ಶ್ರೀ ವೀರಪುಲಿಕೇಶಿ ವಿದ್ಯಾವರ್ಧಕ ಸಂಸ್ಥೆಯ
ಶ್ರೀ ಎಸ್.ಬಿ. ಮಮದಾಪೂರ ಕಲಾ, ವಾಣಿಜ್ಯ ಹಾಗೂ
ವಿಜ್ಞಾನ ಮಹಾವಿದ್ಯಾಲಯ, ಬಾದಾಮಿ

50 YEARS JUBILEE 1956-2006

S.B.M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING

For The Year: 2022-23

of the Teacher: S.H. Sankanagoudar

H.O.D

V. P .Dollin

Guest Lecturer

PLAN OF TEACHING YEAR: 2022-23

B. M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING 2022-2023

the Teacher: S. H Sankanagoudar B.Sc I sem

Class	Month	Topic covered	Hours alloted
Sc I st	Nov-2022	Successive Differentiation: nth Derivatives of Standard functions e ax+b, $(ax+b)$m , log$(ax+b)$, sin$(ax+b)$, cos$(ax+b)$, e ax	08 hours
Sc I st	Dec-2022	sin$(bx+c)$, e ax cos$(bx+c)$, Leibnitz theorem and its applications. Tracing of curves (standard curves) Polar Co-ordinates: Polar coordinates, angle between the radius vector and tangent.	06 Hours 04 Hours
Sc I st	Jan-2023	Angle of intersection of two curves (polar forms), length of perpendicular from pole to the tangent, pedal equations. Derivative of an arc in Cartesian, parametric and polar forms, curvature of plane curve-radius of curvature formula in Cartesian, parametric and polar and pedal forms centre of curvature, asymptotes, evolutes and e	10 Hours
c I st	Feb-2023	**Semester End Examination**	

Head
Department of Mathematics

Principal
S.S.B.M. Arts, Commerce & Science College, Badami

.S.B.M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING

lame of the Teacher: V.P.Dollin **B.Sc I sem** **2022-2023**

Class	Month	Topic covered	Hours alloted
B.Sc I st	Nov-2022	Matrix: Recapitulation of Symmetric and Skew Symmetric matrices, Cayley- Hamilton theorem, inverse of matrices by Cayley-Hamilton theorem (Without Proof). Algebra of Matrices; Row and column reduction to Echelon form. Rank of a matrix; Inverse of a matrix by elementary operations; Solution of system of linear equation	08 Hours
B.Sc I st	Dec-2022	Criteria for existence of non-trivial solutions of homogeneous system of linear equations. Solution of non-homogeneous system of linear equations. Eigen values and Eigen vectors of square matrices, real symmetric matrices and their properties, reduction of such matrices to diagonal form, Differential Calculus-I: Limits, Continuity, Differentiability and properties	06 Hours 04Hhours
B.Sc I st	Jan-2023	Properties of continuous functions. Intermediate value theorem, Rolle's Theorem , Lagrange's Mean Value theorem, Cauchy's Mean value theorem and examples. Taylor's theorem, Maclaurin's series, Indeterminate forms and evaluation of limits using L' Hospital rule	10 Hours

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S. S. B. M ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI
DEPARTMENT OF MATHEMATICS
PLAN OF TEACHING

