Historical perspectives of the atomic structure: Rutherford's Atomic model Bohr's theory, its limitation b) Hydrogenic atoms: 1) simple principles of quantum mech. 2) Atomic orbitals. 3) Many Electron Atoms	09	Yes	
	Sep. (19)	10		4) Aufbau Principle.	01	Yes.	
			Practicals:	commercial analysis of salt of weak acid & strong base	02	Yes.	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat H
	oct. (25)	13	1> Bonding & structure of organic comp.	Hybridization: sp^3, sp^2 sp hybridization of c & N. Hybridization of oxygen in organic comp.	05	Yes	
			2> Fundamental of organic reaction mechanism.	i) Electronic Effects ii) Bond fission iii) Types, shape & their relative stability of reactive intermediates. iv) Introduction to types of org. reaction.	06	Yes	
			Rev.	Revision of all topics	02	Yes	

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Syllabus Planning Record

Name of Staff – Prof. Bhorya Uttam Patil

Year - 2019-20 Semester-III (Applied Physics) [USPH303]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June	21	Unit-I : ACOUSTICS, LASERS AND FIBRE OPTICS	1. Acoustics of Buildings Reverberation, Sabine's formula Absorption co efficient. Factor affecting Acoustics of Building, Sound distribution in an auditorium	05		
				2. Laser Introduction. transition between Atomic energy state, Principle of laser, He-Ne laser	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	July	27		Application of laser, Holography.	02		
				3. Fibre optics.	04		
				Light propagation through fibre, Fibre Geometry, Internal reflection, Numerical Aperture, step-Index and Graded Index fibres. Application			
			Unit-II BIOPHYSICS	Introduction. definition, history and scope of Biophysics.	05		
				biological fluids. Viscosity surface tension. pH, Osmosis	03.		
	Aug.	23		Diffusion, Fick's law of diffusion, Dialysis. Cell is	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				unit of life. eukaryotic cell membrane channel. electrical properties of cell, action potential, propagation, method of measurement of action potential. Nernst equation Golman equation.	02		
				Hodgkin-Huxely model of action potential, voltage clamp technique. Patch clamp technique, cell impedance and capacitance.	02		
			Unit III				
			MATERIALS-PROPERTIES AND APPLICATION	Introduction of Material. Classification of material based on structure and	05		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	September, 08			and functionality. Types of Materials: Metals and alloys. Ceramics, Polymers and Composite, Thin films, Nano materials, Some Physical and Chemical methods of materials synthesis.	05 08		
	October 09			Properties of Materials.	02		
				Revision	07		

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Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				Practicals Group C			
	June			1) Laser experiments: straight edge, single slit, ruler grating.	02		
				2) Concepts of beats.	01		
	July			3) Coupled Oscillations and Resonance.	01		
				4) Standardization of pH meter & acid. base titrations.	02		
				5) Surface Tension of Biological fluid.	01		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				6 Visit to Research Institutes.	02		
				Skill experiments			
	Aug.			1) Use of DMM	01		
				2) Use of Oscilloscope	01		
				3) Wiring of simple circuit using bread board	01		
	Sep			4) Use of oscilloscope	01		
				5) Spectrometer: mean of yellow doublet of mercury source.	02		
	Oct			6) Optical leveling and Schuster's method.	01		
				7) Component testing. colour code, capacitor etc	01		

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Syllabus Planning Record

Name of Staff - Prof. Shreya Uttam Patil

Year - 2019-20 (S.Y.BSc) Semester- III (USPH301) Mechanics and Thermodynamics

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June	21	Unit-I I Compound Pendulum	Expression for period, maximum and minimum time period, centres of suspension and oscillations, reversible compound pendulum. Kater's reversible pendulum, compound pendulum and simple pendulum.	05		
			II Centre of Mass	Motion of the centre of Mass linear momentum, w.r.t CM co-ordinate. Conservation of linear Momentum	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date wr
	July	27	III. Oscillations.	Some Applications. Total angular momentum w.r.t CM co-ordinate.	02		
				The Simple Harmonic Oscillator. Relation between Simple Harmonic Motion and UCM. Two Body Oscillations. Damped Harmonic Motion. Forced Oscillations and Resonance.	04		
			Unit II	I) Conversion of heat into work. Heat engine, Carnot's cycle : its efficiency.	04		
				II) Second law of thermodynamics statements. Equivalence of Kelvin and Plank statement. Carnot's theorem. Reversible and	04		

Sr.No	Month	Avail Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				irreversibe process -			
	August.	23		III. Clausic theorem. Entropy of a cyclic process. Reversible process. Reversible heat transfer Generalized form of Ist & IInd law entropy and disorder. absolute entropy.	05 03 01		
			Unit III	I. Third law of thermodynamic. Nerst heat theorem. Clausis-Clapeyron equation. Thermal Expansion.	05		
	September	18		II. Steam engine. Rankine cycle Otto engine & Efficiency. Diesel engine & efficiency.	05 03		
	October.	18		Otto and Diesel comparison	02		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	October			Revision	08		
				Practicals. (USPHP8)			
			Group A.				
				1) Y by Bending	01		
				2) Kater's Pendulum	01		
				3) Searle's experiment: Determination of Y and η	03		
				4) Flat spiral spring (Y)	02		
				5) Flat spiral spring (η)	02		
				6) Charging and Discharging of capacitor.	02		
				7) Helmholtz Resonator.	02		

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Syllabus Planning Record

Name of Staff – Prof. Bhagya Uttam Patil

Year - 2019-20 (F.Y. BSc) Semester - I [USPH101 - Classical Physics]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	July	27	Unit I	1. Newton's laws: Newton's I^st II^nd & III^rd laws of motion, interpretation and	03		
				applications, pseudo forces. Inertial and Non-Inertial frame of reference.	02		
				2. Elasticity: Review of elastic constants Y, K, η and σ; Equivalence of	03		
				shear strain to compression and extension strains. Relations between elastic constants.	01		

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Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Instr.
				Couple for twist in cylinder.	01		
				3. Fluid Dynamics: Equation of Continuity.	02		
				Bernoulli's equation, applications of Bernoulli's equation.	01		
				streamline and turbulent flow. lines of flow in airfoil.	02		
				Poiseuille's equation.			
	August	23	Unit III	1. Behaviour of real gases and real gas equation, Vander Waal equation.	04		
				2. thermodynamic systems Zeroth law of thermodynamics.	04		
				Concept of Heat, The first law, Internal energy. Heat Capacity and specific heat	03		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dept.
	September 18		Unit II :	Unit II : 1. Len's Maker's formula. Newton's lens equation, magnification- lateral, longitudinal and angular.	05		
				2. Equivalent focal length of two thin lenses, thick lens,	04		
	October 18			Cardinal points of thick lens.	01		
				Ramsden and Huygen eyepiece.	01		
				3. Abberration.	01		
				4. Interference. Newton's Rings Wedge shaped films.	03		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	October		Unit III	Application of first law, General relations, Indicator diagrams. Examples.	03		
				Practicals			
				Paper-I			
				Regular experiments:			
	July.	04		1. Flywheel	02		
				2. To study load regulation of a Bridge Rectifier.	02		
	August	05		3. To study NAND and NOR gates as Universal Building Blocks.	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	Aug.			4. To study Ex-OR Gate, half adder and full adder and verify truth table.	02		
	Sept.	04		5. To verify De-Morgan's theorem	02		
				6. Thevenin's Theorem.	02		
	Octo	03		7. Norton's Theorem.	02		
				8. LDR characteristics.	01		

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Syllabus Planning Record

Name of Staff - Prof Shreya Uttam Patil

Year - 2019-20

Semester V (Applied Components) USACETSP1 Practicals.

