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Data related to 1.3.1: Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

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1.3.1. Institution integrates crosscutting issues relevant to Professional Ethics, Gender, Human Values, Environment and Sustainability into the Curriculum

Sl. No	Course Name	Subject Name	Unit Name	Concept relating to Professional Ethics, Gender, Human Values, Environment and Sustainability	Remarks
01	CBZ	BOTANY (NON-CBCS)	ECOLOGY	Ecosystem 2. Ecological factors 3. Study of 4. Endangered plants, 5. Biogeochemical cycles Carbon 6. Ecological adaptations cycle, Nitrogen Cycle, Phosphorous cycle: Hydrophytes, Xerophytes, Halophytes, Parasites, Epiphytes: Classification, Concepts and components of biosphere ecosystem, concept: Brief account (Climatic, Edaphic, Topographic and Biotic) Forest (dry deciduous), Freshwater (Pond) and Marine water ecosystems; Endemism and Red data books 7. Plant succession: Definition, Steps of succession and types (Xerosere, Hydrosere) 8. Phytogeography: Definition, Vegetational types of Karnataka	The concept of ecosystem helps to understand the significance of nature and natural resources, interaction between living and Non-living entities in the environment. It also emphasizes on adaptations of plants growing in different habitats. Ecology also provides the knowledge of the factors that are involved in the balancing of environment.
02	CBZ	BOTANY (NEP)	ECOLOGY AND CONSERVATION BIOLOGY	Introduction to Ecology and Conservation Biology: Definitions, Principles of Ecology, Brief History, Major Indian Contributions, Scope, and importance. Ecological levels of organization. Ecological factors: Climate factors: light, temperature, precipitation, and humidity. Edaphic factors:	The study of Conservation Biology helps students to understand about the importance of biodiversity and need of conservation. It lays emphasis on endangered and endemic species with special reference to

				<p>Soil and its types, soil texture, soil profile, soil formation; soil pH, soil aeration, soil water, soil humus and soil microorganisms.</p> <p>Topographic Factors: Altitude and Slope.</p> <p>Biotic factors: A brief account Ecological groups of plants and their adaptations: Morphological and anatomical adaptations of hydrophytes, xerophytes, epiphytes, and halophytes,</p> <p>Ecology: Introduction, types of ecosystems with examples -terrestrial and aquatic, natural and artificial. Structure of ecosystem: Biotic and Abiotic components, detailed structure of a pond ecosystem. Ecosystem functions and processes: Food chain, Food web and Ecological pyramids, energy flow in an ecosystem. Bio-geo chemical cycles: Gaseous cycles -carbon and nitrogen, Sedimentary cycle Phosphorus.</p> <p>Ecological succession: Definition, types- primary and secondary. General stages of succession. Hydrosere and xerosere.</p> <p>Community Ecology: Community and its characteristics frequency, density, Abundance, cover and basal area, phenology, stratifications, life-forms.</p> <p>Concept of Ecotone and Ecotypes. Intra-specific and Inter-specific interactions with examples.</p> <p>Ecological methods and techniques: Methods of sampling plant communities transects and quadrates. Remote sensing as a tool for vegetation</p>	India.
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			<p>PHYTOGEOGRAPHY AND ENVIRONMENTAL ISSUES</p> <p>analysis, land use - land cover mapping. Population Ecology: Population and its characteristics - Population density, natality, mortality, age distribution, population growth curves and dispersal. Theory of land bridge, theory of continental drift, polar oscillations, and glaciations. Centre of origin of plant - Vavilov's concept, types. Phytogeographical regions concept, phytogeographical regions of India. Vegetation types of Karnataka - Composition and distribution of evergreen, semi-evergreen, deciduous, scrub, mangroves, shola forests and grasslands. An account of the vegetation of the Western Ghats.</p> <p>Pollution: Water pollution: Causes, effect, types; water quality indicators, water quality standards in India, control of water pollution (Waste water treatment). Water pollution disasters - National mission on clean Ganga, Minamata, Pacific gyre garbage patch, Exxon Valdez oil spill. Air pollution: Causes, effect, air quality standards, acid rain, control. Soil pollution: Causes, effect, solid waste management, control measures or soil pollution.</p> <p>BIODIVERSITY AND ITS CONSERVATION</p> <p>Biodiversity: Definition, types of biodiversity habitat diversity, species diversity and genetic diversity, Global and Indian species diversity. SDGs in biodiversity conservation. Values of Biodiversity - Economic and aesthetic value,</p>	<p>Phytogeography is a concept that makes students to understand about the distribution of flora in different geographical regions. It also helps to understand different types of vegetation with special reference to Karnataka and western ghats.</p> <p>The concept of pollution gives the knowledge of agents causing environment pollution and its impact on Human life, there by helps to find the remedial measures to solve the problem of pollution.</p>
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				<p>Medicinal and timber yielding plants. NTFP. Threats to biodiversity. – Concept of Biodiversity Hotspots, Biodiversity hot spots of India. Concept of endemism and endemic species. ICUN plant categories with special reference to Karnataka/ Western Ghats. Biodiversity Conservation- Indian Forest conservation act, Biodiversity bill (2002). Conservation methods - In-situ and ex-situ methods In-situ methods -Biosphere reserves, National parks, Sanctuaries, Sacred grooves. Ex-situ methods- Botanical gardens, Seed bank, Gene banks, Pollen banks, Culture collections, Cryopreservation.</p>	
03	CBZ	BOTANY (CBCS)	PLANT ECOLOGY	<p>Introduction, definition, and concept; Ecological factors-brief account of climatic, edaphic, topographic and biotic factors; Structure and function of Ecosystem, Energy flow in an ecosystem; Food chains and food webs; Ecological pyramids; Plant adaptations- hydrophytes, xerophytes, halophytes, parasites, epiphytes; Plant succession, steps of succession hydrosere and xerosere, Phytogeography - vegetation of Karnataka.</p>	