me of the Teacher: S.H. Sankanagoudar B.Sc III Sem Year: 2022-2023

Class	Month	Syllabus Covered	Alloted Hours
B.sc III rd	Nov-2022	Ordinary Differential Equations: Recapitulation of Differential Equations of first order and first degree, Exact Differential equations, Necessary and sufficient condition for the equations to be exact,	4 Hours
B.sc III rd	Dec-2022	Reducible to the exact differential equations. Differential equations of the first order and higher degree: Equations solvable for p, x, y. Clairaut's equation and singular solution. Orthogonal trajectories of Cartesian and polar curves.	8 Hours
B.sc III rd	Jan-2023	singular solution. Orthogonal trajectories of Cartesian and polar curves. Linear differential equations of the nth order with constant coefficients.	4Hours 4 Hours
B.sc III rd	Feb-2023	Particular Integrals when the RHS is of the form eax, sin(ax+b), cos(ax+b), xn , eax V and x V (with proofs), where V is a function of x. Cauchy – Euler equations, Legendre differential equations, Method of variation of parameters. Simultaneous differential equations with two and more than two variables. Condition for integrability of total differential equations P dx +Q dy+ R dz = 0.	12 Hours
B.sc III rd	Mar-2023	**Semester End Examination**	

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DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING Year- 2022-2023

Name of the Teacher: V P Dollin B.Sc III Sem

Class	Month	Syllabus Covered	Allotted Hours
B.sc III rd	Nov-2022	Real Analysis – I : Sequences: Sequences of real numbers, Bounded sequences. Limit of a sequence. convergent, divergent,	4 Hours
B.sc III rd	Dec-2022	oscillatory sequences. Monotonic sequences. Algebra of convergent sequences. Limit points of a sequence. Bolzano Watercress theorem for sequence. Limit superior and limit inferior of sequences. Cauchy's first and second theorem on limits of a sequence. Cauchy's general principle for convergence of a sequence. Subsequence and their properties	10 Hours
B.sc III rd	Jan-2023	Infinite Series: Definition of convergent, divergent and oscillatory series. Series of non-negative terms, Cauchy's general principle of convergence. Geometric series, P-series (Harmonic series). Comparison tests for positive term series. D'Alembert's ratio test, Raabe's test	8 Hours
B.sc III rd	Feb-2023	Cauchy's Root test and Cauchy's integral test. Alternating series. Leibnitz's theorem. Absolute convergence and conditional convergence of a series. Summation of series: Binomial, exponential and logarithmic.	6 Hours
B.sc III rd	Mar-2023	**Semester End Examination**	

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PLAN OF TEACHING YEAR 2022-23

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING

Name- V.P.Dollin Class- B.sc V Sem Year: 2022-2023

Class	Month	Topics to be Covered	Hours Allotted
B.sc V th	**Nov-2022**	Riemann Integration I-: Partition of a set. The upper and lower sums. Necessary and sufficient conditions for integrability.	**8 hrs**
B.sc V th	**Dec-2022**	Algebra of integrable functions (constant, sum, difference, product, quotient, and modulus) Riemann Integration II :Integrability of continuous functions, monotonic functions. Fundamental theorem of integral calculus, Change of variables, Integration by parts. The first and second mean value theorems (Bonnet & Weirstrass form) of integral calculus.	**16 Hrs**
B.sc V th	**Jan-2023**	Improper integrals: Improper integrals of first and second kind. Comparison tests. Abel's test and Dirichlet's test. Beta and Gamma functions: .Properties, Relation between Beta	**16 Hrs**
B.sc V th	**Feb-2023**	Gamma functions and their convergence and Duplication formula. Differentiation under integral sign(Leibnitz theorem), Double and triple integrals, areas and volumes (Cartesian coordinates).	**16 Hrs**
B.sc V th	**Mar-2023**	**Semester End Examination**	

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Department of Mathematics

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S.S.B.M. Arts, Commerce
& Science College, Badami

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S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF MATHEMATICS