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June	21		PRACTICALS. Gr-A 1) Thermistor characteristics - Thermal and electrical 2) Study of seven segment display.	02 02		
2	July	27		3) Characteristics of Photo diode and photo transistors.	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				Gr-B			
				1. OPAMP D/A Convertor : Binary weighted resistor.	02		
	Aug	23		2. Opamp D/A Convertor : ladder Network	02		
				3. Sample and hold circuit.	02		
				Group C			
	Sept.			1) Second Order active low pass filter	02		
				2) Second Order active High Pass filter.	02		
	Oct.			3) Square and Triangular wave Generator using OPAMPs.	01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				Group D			
				1) Study of variable dual power supply using LM317 & LM337.	01		
				2) Constant Current Source using OPAMP	01		
	3-Oct	18		3) Making PCB for simple circuits.	01		

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Syllabus Planning Record

Name of Staff – , Prof. Sneha Ghanat

Year - 2019-20 / Semester - V

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	June	21	Unit - I Transducer, Sensors and opto electronic devices	1. Transducers	03		
				2. Electric Transducers	05		
				3. Chemical Transducer	03		
	July	27		4. Electronic weighing Systems	03		
				5. optoelectronic devices - LDR, LED, LCD	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	Aug.	23	Unit - II Signal conditioning, amps and measuring instrument	1. Half wave rectifier, Detector, clampers, - positive & Negative clipping	03		
				2. Microphones	02		
				3. Loud Speakers	01		
				4. Switching Regulators	3		
	Sept.	18	Unit - III	5. Switching, cathod ray oscilloscope	3 3		
				6. DMM			
			Unit - III				
	octo.	18	Data Aquisition & conversion	1. Data Aquisition System	02		
				2. D to A converter	02		
				3. A to D converter	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat Hl
			Unit - IV Modern Techniques and Appliances	1. Printed circuit Board 2. Microwave oven 3. Medical Instrument	02		

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Syllabus Planning Record

Name of Staff – Prof. Sneha Ghenat

Physics - II

Year - 2019 - 20

Semester – III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June	21	Unit - I Vector calculus	-line, surface and volume integral	15 02		
				- The Fundamental Theorem of calculus	01		
				- Fundamental Theorem of Gradient	02		
				- The Fundamental theorem of Divergence	02		
				- The Fundamental theorem Curl	01		
	July	27		- Problems base on these theorems	02		

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HF
	[illegible]	[illegible]	2. Curvilinear co-ordinates	- cylindrical co-ordinates	02		
				- spherical co-ordinates	02		
			Unit - II		15		
			Analog Electronics	-Variation of transistor parameters	02		
			-Transistor Baising	- stabilization, stability Factor	01		
				- Methods of Transistor Biasing Base resistor Method	01		
				- Emitter Bias circuit	01		
				- Bdasing with collector feedback Resistor	01		
				- voltage divider Bias method	01		
	August	23		- stability factor for potential divider Bias.	01		
			2. General Amplifier characteristics	- concept of Amplifier, Amplifier notification	01		
				- current gain, voltage gain, Power gain, input resistance output resistance.	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				- General theory of feedback - Reasons for Negative Feedback	01		
				- loop gain	01		
				- Prodical circuit of transistor amplifier	01		
				- phase reversal - Frequency response	01		
				- Decimal gain & Bandwidth	01		
			Unit - III Analog Electronics 1 oscillators:	- Introduction, Effect of Positive Feedback	15 01		
				- Requirements for oscillation	01		
				- Phase shift oscillator	01		
				- wien bridge oscillator	01		
	Sept.	18	"	- colpitt's oscillator	01		
				- Hartely oscillator	01		
			Operational Amplifiers:	- Introduction -Schematic symbol of OPAMP	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Mr
				output voltage from OPAMP			
				- Ac Analysis . Bandwidth of an opamp	01		
				- Slew rate . Frequency response of an OPAMP	01		
				- OPAMP with Negative feedback	01		
				- Inverting Amplifier . Non-Inverting Amplifier.			
				- Voltage follower	01		
				- Summing Amplifier and its application	01		
	Octo.	18		- OPAMP Integrator and Differentiator	01		
				- Critical Frequency of integrator	01		
				- comparator.	01		
				-			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
			Practicals:	1) Passive Low pass Filter	02		
				2) Passive high pass Filter	02		
				3) Passive Band pass Filter	02		
				4) OPAMP: Inverting Amplifier with different gains	02		
				5) OPAMP: Non-inverting Amp. with different gains & voltage follower.	02		
				6) OPAMP Integrator & differentiator	02		
				7) CE Amplifier Determination of bandwidth	02		
				8) CE Amplifier: variation of gain with load	02		
				9) Lissijous figur using CRO	02		

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Syllabus Planning Record

Name of Staff – Prof. Sneha Ghanat

Physics – II

Year - 2019-20

Semester – I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	July	21	Unit – I , Structure of Nuclei	-Basic properties of Nuclei	01		
				- composition , charge , size	01		
				- Rutherford's experiment for estimation of Nuclear size	01		
				- Density of Nucleus	01		
				- Mass Defect and Binding Energy.	02		
				- Packing fraction . B.E vs A plot	01		
				- Stability of Nuclei and their Problems	01		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date H
			2. Radioactivity:	- Radioactive disintegration concept of Natural and Artificial radioactivity.	02		
				- Properties of α, β, γ-rays	01		
				- Law of radioactive decay	01		
				- half life, mean life, unit of radioactivity.			
	Augu	23		- Successive disintegration and equilibriums	01		
				- radioIsotope, Numericals	01		
				- carbon dating and other application of radioisotopes	01		
			Unit - II Nuclear Detectors:	- Interaction between particles and matter	01		
				- Ionization chamber	01		
				- Proportional counter	01		
				- GM counter	01		
				- Problems	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
			Nuclear Reactions	- Types of reactions and conservation laws.	02		
				- concept of compound and Direct reaction.	01		
	Sept.			- Q-value equation and	03		
				Solution of Q-value equation	03		
				- Problems			
			Unit - III				
			Origin of quantum theory	- Black body (Def^n), Black Body Spectrum	01		
				- Wein displacement law, Matter waves.	02		
				- Wave particle Duality	02		
				- Heisenberg uncertainty Principle			
				- Davison - Germer Experiment	01		
				- G.P. Thomson Experiment	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				- X-rays production and properties	01		
				- continuous and characteristics of X-rays spectra			
				- X-ray Diffraction	01		
				- Bragg's law, Application of X-rays.			
				- compton Effect	01		
				- pair production	01		
				- photon's and gravity			
				- Gravitational Red shift.	01		
			Practicals:				
				1) Use of vernier calipers	03		
				Micrometer screw gauge			
				Travelling Microscope			
				2. Graphing plotting:-	03		
				Experimental			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total lectures	Topic completed Yes/No	Sign Date HC
				straight line with intercept resonance curve			
				3. Spectrometer: Schuster's method	01		
				b. Use of DMM	04		
				5. Absolute & Relative Error Calculation.	02		