Microbiology

Sl. No	Course Name	Subject Name	Unit Name	Concept relating to Professional Ethics, Gender, Human Values, Environment and Sustainability	Remarks
1	B.Sc	Microbiology Open Elective Course 2	Food and Fermentation Microbial Technology	Environment and Sustainability	1. Nutritional Values, Advantages and Health Benefits of Fermented Foods 2. Importance of Prebiotics, Probiotics, Synbiotics and Nutraceutical Foods. 3. Alcoholic and nonalcoholic beverages, fermented dairy Products, Fruit fermented drinks.
			Agricultural Microbial Technology	Environment and Sustainability	1. Uses of Microbial Fertilizers, Microbial Pesticides. 2. Mushroom Cultivation, 3. Biogas Production
2	B.Sc	Microbiology Open Elective Course 2 :Theory:OE-2T, MBL 302,	Soil and Air Microbiology	Environment and Sustainability	1. Soil and Air as a major component of environment 2. Types, properties and uses of soil and air. 3. Major types of beneficial microorganisms in soil. 4. Major types of harmful microorganisms in soil

			Water Microbiology	Environment and Sustainability	1. Water as a major component of environment. 2. Microorganisms of different water bodies. 3. Standard qualities of drinking water.
			Sanitary Microbiology	Environment and Sustainability	1. Public health hygiene and communicable diseases. 2. Survey and surveillance of microbial infections. Airborne microbial infections, waterborne microbial infections, Food borne microbial infections.
3	B.Sc	Microbiology 4 th Sem	Microbiology of water and Waste water	Environment and Sustainability	Water purification in municipal water supply.
3.A			Microbes in sustainable agriculture	Environment and Sustainability	1. Biofertilization And Biopesticides 2. GM crops- advantages, social and environmental aspects of Bt crops. soil
			Water Microbiology	Environment and Sustainability	4. Water as a major component of environment. 5. Microorganisms of different water bodies. Standard qualities of drinking water.
			Water Microbiology	Environment and Sustainability	6. Water as a major component of environment. 7. Microorganisms of different water bodies. 8. Standard qualities of drinking water.