PLAN OF TEACHING

Name- S.H. Sankanagoudar Class- B.Sc V Sem Year: 2022-2023

	Month	Topics to be Covered	Hours Allotted
	Nov-2022	Solutions of Algebraic and transcendental equations: Bisection method, Iteration method, Newton-Raphson method.	4 hrs
	Dec-2022	Numerical solutions of non-homogeneous systems of linear algebraic equations by Jacobi Iteration Method and Gauss-Seidel Iteration method. Finite Differences: Operators Δ (Delta), ∇ (Del) &E (Shift), Definitions and their properties, n th order difference of a polynomial,	8 Hrs 8 Hrs
	Jan-2023	Interpolation: Newton Gregory forward and backward difference interpolation formulae and examples. Lagrange's interpolation formula and examples. Numerical differentiation: Forward and backward difference formulae. Computation of first and second ordered derivatives. Numerical integration: General Quadrature formula, Trapezoidal rule, Simpson 1/3rdand 3/8th rules	4 hrs 12 hrs
	Feb-2023	Solution of initial value problems: by ordinary linear first order differential equations by Taylor's series, Euler's, Picard and Runge- Kutta method of order four. Difference equations: Basic definitions, order and degree	12 Hrs 4 Hrs
	Mar-2023	solution, formation of first and second linear difference equations with constant coefficients (simple examples).	8 Hrs

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Principal
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EST: 1956 50 YEARS JUBILEE 1956-2006

DEPARTMENT OF BOTANY

TEACHING PLAN FOR THE YEAR – 2022-23

Dr.A. A. Topalakatti

Miss. A .B. Janali

S.S.B.M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF BOTANY

Microbial diversity and Technology

PLAN OF TEACHING 2022-2023

Name of the Teacher: Dr.A.A Topalakatti B.Sc I Sem NEP

Class	Month	Topic covered	Hours alloted
B.Sc I	Sep-2022	**Chapter No. 1:** Microbial diversity-Introduction to microbial diversity; Hierarchical organization and positions of microbes in the living world. Whittaker's five-kingdom system . Distribution of microbes in soil, air, food and water. Significance of microbial diversity in nature. **Chapter No. 2** History and developments of microbiology-Microbiologists and their contributions (Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Dmitri Iwanowski, SergiusWinogradsky and M W Beijerinck and Paul Ehrlich).	06 hours
B.Sc I	Oct-2022	**Chapter No. 2** History and developments of microbiology- Microbiologists and their contributions (Leeuwenhoek, Louis Pasteur, Robert Koch, Joseph Lister, Dmitri Iwanowski, SergiusWinogradsky and M W Beijerinck and Paul Ehrlich).	07 Hours
B.Sc I	Nov-2022	**Chapter No. 3** Microscopy-Working principle and applications of light,dark field, phase contrast and electron microscopes (SEM and TEM). Microbiological stains (acidic, basic and special) and Principles ofstaining. Simple, Gram's and differential staining.	06 Hours
B.Sc I	Dec-2022	**Chapter No. 4.** Culture media for Microbes-Natural and synthetic media,Routine media -basal media, enriched media, selective media, indicator media, transport media, and storage media. **Chapter No. 5.** Sterilization methods -Principle of disinfection, antiseptic, tyndallisation and Pasteurization, Sterilization-Sterilization by dry heat, moist heat, UV light, ionization radiation, filtration. Chemical methods ofsterilization-phenolic compounds, anionic and cationic detergents. **Chapter No. 6.** Microbial Growth-Microbial growth and measurement. Nutritional types of Microbes- autotrophs and heterotrophs, phototrophs and chemotrophs; lithotrophs and organotrophs.	07 Hours

S.S.B.M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF BOTANY

Diversity of Non Flowering Plants (NEP)