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Syllabus Planning Record

Name of Staff - Basavraj G. Borkade

Year - 2019-20 Semester I [F.Y. Bsc - Calculus [paper I]]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	July	27 13 days	Unit - I Real Number System	i) Real no System R and order properties of R, Absolute value	02		
				ii) AM - GM inequality	02		
				iii) Cauchy - Schwarz inequality	01		
				iv) Intervals and neighbourhoods	01		
				v) Hausdorff Property	01		
				vi) Bounded sets, Statement of l.u.b axiom, g.l.b axiom	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
		24		vi) Supremum and Infimum	02		
2.	Aug	12 days	Unit II Sequences	vii) maximum and minimum	02		
				i) Defn of Sequence	01		
				ii) convergence of sequence	01		
				iii) every convergent sequence is bounded, Limit of convergent sequence and uniqueness of limit	03		
				iv) Divergent sequences	01		
				v) algebra of convergent seq^n	01		
				vi) Sandwich Th^m	01		
				vii) monotone sequences	01		
				viii) Convergence of $(1+\frac{1}{n})^n$	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
3	Sept	18 / 10 days		ix) Defn of subsequence	02		
				x) subsequence of a convergent and converge of limit.	02		
			Unit III				
			Limits &	i) Domain and range of a fn,	01		
			Continuity	ii) injective fn, surjective fn	01		
				iii) bijective fn, composite of two fn	02		
				Inverse of a bijective fn.			
				iv) Graphs of standard fn	01		
				v) Defn of limits fn	01		
		19		vi) algebra of limits	01		
4	Oct	09 days		vii) limit of composite fn	01		
				viii) Sandwich Thm	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				viii) left hand limit & right Hand limit	01		
				ix) non-existence of limits	01		
				x) continous fn of real valued	01		
				xi) Sequential Continuity Algebra of continous fn	02		
				xii) Discontinous fn	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
1	July			— : Practicals : —			
				1) Application based examples of Archimedean Property, intervals	0 3 1		
2	Aug			2) Consequences of Archimedean axiom, Infimum and Supremum of Sets	0 3 1		
				3) Calculating limits of Seq^n	0 3 1		
				4) Cauchy Seq^n, monotone	0 3 1		
3	Sept			5) Limit of a f^n and Sandwich Theorem	0 3 1		
				6) Continuous and discontinuous Function.	0 3 1		

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Syllabus Planning Record

Name of Staff – Basavraj G. Borkade

Year - 2019-20 Semester III [S.Y.Bsc – Discrete Mathematics (Paper III)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June	24/11 days	Unit I Preliminary Counting	i) Finite and infinite sets, Countable and uncountable	03		
				ii) Add^n and multiplication Principle, Counting set of pairs	03		
				iii) Two ways counting	01		
				iv) Stirling no of first & Second kind, Simple recursion Formula	03		
2.	July	27/13 days		v) Pigonhole Principle	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
				vi) Application to geometry monotonic Seqn.	03		
			Unit II Advanced Counting	i) Binomial and multinomial Thm	02		
				ii) Pascal identity	01		
				iii) Standard identity	01		
				iv) Permutation and combination of Sets and multisets.	02		
				v) Circular formulation	01		
		24/13		vi) Non-negative and positive integral Soln	02		
03	Aug	Aug 13 days		vii) Principle of Inclusion and Exclusion.	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat HC
				viii) derangements explicit formula for d_n.	02		
				ix) various identities involving d_n.	01		
				x) deriving formula for Eulers Phi fn $\phi(n)$.	01		
			Unit III Permutation and Recurrence Relation.	i) Permutations of objects S_n,	01		
				ii) composition of Permutation	01		
				iii) disjoint cycles, every cycle	02		
				iv) even and odd permutation	02		
				v) rank and Signature of Permutation.	01		

Sr No	Month	Avail. Working Days 18	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
04	Sep	10 days		vi) cardinality of S_n, A_n	01		
				vii) Recurrence relation	01		
				viii) defn of Homo, non-Homo. genous.	02		
				ix) linear and non-linear recurrence relation	02		
				x) Homogeneous of second degree using Algebric method.	02		

Sr.No	Month	Avail Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				—: Practicals :—			
1)	June			1) Derangment and book Signature of Permutation	01		
2)	July			2) Recurrence relation	01		
3)	Aug			3) Problems based on Counting Principles, Two way Counting	01		
				4) Stirling no. of Second kind, Pigeon Hole Principle	01		
				5) multinomial Th^m, identities and combination of multiset	01		
4)	Sept			6) Inclusion - Exclusion Principle, Euler phi fn.	01		

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Syllabus Planning Record

Name of Staff – Basavraj G Borkade

Semester V

[T.Y. Bsc – Integral Calculus (Paper I)]

Year - 2019-20

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 13 days	24 days	Unit I MULTIPLE Integrals	i) Defn of double integral	01		
				ii) Geometric interpretation as area and Volume.	01		
				iii) Fubini Thm, Iterated Int	02		
				iv) Scalar multiples, Products Quotients of integrable fn	01		
				v) Formulae for integral of sums & Scalar multiples	0,2		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Integrability of Continuous fn	01		
				vii) Domain additivity of the Integral.	02		
				viii) Change of Variable formula	01		
				ix) Polar, Cylindrical & Spherical	02		
02	July 19 days	27, days		x) Application to finding the Center of gravity and moment of Inertia.	02		
			Unit II Line Integrals	i) Gradient Paths in R	01		
				ii) Smooth and Piecewise Smooth Paths	02		
				iii) Closed Paths, Equivalence Paths	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dat HC
				iv) Defn of line integral of Vector-field	01		
				v) Basic Properties of line integrals	01		
				vi) Path-additivity & change of Parameter	02		
				vii) Line integrals of the gradient vector field.	02		
				viii) Fundamental Thm of calc	02		
				ix) Greens Thm	01		
				x) Application of evaluation of line integrals.	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
03	Aug 16	24 days	Unit III Surface Integrals :	i) Parametrized Surfaces	01		
				ii) Smoothly equivalent Parame terization	02		
				iii). Area of Such Surface	01		
				iv) Defn of Surface integrals of Scalar-valued fn	02		
				v) Curl and divergence of a vector field.	03		
				vi) Elementary identities involving Gradient.	03		
				vii) Stoke's Thm	01		
				iv) Gauss Divergence Thm	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				—: Practicals :—			
1)	June			1) Pointwise and Uniform convergence of Sequence fn, Properties	03		
2)	July			2) Point wise and uniform convergence of Series of fn	03		
				3) Limit Continuity and derivative of fn of complex Variables	03		
3)	Aug			4) Analytic Fn, finding Harmonic conjugate, Mobius transformation	03		
				5) Cauchy integral formula, Taylor Series, Power Series	03		
4)	Sept			6) Finding Isolated singularities removable, Pole and essential, Laurent Series, calculation of residue.	03		

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Syllabus Planning Record

Name of Staff - Bagavraj G. Borkade

Year - 2019-20 Semester V [T.Y. B.Sc - Algebra (Paper III)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	June 15 days	24 days	Unit I Quotient Spaces and Orthogonal Linear Transformation.	i) Fundamentals of n^{th} Homomorphism of vector spaces	02		
				ii) Dimension and basis of Quotient Space	02		
				iii) Orthogonal transformation	02		
				iv) Translation and Reflection with respect of hyperplane	03		
				v) Orthogonal matrices of R.	01		