PLAN OF TEACHING 2022-2023

Name of the Teacher: Miss.A.B. Janali **I Sem NEP**

Class	Month	Topic covered	Hours alloted
B.ScI	**Sep-2022**	**Chapter No. 7** Microbial cultures and preservation-Microbial cultures.Pure culture and axenic cultures, subculturing, Preservation methods- overlaying cultures with mineral oils, lyophilisation. Microbial culture collections and their importance. A brief account on ITCC, MTCC andATCC. **Chapter No. 8. Viruses-** General structure and classification of Viruses;ICTV system of classification. Structure and multiplication of TMV, SARS-COV-2, and Bacteriophage (T2). Cultivation of viruses. Vaccinesand types. **Chapter No. 9. Viroids-** general characteristics and structure of PotatoSpindle Tuber Viroid (PSTVd); Prions - general characters and Prion diseases. Economic importance of viruses.	08 hours
B.Sc I	**Oct-2022**	**Chapter No. 10. Bacteria-** General characteristics and classification. Archaebacteria and Eubacteria. Ultrastructure of Bacteria; Bacterial growth and nutrition. Reproduction in bacteria- asexual and sexual methods. Study of *Rhizobium* and its applications. A brief account of Actinomycetes and Cyanobacteria. Mycoplasmas and Phytoplasmas-General characteristics and diseases. Economic importance of Bacteria.	08 Hours
B.Sc I	**Nov-2022**	**Chapter No. 11. Fungi-**General characteristics and classification. Thallus organization and nutrition in fungi. Reproduction in fungi (asexual and sexual). Heterothallism and parasexuality. Type study of *Phytophthora, Rhizopus,,Puccinia, Penicillium.*	08 Hours

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50 YEARS JUBILEE 1956-2006

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF BOTANY

Teaching Plan 2022-2023

Name of the Teacher. Dr. A A.Topalakatti

B.Sc III Sem

Class	Month	Topic covered	Hours alloted
B.ScIII	SEP-2022	Unit III: Differentiation and cell polarity in acellular (Dictyostelium), Unicellular (Acetabularia) and multicellular system (root hair and stomata formation) Shoot Apical meristem (SAM): Origin,structure and function,: Differentiation of root, stem, leaf Transition from vegetative apex into reproductive apex Developmental patterns at flowering apex: ABC model specification of floral organs. Modification of gene action by growth hormones and cellular differences between floral organs. Senescence – a general account	07Hours
B.ScIII	OCT-2022	Unit IV: Reproductive Biology . Introduction, Scope and contributions of Indian embryologists: P. Maheswari, B G L Swamy, M.S. Swaminathan and K.C. Mehta Microsporangium: Development and structure of mature anther, Anther wall layers,Tapetum - types, structure and functions and sprogenous tissue.Microsporogenesis - Microspore mother cells, microspore tetrads, Pollinia.Microgametogenesis.	07Hours
B.Sc III	NOV-2022	.Formation of vegetative and generative cells, structure of male gametophyte. Pollen embryosac (Nemec phenomenon). Megasporangium – Structure of typical Angiosperm ovule.Types of ovule- Anatropous, Orthotropous, Amphitropous, Circinotropous. Megagametogenesis – Types of development of Female gametophyte/embryosac-monosporic- Polygonum type, bisporic – Allium type, tetrasporic - Fritillaria type. Structure of mature embryosac	07 Hours
B.Sc III	DEC-2022	.Pollination and fertilization: Structural and functional aspects of pollen, stigma and style.Post pollination events; Current aspects of fertilization and Significance of double fertilization, Post fertilization changes. Endosperm – Types and its biological importance. Free nuclear (Cocos nucifera)cellular(Cucumis),helobialtypes.RuminateendospermEmbryogenesis – Structure and composition of zygote ,Dicot (Capsella bursa-pastoris)and Monocot (Najas) embryo development. A general account of seed development.	07 Hours

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF BOTANY

Teaching Plan 2022-2023

Name of the Teacher. Miss. A.B. Janali **B.Sc III Sem**

Class	Month	Topic covered	Hours alloted
B.ScIII	**SEP-2022**	. Unit 1:ANGIOSPERM ANATOMY, PLANT CELL STRUCTURE AND TISSUES Introduction,objectiveand scope of Plant Anatomy, Plant cell structure – nature of plant cellwall. Tissue and tissue systems - meristematic tissue, permanent tissue and secretary cells.Classification of meristem: (apical, intercalary and lateral), primary and secondary meristem. Apical meristem: Theories, concept and Evolution on organization of meristem (apical cell theory, Tunica-Corpus theory, histogen theory and Korper-Kappe theory), quiescent centre,Root cap.	07hours
B.Sc III	**Oct-2022**	Unit II: MORPHOGENESIS AND DIFFERENTIATION Morphogenesis in plants - Differentiation of root, stems and leaf. Types of vascular bundles and Vascular cambium, Origin, development, arrangement and diversity in size and shape of leaves. Structure of Dicot root: primary and secondary structures (Tridax/Sunflower),Structure of monocot root (Maize). Structure of Dicot stem:	07Hours
B.Sc III	**Nov-2022**	Primary and secondary structures (Tridax/Sunflower), Structure of Monocot stem (Maize), Nodal anatomy. Structure of Dicotleaf: primary structure (Tridax/Sunflower), primary structure of Monocot leaf (Maize),, Stomatal types. Anomalous secondary growth: Bignonia, Boerhaavia (dicot stem) Dracaena (monocot stem)	07Hours
B.Sc III	**Dec-2022**	Phytochrome (discovery and structure), red and far red light responses on photomorphogenesis; Vernalization • Structure and classification of Proteins, carbohydrates and Lipids.	07Hours

Details of Formative Assessment (IA) For DSCC theory/OEC: 40% weightage for Total Marks

Type of Asesment	Weightage	Duration	Comment
Written Test -1	10%	1 Hrs	8th Week
Written Test-2	10%	1 Hrs	12th Week
Seminar	10%	10 minutes	--------
Case Study/Assignment/Field Work/Project Work/Activity	10%	--------	--------
Total	40% of the Maximum Marks allotted for the paper.		

Faculty of Science

04- Year UG Honors Programme: 2022-23

General Pattern of Theory Question paper for OEC

(60 Marks for semester end Examination with 2 hrs duration)

1	Part-A	Question number 1-6 carries 2 marks each. Answer any 5 questions.	10 Marks
2	Part-B	Question number 7-11 carries 5 marks each. Answer any 4 questions.	20 Marks
3	Part-C	Question number 12- 15 carries 10 marks each. Answer any 3 question.	30 Marks
(Minimum 1 question from each unit and 10 marks question may have sub questions for 7+3 or 6+4 or 5+5 if necessary)			
Total -60 Marks			

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50 YEARS JUBILEE 1956-2006

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF BOTANY

PLAN OF TEACHING

Name- Dr A. A. Topalakatti Class- B.sc V Sem Year: 2022-2023

Paper I

Class	Month	Topics to be Covered	Hours Allotted
B.sc V	November2022	Unit1: • Origin of Cultivated Plants: Concept of centers of origin, their importance with reference to Vavilov's work.	6 hrs
B.sc V	December2022	• Cereals: Origin, morphology and uses of Wheat, Jowar and Rice • Legumes: General account with special reference to Gram and Soybean • Pulses: Origin, morphology and uses of Chick pea, Cow pea and Lentil).	6 hrs
B.sc V	January 2023	• Fiber Yielding Plants: General description with special reference to Cotton (Botanical name, family, part used morphology and uses).	6 hrs
B.sc V	February 2023	Unit2: • Spices: General account with special reference to clove and black pepper (Botanical name, family, part used, morphology and uses) •	6 hrs
B.sc V	March2023	. Beverages: Tea (morphology, processing, uses • Oils and Fats: General description with special reference to groundnut. • Rubber: General description with special reference to Hevea sp	6 hrs