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Sr.No.	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Orthogonal tranformation in R is a reflection or a rotation	02		
				vii) Isometries Composites of orthogonal transformation	03		
02	July 15 days	27 days	Unit II Eigenvalues and eigen Vectors	i) Finite dimensional real vector Space	01		
				ii) Eigen Vealue and Eigen Vector of X real matrices.	02		
				iii) The linear independance of eigen vector	01		
				iv) Transformation of matrix	01		
				v) Finite dimensional real vector Space	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vi) Eigen Values of Similar matrices.	01		
				vii) Every Square matrix is Similar matrices.	02		
				viii) upper triangular matrix	02		
				ix) diagonal matrix	01		
				x) Similar matrix, invariant Subspaces.	02		
			Unit III				
03	Aug 15 days	24 days	Diagonalisation	i) Geometric multiplicity	01		
				ii) Algebraic multiplicity of Eigen Values of real matrix	02		
				iii) matrix diagonalizability of eigenvectors	02		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				iv) Algebraic & Geometric multiplicities of Eigen vector of coincide.	02		
				v) Finite dimensional real vector	01		
				vi) Orthogonal diagonalisation and Quadratic	01		
				vii) Diagonalisation of real Symmetric matrices	02		
				viii) Application to real Quadratic Forms	01		
				ix) Rank & Signature of a Real Quadratic forms	02		
				x) positive definite & Semi definite matrices	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic —: Practicals :—	Total Lectures	Topic completed Yes/No	Sign Date HC
1)	June			1) Normal Subgroups and Quotient Groups	03		
2)	July			2) Cayley's Th^m and external direct product of groups	03		
3)	Aug			3) Rings, Subrings, Ideals, Ring Homomorphism and Isomorphism	03		
				4) Prime Ideals and Maximal Ideals	03		
4)	Sept			5) Polynomial Rings	03		
				6) Fields.	03		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

Year - 2019-20 Semester III [Algebra III - S.Y. Bsc (Paper II)

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June 19	24	Unit I linear transformations and Matrices	1) Review of linear transformations	03		
				2) The matrix units, row operations, elementary matrices, elementary matrices are invertible and an invertible matrix is a product of elementary matrices.	03		
				3) Row space, column space Rank, operations.	03		
2.	July 14	27		4) Equivalence of rank of an mxn matrix A and rank of L.T.	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				5) The solution of non-homogeneous system.	03		
			Unit II Determinants	1) Defn, types, Properties, Determinant of a matrix as determinant of its column vectors (or row vectors.)	04		
				2) Existence and uniqueness of determinant.	04		
				3) Linear dependence and independence of vectors in $\mathbb{R}^n$ using determinants.	04		
				4) Determinant as area and volume.	03		
3.	August 12	24	Unit-III Inner Product Space	1) Dot product in $\mathbb{R}^n$	03		
				2) Inner product on vector space	03		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
4.	Sept 08	18		3) Norms of vector in a inner product space. 4) Cauchy-Schwartz inequality, Triangle inequality, Orthogonality, Orthogonality of vectors, Pythagoras thm. 5) Orthogonal & Orthonormal based. Gram-schmidt orthogonalization process. — X — X — X — X —	03 03 03		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				—: Practicals :—			
1.	June			1) Rank - Nullity Theorem	01		
2.	July			2) System of linear equations	01		
3.	August			3) Determinants, calculating det of 2×2 matrices, n×n diagonal, upper triangular matrices using def^n and Laplace expansion	01		
				4) Finding inverses of n×n matrix using adjoint.	01		
4.	Sept.			5) Inner product spaces, examples Orthogonal complements in $\mathbb{R}^2$ & $\mathbb{R}^3$.	01		
				6) Gram - Schmidt method	01		

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Syllabus Planning Record

Name of Staff – Pooja Nathuram Patil

Year - 2019-20 Semester I [F.Y. B.Sc – Algebra I (Paper II)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	July 14 21	27	Unit-I Integers and Divisibility	i) Statements of well-ordering property of non-negative integers.	02		
				ii) Principle of finite induction (first and second)	02		
				iii) Binomial theorem for non-negative exponents	02		
				iv) Divisibility of integers	02		
				v) G.C.D. & L.C.M.	02		
				vi) Congruences – Def^n & properties	03		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				vii) Euler's ϕ - function	02		
2.	August 12	24	Unit - II Functions and Equivalence Relations	i) Function - Def^n, Types, properties, examples.	03		
				ii) Equivalence relations	03		
				iii) Partition	03		
				iv) Congruence - an equivalence relation on $\mathbb{Z}$.	03		
3.	Sept 07	18	Unit - III Polynomials	v) Residue classes	03		
				i) Polynomial - Def^n, Algebra, properties, degree.	02		
				ii) Division Algorithm	02		
4.	Oct 08	19		iii) G.C.D. & it's Properties	02		
				iv) Euclidean Algorithm	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				v) Roots of polynomial	02		
				vi) Fundamental thm of Algebra	01		
				vii) Multiplicity	02		
				viii) n^{th} root of unity & sum of n^{th} root of unity.	02		
				—: Practicals :—			
1	July		Unit I	1] Mathematical Induction	01		
				2] Division Algorithm & Euclidean Algorithm in Z, Primes and the fundamental thm of Arithmetic	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hf
2	August		Unit II	3] Functions (direct and inverse image) - Injective, Surjective, bijective function. Find inverse of bijective functions.	01		
				4] Congruences and Euler's ft Feamat's, Feamat's little thm, Euler's thm and Wilson's thm.	01		
3.	sept		Unit III	5] Equivalence Relation	01		
				6] Factor thm, Relation bet? roots and coefficients of polynomials, Factorization and Reciprocal Polynomials.	01		

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Syllabus Planning Record

Name of Staff – Pooja Natharam Patil

Year - 2019 - 20 Semester III [S.Y. Bsc – Calculus III (Paper I)]

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1.	June 10	24	Unit I Functions of several variable	1] The Euclidean inner product on $\mathbb{R}^n$ & Euclidean norm functions on $\mathbb{R}^n$.	04		
				2] Functions	03		
				3] Directional derivatives and partial derivatives of scalar fields.	04		
2	July 13	27		4] Mean value thm for derivatives of scalar fields	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Differentiation (Unit II)	1] Differentiability of a scalar field.	03		
				2] Gradients of scalar field	04		
				3] Chain rule for scalar field	04		
3.	August 12	24		4] Higher order partial derivatives, mixed partial derivative	04		
			Unit III Applications	1] Second order Taylor's formula for scalar fields	03		
				2] Differentiability of vector field	02		
				3] Mean value inequality	03		
4.	Sept 10	18		4] Hessian matrix, Maxima, minima and saddle points.	03		

Sr.No	Month	Avail Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				5] Second derivative test for extrema of functions of two variables	02		
				6] Method of Lagrange Multipliers	02		
				——: Practicals :——			
1.	June			1] Sequence in $\mathbb{R}^2$ & $\mathbb{R}^3$, limits and continuity of scalar fields and vector field using def^n & otherwise	01		
2.	July			2] Computing directional, partial derivatives & mean value thm of scalar field.	01		
				3] Total derivatives, gradient, levels sets and tangent planes.	01		
3.	August			4] Chain rule, higher order derivatives & mixed partial derivatives	01		
				5] Taylor's formula	01		
4.	Sept.			6] Maxima, minima, saddle point, extrema	01		

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Syllabus Planning Record

Name of Staff – Prof. Nutan. N. Mhatre

Year - 2019 - 2020 Semester - T.Y BSc (metric Topology) Sem VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	Dec		Unit-I complete metric spaces	Definition of complete metric spaces Examples of complete metric spaces. completeness property in subspaces. Nested Interval theorem In IR. Cantor's Intersection Theorem. Applications of cantor's Intersection Theorem. The set of real numbers is uncountable. Density of rational numbers	15	Yes	

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				(Between any two real numbers there exists a rational number), Bolzano weiestrass theorem : Every bounded sequence of real numbers has a convergent subsequence / Intermediate value theorem : let be continuous and assume that and are of different signs say, such that be a closed and bounded interval and let finite subset such that number of open intervals of the given family. finite intersection property of closed sets for compact metric space, hence every		yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	Jan		Unit-II connected sets	separated sets - definition and examples, dis connected sets, disconnected and connected metric space, connected subset of metric space. connected subset of IR, A subset of IR is connected if and if it is an interval. A continuous image of a connected is connected, characterization of a connected space, viz. a metric space is connected if and only if every continuous function from to 1, -1 is a constant function. path connectedness in IR,	15	yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				definition and examples, A path connected subset of $\mathbb{R}$ is connected, convex sets are path connected, connected components, An example of a connected subset of $\mathbb{R}$ which is not path connected.			
	Feb		Unit III Sequence and series of functions	sequence of functions – pointwise and uniform convergence of sequence of real-valued functions, examples · uniform convergence implies pointwise convergence, example to show converse properties of uniform convergence : Continuity of the uniform limit of a sequence of continuous function,	15	yes	

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				condition under which integral and the derivative of sequence of functions converge to the integral and derivative of uniform limit on a closed and bounded interval. Examples.			
	March			consequences of these properties for series of functions, term by term differentiation & integration. power series in $\mathbb{R}$ centred at origin and at some point $\mathbb{R}$, radius of convergence, region of convergence uniform convergence, term by term differentiation and integration of power series Examples uniqueness of series representation, function represented			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date of
				by power series, classical functions defined by power series such as exponential, cosine and sine functions. the basic properties of these functions.			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HT
	Dec		Practicals	1) Examples of complete metric spaces	01	yes	
				2) Cantor's theorem and Applications	01		
	Jan			3) Continuous functions on metric spaces	01		
				4) Uniform continuity, fixed point theorem	01		
	Feb			5) Examples of connected sets and connected metric spaces.	01		
	March			6) path connectedness, convex sets, equivalent Condition for connected set using continuous function.	01		
				7) Miscellaneous theory questions	01		

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Syllabus Planning Record

Name of Staff – Prof. Nutan N. Mhatre

Year - 2019-2020 Semester S.Y Bsc (calculus) sem IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	Dec		Unit-I Riemann Integration	Approximation of area, Upper/Lower Riemann integral on a closed and bounded interval, Criterion of Riemann integrability, if $a<c<b$ then $f \in R[a,b]$, if and only if $f \in R[a,c]$ and $f \in R[c,b]$ and $\int_a^b f = \int_a^c f + \int_c^b f$ properties :- i) $f, g \in R[a,b] \Rightarrow f+g, \lambda f \in R[a,b]$	15	Yes	

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				ii) $\int_a^b (f+g) = \int_a^b f + \int_a^b g$.			
				iii) $\int_a^b \lambda f = \lambda \int_a^b f$.			
				iv) $f \in R[a,b] \Rightarrow \lvert f \rvert \in R[a,b]$ and $\left\lvert \int_a^b f \right\rvert \leq \int_a^b \lvert f \rvert$.			
				v) $f \geq 0, f \in C[a,b] \Rightarrow f \in R[a,b]$			
				vi) If f is bounded with finite number of discontinuities then $f \in R[a,b]$, generalize this if f is monotone then $f \in R[a,b]$			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	Jan		Unit-II Indefinite and improper integrals	Continuity of $F(x)=\int_a^x f(t)\,dt$ where $f \in R[a,b]$, Fundamental Theorem of Calculus, Mean Value theorem, Integration by parts, Lebnitz rule, Improper integrals-type 1 and type 2, Absolute Convergence of improper integrals, Comparison tests, Abel's and Dirichlet tests.	15	yes	

Sr. No.	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dean IIC
	Feb		Unit-III Applications	(1) β and Γ functions and their properties, relationship between β and Γ function (without proff)	15	Yes	
	March			(2) Applications of definite Integras Area between curves, finding volumes by slicing, volumes of solids of revolution - Disks and washers, cylindrical shells, lengths of plane curves, Areas of surfaces of revolution			

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HT
	Dec		Practicals	1) calculation of upper sum, lower sum and Riemann integral.	01	Yes	
	,			2) Problems on properties of Riemann integral	01		
	Jan			3) Problems on fundamental theorem of calculus, mean value theorem, integration by parts, Leibnitz rule.	01		
	Feb			4) Convergence of improper integrals, applications of comparison tests, Abel's and Dirichlet's tests, and function	01		
	March			5) Beta Gamma functions	01		
				6) Problems on area, volume, lengths.	01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				7) miscellaneous theoretical's questions based on full paper.	01		

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Syllabus Planning Record

Name of Staff – Prof. Namrata Pramod Chegale
Year – 2019-20

Botany Paper II
Form and Function I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1)	December		Unit I Anatomy	Simple tissues	01	yes	
				Complex tissues	01		
				Primary Structure of dicot and monocot root,	02	-	
				dicot & Monocot Stem,	01		
				dicot & monocot leaf.			
				Epidermal tissue System.	01		
				Types of hair,	01		
				monocot & dicot Stomata	01		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
2)	January		UNIT II Physiology	Photosynthesis,	01	yes	
				Light reactions,	01		
				Photolysis of water,	01		
				Photophosphorylation (Cyclic & non cyclic),	01		
				Carbon fixation Phase (C3, C4 & CAM pathways)	01		
					03		
	February		UNIT III medicinal Botany	Concept of Primary & Secondary metabolite	01	yes	
				difference betn Primary and Secondary metabolites	01		
				- Grandma powder Ocimum, Adathoda, Zingiber, Curcuma Sandalum, aloe	02		
					02		

Practical :- Botany Paper II Form and function

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
1)	Dec			1) Primary Structure of dicot and monocot root	01	Yes	
				2) Primary structure of dicot and monocot stem	01		
				3) Study of dicot & monocot stomata	01		
				4) Study of Epidermal outgrowth.	01		
				5) Separation of Chlorophyll Pigment by Paper Chromatography	01		
				6) Separation of amino acid by Paper Chromatography	01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
	Jan			7) Change in Colour because of Change in PH	01		
				8) Test for tannins	01		
	feb			9) Identification of plants or plants from grandmas Pouch Cas per theory)	01		

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Syllabus Planning Record

Name of Staff – Prof. Mamata Pramod Angale Botany - Paper II - Form and function II

Year - 2019 – 20 Semester IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
17			Unit I Anatomy.	- Normal secondary growth in Dicot Stem & root - Cambium ring, Periderm, lenticels, Tylosis, Heartwood Sapwood - Mechanical tissue system - Types of vascular bundles.			

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dept HC
			UNIT II Plant Physiology & Biochemistry	Respiration: Aerobic Glycolysis, TCA cycle, ETS and energetic of respiration anaerobic respiration -Photorespiration -Photoperiodism - Phytochrome response & Vernalization, Physicochemical properties, Pr-Pfr interconversion. SDP & LDP			
			UNIT III Ecology & environmental botany	Biogeochemical analysis - Carbon, Nitrogen, water Ecological factor:-			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				Concept of Environmental factor, Soil as an edaphic factor, Soil Composition, types of Soil, Soil formation, Soil Profile Community ecology - Characters of community Quantitative & qualitative Character.			
17			Practicals Unit I - Anatomy	- Study of normal secondary growth in the stem & root of dicot plant - Study of types of mechanical tissue, Systemic			

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
				Aerial & underground organs - Study of Conducting tissues - Xylem elements in Gymnosperm & Angiosperm - Study of different types of Vascular bundles - Growth ring, Periderm, lenticels, tyloses, heart wood, Sapwood			
			Unit II Plant Physiology & Biochemistry	Glo - germinating seeds using Phenol red indicator.			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
			Unit III Ecology and Environmental Botany	NR activity - In vivo Estimation of Protein by Lowery method Study of the working of ecological Instrument - Soil thermometer, Soil pH, Soil testing kit, wind anemometer mechanical analysis of soil by sieve method & Physoil Quantitative estimation of organic matter in soil Study of vegetation by 10m quadrate method.			