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF BOTANY

PLAN OF TEACHING

Name- Miss.A.B.Janali Class- B.Sc V Sem Paper I Year: 2022-2023

Class	Month	Topics to be Covered	Hours Allotted
B.sc V	Nov 2022	Microbial genetic manipulation: Bacterial transformation, selection of recombinant and trasformants, genetic improvement of industrial microbes, nitrogen fixers and fermentation technology.	6hrs
B.sc V	Dec-2022	• Immunology: Hybridoma and monoclonal antibodies, ELISA and Immunodetection. Molecular diagnosis of human disease, Human gene Therapy.	6hrs
B.sc V	Jan-2023	Plant tissue culture: Micropropagation; haploid production through androgenesis and gynogenesis; brief account of embryo & endosperm culture with their applications	6hrs
B.sc V	Feb-2023	Recombinant DNA Techniques: Biotechnology scope, tools of genetic engineering, gene cloning techniques, gel electrophoreses, Bioreactor, transgenic plants. Agro bacterium and retroviruses as natural genetic engineer. Intellectual property rights and possible ethical risks	6hrs
B.Sc V	March 2023	. • Blotting techniques: Northern, Southern and Western Blotting, DNA Fingerprinting; Molecular DNA markers i.e. RAPD, RFLP, SNPs; DNA sequencing, PCR and Reverse Transcriptase-PCR.	6hrs

S.S.B.MARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF BOTANY

Medicinal Botany (Skill Enhancement Course)

PLAN OF TEACHING

2022-2023

Name of the Teacher: Dr.A.A Topalakatti

B.Sc V Sem

Class	Month	Syllabus Covered	Alloted Hours
B.ScV	Dec-2022	Unit1: • History, Scope and Importance of Medicinal Plants. Indigenous Medicinal Sciences;,	4 Hours
B.ScV	Jan-2023	Definition and Scope-Ayurveda: History, origin, pancha mahabhutas, sapta dhatu and tridosha concepts, Rasayana, plants used in ayurvedic treatments	4 Hours
B.ScV	Feb-2023	Siddha:Origin of Siddha medicinal systems, Basis of Siddha system, plants used in Siddha medicine. Unani: History, concept: Umoor-e-tabiya, tumors treatments/therapy, polyherbal formulations. • Conservation of endangered and endemic medicinal plants. Definition: endemic and endangered medicinal plants,	4 Hours
B.ScV	March-2023	Red list criteria; In situ conservation: Biosphere reserves, sacredgroves, National Parks; Exsitu conservation: Botanic Gardens, Ethnomedicinal plant Gardens.	3 Hours

S.S.B.M ARTS, COMMERCE AND SCIENCE COLLEGE. BADAMI

DEPARTMENT OF BOTANY

Medicinal Botany (Skill Enhancement Course)

PLAN OF TEACHING

2022-2023

Name of the Teacher: Miss. A.B. Janali **B.Sc V Sem**

Class	Month	Syllabus Covered	Alloted Hours
B.Sc V	Dec-2022	Propagation of Medicinal Plants: Objectives of the nursery, its classification, important components of a nursery,.	4 Hours
B.ScV	Jan-2023	sowing, pricking, use of green house for nursery production, propagation through cuttings, layering, grafting and budding	4 Hours
B.ScV	Feb-2023	Ethnobotany and Folk medicines. Definition; Ethnobotany in India: Methods to study ethnobotany; Applications of Ethnobotany: National interacts, Palaeo-ethnobotany. folk medicines of ethnobotany, ethnomedicine, ethnoecology, ethnic communities of India	4Hours
B.Sc V	March-2023	•. Application of natural products to certain diseases- Jaundice, cardiac, infertility, diabetics, Blood pressure and skin diseases.	3 Hours