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Syllabus Planning Record

Name of Staff – Prof Namrata Pramod Chogale

Year - 2019 - 20 Semester VI Botany Paper III Form & Function III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1)			Unit I - Plant biochemistry	-Structure of biomolecules	01	Yes	
				Carbohydrates (Sugar, Starch, Cellulose, Pectin)	01		
				lipids (fatty acid, Glycerol),	01		
				Protein (amino acid)	01		
				- Enzymes :- Nomenclature, Classification, mode of actions, Enzymes kinetics	01		

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Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				Michelis-menten equation,	01	Yes	
				Competitive inhibitor,	01		
				Non Competitive, Uncompetitive inhibitors.	01		
			Unit II Plant Physiology II	Nitrogen metabolism-	01		
				Nitrogen cycle, Nitrogen	01		
				metabolism, root nodule	01		
				formation, leghaemoglobin,	01		
				nitrogenase activity.	01		
				Assimilation of nitrates	01		
				(NR, NiR activity),	01		
				assimilation of ammonia,	01		
				Amination & transamination	01		
				reaction)			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				Nitrogen Assimilation &	01	yes	
				Carbohydrate Utilization	01		
				- Physiological effects &	01	-	
				Commercial application	01		
				of Auxin, Gibberellins,	01		
				Cytokinin, & Abscisic acid	01		
			Unit III Genetics	Genetic mapping in	01	yes	
				eukaryotic - discovery of	01		
				genetic linkage, gene	01		
				recombination, Construction	01		
				of genetic map,	01		
				three point cross &	01		
				mapping chromosome			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				Problem based on three Point Cross			
				Gene mutation :- Defn.	01	Yes	
				Types of mutation,	01		
				Causes of mutation,	01		
				Induced mutation,	01		
				Ame's test			
				Metabolic disorder :-		Yes	
				Enzymatic & non-enzymatic	01		
				Gene control of enzyme	01		
				Structure, Garrod's	01		
				hypothesis of inborn	01		
				errors of metabolism,	01		
				Phenyl ketone urea	01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign. Date Hr
			Unit III Biostatistics	Testing significance - Student t test - Paired and unpaired t test - Regression - ANOVA (One way)	01 01 01 01		
17		1	Practicals Unit I Plant biochemistry	- Estimation of protein by Biuret method - Effect of temperature on the activity of amylase	01 01		

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HF
			Plant Physiology II	- Effect of pH on the activity of amylase	01	yes	
				- Effect of Substrate Variation on the activity of amylase	01		
				- Determination of α amino nitrogen.	01	yes	
				- Effect of GA on seed germination	01		
				- Estimation of reducing sugars by DNSA method.	01		
					61		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Genetics	- Problem based on three Point cross, Construction of Genetic map	01	yes	
				- Identification of Types of mutation from given DNA Sequence.	01		
				- Study of mitosis using Pre treated root tips of Allium	01		
			Biostatistics	- t test (Paired, unpaired)	01	yes	
				- Problem based on regression analysis	01		
				- ANOVA (one way)	01		

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Syllabus Planning Record

Name of Staff - Prof Nankatu Pramod Chugale

Year - 2019-20 Semester III

SYBSc - Botany II
Form and Function II

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
17	June	16/06	Unit I Cell Biology	Ultrastructure and function of cell organelles		Yes	
				Mitochondria	03		
				Peroxisome	03		
27	July	27/12	Unit I - Cell biology	Golgi bodies	04	Yes	
				- Ribosome	02		
			Unit II	- Cell Cycle	01		
				- Mitosis & meiosis	01		
				- Nucleic Acid - DNA-RNA	01		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit II Cytogenetics	Variation in Chromosome Structure	02	Yes	
				Deletion, Duplication, Inversion, Translocation			
03	August	23/13	Unit II Cytogenetics	Sex determination	03	Yes	
				Sex lineage	02		
				Sex influenced traits	02		
				Sex limited traits	03		
				Extranuclear genetics organelle heredity	02		
					01		
04	September	18/19	Unit III Molecular Biology	DNA Replication	1	Yes	
				- Prokaryotic	02		
				- Eukaryotic	02		
				- Central dogma	02		
					02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
04	Oct	23/12	Unit III molecular Biology	Transcription	01	Yes	
				Transcription - Prokaryotic Eukaryotic -	02		
				RNA processing	02		
				Revision of all topics	06		
		Practicals					
01	July	27/05		-Study of ultrastructure of cell organelle	01	Yes	
				-Estimation of DNA	01		
				-Estimation of RNA	01		
				-Study of Plastid inheritance	01		
				- Study of Chromosomal aberrations	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
2)	August	23 / 03		Study of mitosis	01	yes	
				Study of meiosis	01		
				DNA Sequencing - Sangers method	01		
3)	September	18 / 04		Determining the sequence of aminoacid from m-RNA strand		yes	
				- Prokaryotic	01		
				- Eukaryotic	01		
				- Revision	02		

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Syllabus Planning Record

Name of Staff – Prof. Kamakshi Pramod Chogale

TYBSc Botany III
Form & function II

Year - 2019-20

Semester VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1)	June	16 / 08	Unit I Cell Biology	Structure and function of cell organelle			
				- Nucleus	02	Yes	
				- Vacuole	02	Yes	
				- Giant Chromosome	02		
				- Characteristic of genetic code	02	Yes	
2)	July	27 / 19	Unit I Cell Biology	Transcription in eukaryotes	03		
				Translation in eukaryotes	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
			Unit II Physiology	Water relation - Potential, transpiration, osmosis,	01		
				Imbibition, Solutes transport	01		
				active and Passive transport	02		
				Translocation of Solutes	01		
				Composition of Phloem Sap	01		
				Girdling experiment	01		
				Pressure flow model	01		
				Phloem loading / unloading	01		
				anatomy of Sieve tube	02		
3)	August	23 / 14	Unit II Physiology	mechanism of Sieve tube translocation	01		
				munch hypothesis	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit III Environmental Botany	Bioremediation-	03		
				Phytoremediation	03		
				Plant Succession:-	02		
	Septem- ber	18 / 11	unit III Environmental Botany	Hydrosere, Xerosere	03		
				ecesere,			
				Poly & monoclimax theories	01		
					03		
			unit IV Plant tissue Culture	-Aspects of micropropagation	01	Yes	
				- Shikonin Production	03	Yes	
				- Cell suspension culture	04	Yes	
				- orchid cultivation	03	Yes	
	Octo ber	23 / 13	unit IV Plant tissue Culture	-Somatic embryogenesis	02	Yes	
				- Artificial seed	02	Yes	
				- Somatic hybridization	02	Yes	
				- Protoplast fusion	02	Yes	
				- Revision		Yes	