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1956-2006

S.S.B.M. ARTS, COMMERCE AND SCIENCE COLLEGE BADAMI

DEPARTMENT OF BOTANY

PLAN OF TEACHING

Name- Dr A. A. Topalakatti Class- B.sc V Sem Year: **2022-2023**

Paper II

Class	Month	Topics to be Covered	Hours Allotted
B.sc V	**November2022**	Unit 3: • Plant Breeding: Introduction and objectives. Breeding systems: modes of reproduction in crop plants. Important achievements and undesirable consequences of plant breeding. • Methods of crop improvement:.	**6 hrs**
B.sc V	**December2022**	Introduction, Centres of origin and domestication of crop plants, plant genetic resources; Acclimatization; Selection methods: For self pollinated, cross pollinated and vegetatively propagated plants; Hybridization: For self, cross and vegetatively propagated plants – Procedure, advantages and limitations. • Crop improvement and breeding: Role of mutations;	**6 hrs**
B.sc V	**January 2023**	Polyploidy; Distant hybridization and role of biotechnology in crop improvement • Evolution; Origin of life: Special creation theory, Theories of spontaneous generation or abiogenesis. Theory of chemical evolution and spontaneous origine of life at molecular level Oparin's hypothesis Miller's experiment, Protenoid microsphere. •	**6 hrs**
B.sc V	**February 2023**	Process of origin of life:Structure of cosmos, primitive earth, Prebiotic synthesis, Evolution of progenote, Origine and evolution of protein RNA, DNA, Plasma membrane, •	**6 hrs**
B.sc V	**March2023**	Origin of prokaryotes and eukaryotes (endo symbiotic hypothesis) • Theories of organic evolution: Lamarkism, Darwinism, Mutational and Modern concept of Evolution	**6 hrs**

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1956-2006

DEPARTMENT OF PHYSICS

TEACHING PLAN FOR THE YEAR – 2022-23

SHRI. R. S.MULIMANI

SHRI S.S.MULIMANI

SHRI M.S.MATTI

S.V.P.V.V.Samsta's

SHRI S.B.MAMADAPUR ARTS, COMMERCE & SCIENCE COLLEGE BADAMI – 587201

DEPARTMENT OF STATISTICS

TEACHING PLAN - 2022-23

NAME : R.S.MULIMANI **YEAR : 2022-23**

MONTH	Chapters to be covered	HOURS
NOVEMBER	B.SC. FIRST SEMESTER PAPER **Unit1 -** **Review of Units and measurements:** Fundamental and Derived units, Principal System of units (CGS and SI), measurement of length, mass and time. Dimensions: Dimensional formulae of physical quantities, equations-use of dimensions, conversion of one system of units into another, Minimum deviation and errors. **(3 Hours) Vectors:** Definition of scalar and vector with examples, types of vectors. Scalar and Vector Products. Gradient of scalar and its physical significance. Divergence of vector and its physical significance. Curl of vector and its physical significance. Vector integration; line, surface & volume integrals of a vector field. Gauss Divergence theorem & Stokes's theorem(statement). **(4 Hours)** **Momentum and Energy**: Work and energy, Conservation of momentum (linear). Conservation of energy with examples. Concept of elastic and inelastic collisions. Derivation of final velocities in case of elastic collision and inelastic collision, Conservation of linear momentum in case of variable mass. Principle of rocket and derivation for equation of motion for single stage rocket. **(6 Hours)** **activities** 1 Take different objects of regular shape, write the dimensional equation for their volume, surface area and write their units in SI and CGS systems. For the above calculate the actual volume and surface area using relevant measuring tools. Calculate estimated error using dimensional equation and the actual measurements. 2 Students must identify and explain three examples for Divergence and three examples for Curls in real-world applications 3 Drop balls of different hardness on different surfaces and list them in order of their energy absorption and give reasons. **Seminars by students**	**(4 Hours)** **(6 Hours)** **4 Hours** **4 Hours**