Practical Paper III Form and Function III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
17	June	16/02	Unit I - Cytology & molecular Biology	marking of Giant Chromosome from Chironomous larva	01		
				Smear preparation from tridescantia buds	01		
19	July	27/05	Unit I -	Sequence of aminoacid	01		
			Unit IV Physiology	Estimation of phosphate Phosphorus	01		
				Estimation of Iron	01		
			Unit III Environmental Botany	Estimation of dissolved oxygen demand	01		
				Estimation of Biological Oxygen demand	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hc
3)	August	23/04	Unit III	Estimation of Hardness	01		
				— " — Salinity & Chlorinity	01		
			Unit IV				
			Micropropagation	- Multiple Shoot culture	01		
				- Hairy Root culture	01		
4)	Septem	18/03	Unit IV	- Somatic embryogenesis	01		
			micropropagation	- Preparation of Stock soln	01		
				- Preparation of MS media	01		
5)	Oct	23/03		Revision			

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Syllabus Planning Record

Name of Staff - Prof. Mamleta Pramod Chogale — F.Y.B.Sc - Botany II

Year - 2019-20 — Semester I — Form and function I

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
17	July	27/12	Unit I - Cell Biology	General Structure of plant cell :-	04		
				cell wall,			
				Plasma membrane	02		
				Ultrastructure and function of cell organelles -	02		
				Endoplasmic reticulum	03		
27	August 23/13		Unit I - Cell Biology	Chloroplast	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			unit II Ecology	Energy Pyramid	02		
				Energy flow through ecosystem	04		
				Types of ecosystem	02		
				aquatic	03		
8)	September	18 / 09	Unit II Ecology	terrestrial	04		
			unit III Genetics	Phenotype / Genotype,	02		
				mendelian genetics	03		
4)	Octo	23 / 12	unit III Genetics	Test cross, backcross	03		
				Epistatic & non epistatic Interaction	04		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit I, II, III	Revision of all topics	05		
Practicals							
1)	July	27/04		Examining various stages of Mitosis in root tip cells	01		
				Cell inclusions study.	01		
				Identification of cell Organelles	01		
				Identification of plant Adaptation - Hydrophytes	01		
2)	August	23/04		- Xerophytes	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
				Mesopyles	01		
				Calculation of Mean, mode median	01		
				Calculation of Standard deviation	01		
03	September	18/03		Frequency distribution.	01		
				Graphical representation of data	01		
				Study of karyotypes	01		
04	Oct	23/04		Revision Exam Preparation			

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Syllabus Planning Record

Name of Staff – Prof. Namrata Pramod Chogale TYBSc Paper I

Year - 2019–20 Semester V Plant diversity III

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No.	Sign with Date of HOD
17	June	16/04	Unit I Microbiology	Types of Microbes	04		
3	July	27/10	Unit I Microbiology	Culturing, Sterilization, media & Staining	02		
					03		
				Pure cultures	02		
				Role of Microbes in fermentation	04		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
3)	August	23/07	UNIT IV Plant Pathology	Study of Plant disease - White rust - Albugo - Tikka disease on groundnut - Cercospora - Damping off disease - Pythium - Citrus Canker - Xanthomonas	02 02 02 01		
4)	Sept ember	18/05	UNIT IV	- Leaf curl - Virus - Study of physical, Chemical & biological control methods of Plant disease - Revision	02 03 03		
5)	October	23/07					

Practical Paper I Plant Diversity II

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
			Unit I. Microbiology	- Study of aeromicrobiota by Petri plate method - Fungal culture - Bacterial culture - Determination of MIC by Sugrose - Study of antimicrobial activity by disc diffusion method			
			Unit IV Plant Pathology	Study of following Fungal disease - white rust - Tikka disease - Damping off disease - citrus canker - Leaf curl			

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Syllabus Planning Record

Name of Staff – Prof. Namrata Pramod Chogale

Year - 2018 - 19 Semester III SyBSc Botany II - Form and function II

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
	June (16)	08	Unit I Cell Biology	Ultrastructure and function of cell organelles - Mitochondrion - Peroxysomes - Glyoxizomes - Ribosomes (Prokaryotic)	02 02 02 02	Yes Yes Yes Yes	
	July (26)	12		Cell division & its significance - Cell cycle	01	Yes	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign wit Date o HOD
	July (26)	12		-Structure of interphase Nucleus	01	Yes	
		1		- Study of Mitosis	01	Yes	
				- Study of Meiosis	01	Yes	
				- Difference betn mitosis and meiosis	01	Yes	
				Nucleic acids			
				- DNA	01	Yes	
				- RNA	01	Yes	
	July	04	Practical	-Study of ultrastructure of cell organelles	01	Yes	
				- Estimation of DNA	01	Yes	
		1		- Estimation of RNA	01	Yes	

		Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign w Date HOD
	July (26)	12	Unit II Cytogenetics	Variation in Chromosome Structure - Chromosomal abbrations	04	Yes	
				Sex determination	01	Yes	
	August (23)	12		Sex linked traits	01	Yes	
				Sex influenced	01	Yes	
				Sex limited traits	02	Yes	
				Extranuclear genetics	02	Yes	
				Organelle heredity	02	Yes	
	August 05		Practical.	Male sterility	02	Yes	
				Study of Plastid Inheritance	01	Yes	
				Study of Chromosomal abbretion.	01	Yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HO
			Practical	Study of Mitosis	01	Yes	
				Study of Meiosis	01	Yes	
			UNIT III Molecular Biology	DNA replication - Prokaryote - Eukaryote	02	Yes	
	sep. (19)	10		- Modes of replication	03	Yes	
				- Protein Synthesis Central dogma process	01	Yes	
				Transcription (Prok & Euk)	03	Yes	
	oct. (16)	04.		RNA processing	03	Yes	

	Month	Week	Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date & HOD
	Oct.		03	Practical	DNA sequencing by Sangers method	01	Yes	
					Amino acid sequencing			
					Prokaryotic	01	Yes	
					Eukaryotic	01	Yes.	

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Syllabus Planning Record

Name of Staff – Prof Apurva C. Patil Subject - Botany Paper - III

Current Trends in Plant Sciences - I

Year - 2019-20 Semester IV

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	December		Unit-I Horticulture and Gardening	Introduction to Horticulture : Branches of Horticulture Gardening • Locations in the garden - edges, hedges, lawn, flower bed, avenue, water garden Focal point • Types of garden » formal and informal garden » National park :- Sanjay Gandhi National park	01 02 04 01 01 01	Yes	

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date Hr
				❀ Botanical Garden - veer mata Jijabai udyan (victoria garden)	02		
2.	January		Unit II Biotechnology	• Introduction to plant tissue culture	01	Yes	
				- Laboratory organization and techniques in plant tissue cultur	01		
				- Totipotency	02		
				- organogenesis	02		
				- organ culture - root cultur, meristem cultures, anther and pollen culture, embryo culture	02 01		
				• R-DNA technology	01		
				- Gene cloning	01		
				- Enzyme involved in Gene cloning	01		
				- vector used for Gene cloning	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HI
3	~~February~~	~~February~~	Unit- III Biostatistics and Bioinformatics	• Biostatistics	01	Yes	
				- The chi square test	01		
				- Correlation - Calculation of coefficient of correlation	01		
				• Bioinformatics	01		
				- Information technology : History and tools of IT, Internet & its use	02		
				- Introduction to Bioinformatics- goals, need, scope & limitations	02		
				- Aims of Bioinformatics : Data organization, Tools of Bioinformatics - tools for web search	02		
				Data retrieval tools - Entrez	01		
				- BLAST	01		
				- Bioinformatics programmes in India	01		

Practical Paper - III Current trends in Plant Sciences - I

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HT
1	December		Horticulture	1. Study of five examples of Plants for each of the garden locations as per theory	01	Yes	
				2. Preparation of garden plans - Formal and informal gardens	01		
				3. Bottle and dish garden Preparation	02		
2	January		Biotechnology				
				4. Various sterilization techniques	01		
				5. Preparation of stock solutions. Preparation of MS medium	01		
				6. Seed sterilization . callus induction	02		
				7. Regeneration of plantlet from callus	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
				8. Identification of the cloning vectors - pBR322, pUC18, Ti plasmid	01	yes	
3.	February		Biostatistics and Bioinformatics	9. chi square test	01		
				10. Calculation of coefficient of correlation	01		
				11. Web Search - Google, Entrez	01		
				12. BLAST	01		

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Syllabus Planning Record

subject :- Botony

Applied component :-
Horticulture and gardening - II

Name of Staff – Prof. Apurva Patil

Year - 2019-20

Semester VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	October December		Unit I Landscape Gardening	• Principles of landscaping & garden design	01	Yes	
				• Indoor Plants & Indoor gardens - Hydroponics, Terrarium / Bottle garden, Dish garden	01 03		
				• Important garden features - Path & Avenues, Hedges & Edges, Lawn, Flowerbeds, Arches & Pergolas, Fencing, water bodies, Rock garden & Plant suitable for different locations & climates	01 02		
				• Lawn – Purpose of Preparation of lawn, Method of preparation of	02		

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Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				Lawn & management of lawn & lawn plants.	01	Yes	
				• Soil manipulation for Plantation of desirable varieties.	01		
				• mughal. Buddist. Botanical garden vertical wall garden & theme park	02		
				• Important Gardens of India - shalimar (shrinagar), Vrindavan (mysore), veer jijamata udyan (mumbai)	02		
	2 January		Unit- II Horticulture Produce	• Hightech Horticultural Production	01	Yes	
				Green house technology - meaning, types, layout & construction, irrigation systems, care & attention - Hardening of plants. space gardens.	01 01		
				• Floriculture - Scope & importance	01		
				soil & climatic requirement & cultivation practices & economics of green house production of Gerbera, carnation, Roses, orchids	01 01		
				propagation techniques, packing & marketing, enhancing & delaying	01		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				period of bloom by special methods. Floral decoration, florist shop management	02	yes	
3.	February		Unit-III Commercial Production	• Commercial Production of the following - in relation to propagation	01		
				Post plantation care, harvesting,	01		
				Post harvest management & varieties	01		
				• Tubers - Potato	01		
				• vegetables - Tomato	03		
				• Fruits - Mango, Grapes & coconut - Products like cocopeat / coirch.			
				• Spices / condiments - Chilly	01		
				• Medicinal plants - Aloe vera,	01		
				Stevia rebaudiana (madura)	01		
				• Aromatic plant - Citronella, Patchouli	01		
4.	March		Unit-IV Post Harvest technology & Entrepreneurship in Horticulture	• Maturity - Factors responsible	01	yes	
				for maturity & ripening methods	01		
				used for delaying ripening	01		
				• Harvest - Time of harvest, harvesting & handling of harvested products	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
				• storage of fresh products— types of storage of fruits & vegetables	02	yes	
				• Fruit & vegetables preservation technology.	01		
				• Marketing - grading, packing & transportation ways of increasing the market value & shelf life of horticultural produce	02 01		
				• Horticultural business management & Enterpreneurship development -	01		
				Horticulture as a business definition & nature, organization	01 01		
				Planning & operations of Horticulture farm business	01 01		

Practical - Horticulture and gardening - II

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date
1	December			- preparation of garden layout - List of plants suitable for garden locations - 2-3 plants for each location - Identification of important horticultural plants 1) Herbs 2) shrubs 3) Trees 4) climbers 5) Lianas 6) Epiphytes 7) Creepers 8) Trailers 9) Aquatic plants 10) Succulents 11) weeds		yes	

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
2	January			- flower arrangements - Indian (Gajara, veni, garland, bouquet - Baskets - hand torch type, table floral arrangement), Japanese & western all types. - preparation of Jams, Jellies, Squashes / syrups, Pickle, Sauces - fruit & vegetable caning & bijewellery - Green house plants - Information regarding to soil, temperature, irrigation, fertilizer requirement & propagation methods for Anthurium, Gerbera, orchids, Tuberose, carnation, Roses, capsicum.			
3	February						
4	March						

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Syllabus Planning Record

Name of Staff – Prof. Apurva Patil Subject- Botany Paper- IV current Trends in plant science-II

Year - 2019-20 Semester - VI

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign with Date of HOD
1	December		Unit - I Plant Biotechnology II	• DNA sequence analysis – Maxam - Gilbert method and Sanger's method, Pyro sequencing • Polymerase chain reaction (PCR.) • DNA barcoding - Basic features nuclear genome sequence, chloroplast genome sequence, rbcL gene sequence, mat K gene sequence, Present Status of barcoding in plants	01 01 01 01 01 01 01 01 01	yes	

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Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
2	January		Unit II Bioinformatics	• Organization of biological data, databases	01		
					01		
				• Exploration of databases, retrieval of desired data, BLAST	01		
				• Protein structure analysis and application	01		
				• Multiple sequence analysis and phylogenetic analysis	01		
3	February		Unit III Economic Botany	• Essential oils - Extraction, perfumes, Perfume oils, oil of Rose, sandalwood, Patchouli Champaca, grass oils :- citronella, vetiver	01		
					02		
					04		
					0		
				• Fatty oils :- Drying oil (Linseed and soyabean oil), semi drying oils (cotton seed, Sesame oil) & non-drying oils (olive oil & peanut oil)	02		
					01		
					01		
					01		

Sr. No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
4	March		Unit IV Post Harvest Technology	• Vegetable fats - Coconut and Palm oil	02	yes	
				• Storage of plant produce.	01		
				Preservation of fruits & vegetables	01		
				▸ Drying (Dehydration) - Natural	01		
				conditions - sun drying,	01		
				Artificial Drying - Hot air	01		
				drying, vacuum drying, Osmotically	01		
				dried fruits, crystalized or			
				candied fruits, fruit leather,	01		
				freezing drying)			
				▸ Freezing (cold Air Blast system	02		
				Liquid Immersion method,	01		
				Plant freezers, cryogenic	01		
				freezing, Dehydro-freezing,	01		
				freeze drying)			

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Date HC
	March			▸ Canning	01	yes	
				▸ Pickling (in Brine, in vinegar Indian pickles)	01		
				▸ Sugar concentrates (Jams, Jellies, fruit juices)	01		
				▸ Food preservatives	01		
				▸ Use of Antioxidant in preservation	01		

Practical Paper III Current trends in Plant sciences

Sr No	Month	Avail. Working Days	Topic	Sub Topic	Total Lectures	Topic completed Yes/No	Sign Dan HC
1	December		Plant Biotechnology II	• DNA sequencing by Sanger's method and pyro sequencing method	01		
				• DNA barcoding of plant material by using suitable data	01		
2	January		Bioinformatics	• BLAST : nBLAST, pBLAST	01		
				• multiple sequence alignment	01		
				• Phylogenetic analysis	01		
				• RASMOL /SPDBV	01		
3	February		Economic Botany	• Demonstration : Extraction of essential oil using clevenger	01		
				• Thin layer chromatography of essential oil of Patchouli and citronella	02		

Sr.No	Month	Avail. Working Days	Topic	Sub Topic	Total lectures	Topic completed Yes/No	Sign Date
				• Saponification value of Palm oil	01		
4	March		Post-Harvest Technology	• preparation of ▸ squash ▸ Jam ▸ Jelly ▸ Pickle	01 01 01 01		

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