DECEMBER	**Unit2** **Laws of Motion:** Newton's Laws of motion. Dynamics of single and a system of particles. Centre of mass. Derivation for position, velocity, acceleration and force of centre of mass.**(3 Hours)** **Dynamics of Rigid bodies**: Rotational motion about an axis, Relation between torque and angular momentum, Rotational energy. Moment of inertia: Radius of Gyration, theorem of parallel axis and theorem of perpendicular axis. M I of a rectangular Lamina, M.I of circular disc and solid cylinders. Theory of compound pendulum and determination of g, Determination of M.I of Flywheel. **(6 Hours)** **Gravitation:** Newton's law of Gravitation (statement). Expressions for escape velocity and orbital velocity. The motion of a particle in a central force field. Kepler's laws of planetary motion. Derivation for Kepler's 2nd and 3rd law. Concept of Satellite, derivation for binding energy of Satellite. Satellite in a circular orbit. **(4 Hours)** **Activity No. 4** Prepare and present a report on different types of Geo Satellite orbits and their characteristics **Activity No. 5** Take an irregular two-dimensional sheet of any material (plastic cardboard) etc and find its centre of mass. **Activity No. 6** Devise an experiment that demonstrates that the variation in the distribution of mass in a rotating body affects the rotating speed. Plot a graph of the variation in the position of mass with the centre of the body and the average speed of rotation. **Activity No. 7** Tie a stone through a thread, rotate it with different speeds for a length given then release it. Calculate the distance it flies before it falls to the ground and hence calculate the possible kinetic energy of rotation. **PPT presentation by students**	**(3 Hours)** **(6 Hours)** **(4 Hours)** **(4 Hours)** **(4 Hours)**
JANUARY	UNIT TEST I **Unit3 -** **Elasticity:** Definition of Stress-strain, Hooke's law. Types of elastic constants. modulus of elasticity and derivation of expression for relation between elastic constants. Poisson's Ratio-expression for Poisson's ratio in terms of elastic constants. **(4 Hours)** Derivation of work done per unit volume in a deforming body. Work done in stretching and work done in twisting a wire-Twisting couple on a cylinder. Theory of Single Cantilever **(3 Hours)** **Bending Moment**: Derivation of bending moments. Theory of cantilever. Determination of Youngs modulus by bending of beam supported at its ends and loaded at middle. **Torsional Pendulum**: Derivation for time period of torsion pendulum Determination of rigidity modulus and moment of inertia by Searle's	**(4 Hours)** **(3 Hours)**

	method. **(6 Hours)**	(6 Hours)
	Activity No. 8 Draw Stress and Strain Curve for Steel, Rubber and Wood. **Activity No. 9** Calculate stored energy in a catapult in the form of elasticity.	(2Hours)
	Seminars by students PPT presentation by students	(4 Hours)
	Unit3 -	
FERUARY	**Surface tension:** Definition of surface tension, Angle of contact, Surface energy, relation between surface tension and surface energy, pressure difference across curved surface. Excess of pressure inside spherical liquid drop, Capillary rise, derivation of expression for rise of liquid in a capillary tube. Determination of surface tension by Quinke's method. Effect of temperature, impurity on surface tension. Problems **(7 Hours)**	7 Hours
	Viscosity: Streamline flow, turbulent flow, equation of continuity, determination of coefficient of Viscosity by Poisulle's method, Stoke's law with derivation and expression for terminal velocity. Effect of temperature on viscosity. Problems**(6 Hours)** **Activity No. 10** Measure surface tension of water and other common liquids and compare and learn i)Why water has high surface tension? Think of reasons. ii) Check whether surface tension is a function of temperature? You can do it by heating the water to different temperatures and measure its surface tension. iii) Plot surface tension versus temperature and learn how it behaves. Mix some quantity of kerosene or any oil to water and measure surface tension. Check whether surface tension for the mixture is more or less than pure water. List the reasons **Activity No. 11** Collect a set of different liquids and measure their viscosity. i) Find out whether sticky or non-sticky liquids are most viscous. List the reasons. ii) Mix non-sticky liquid with a sticky liquid in defined quantities and measure viscosity. Find out whether viscosity is increasing or decreasing with increase of non-sticky liquid concentration. iii)Do the above experiment by mixing sticky liquid to the non-sticky liquid. Find out change in viscosity with increase of concentration of sticky liquid.	6 Hours 3Hours