Zoology

Sl. No	Course Name	Subject Name	Unit Name	Concept relating to Professional Ethics, Gender, Human Values, Environment and Sustainability	Remarks
1	BSc CBCS	Zoology V I SEM ZOOLOGY DSE 1B : ENVIRONMENTAL BIOLOGY (ELECTIVE 2)	UNIT I UNIT II UNIT III UNIT IV UNIT V	<p>UNIT I</p> <p>Ecology – Definition, sub-divisions and scope; Environment – Types: composition and strata of Atmosphere, hydrosphere and lithosphere; Ecological factors: Abiotic and biotic; Abiotic factors – light, temperature (thermal stratification), topographic(latitudes and altitudes); Biotic factors – Animal relationships with relevant examples: Intra specific- co-action, aggregation and competition, Gause's principle; Inter specific: positive interaction – mutualism, commensalism, proto cooperation; negative interactions – parasitism, predation, and competition</p> <p>UNIT II</p> <p>1. Biogeochemical Cycles and Food chain, Definition, complete and incomplete cycles, Nitrogen and phosphorus cycles</p> <p>Food chains: types of food chains with examples and food web with examples. Ecological pyramids (number, biomass and energy) with examples.</p> <p>Energy – energy flow and laws of thermodynamics.</p> <p>2. Population and Community Ecology: Population ecology – density –</p>	Students learn about positive and negative interactions, ecosystem, pollution and wildlife conservation.

				<p>UNIT V</p> <p>Zoogeography and Wildlife conservation</p> <p>Zoogeographical realms and their characteristic fauna. Detailed account of fauna of oriental region, a brief account of Wallace's line.</p> <p>Wildlife Depletion: Hunting, over-harvesting, developmental activities</p> <p>Wildlife Conservation: conservation strategies (in situ and ex situ), agencies engaged in wildlife conservation, Government organizations and non-government organizations (NGOs). Wildlife (Protection) Act 1972, CITES (Convention on International Trade in Endangered Species of Wildlife flora and fauna), Endangered fauna of India, Red data book.</p>	
2		Zoology	<p>APPLIED ZOOLOGY</p> <p>UNIT I</p>	<p>Purposes and definitions of poultry, dairy, piggery, fishery, vermiculture, apiculture, pearl culture and aquaculture</p> <p>Sericulture: Morphology and life cycle of Bombyx mori, rearing up to cocoon stage, nonmulberry silkworms.</p> <p>Vermiculture: Types of vermiculture, Different species of earthworms used for vermiculture. Composition of vermicompost and its importance. Culture practice of Indian major carps, Pearl formation.</p>	Students can learn more about applied zoology
3		Zoology	UNIT II	<p>Pests, Parasites and Vectors . Insects as pests – on food (cereals, pulses, coffee,) and vegetable (Cauli flower) crops . (One example for each with description of part of the plant affected and economic loss)</p>	Students can learn about Pests, Parasites and Vectors and economic loss due to pest

natality and mortality, age distribution. Community ecology – types of communities and community structure, bio-indicators of aquatic ecosystem, ecotone and edge effect. Ecological succession – basic types - primary and secondary, climax community

UNIT III.

Ecosystem

Concept, types and structure of ecosystem, natural, human engineered and micro – ecosystems.

Freshwater ecosystem – physico-chemical nature of fresh water. Lentic and lotic ecosystems with examples. The tropical pond as an ecosystem – abiotic components, producers, consumers and decomposers, interaction between components.

Terrestrial ecosystem – physico-chemical nature, soil profile, classification, biomes: forest, grassland and desert and characteristic fauna .

UNIT IV

Environmental Pollution

Definition and types – air, water, soil and sound pollution.

Sources, effects and control of air, and water pollution with special mention of greenhouse effect, ozone depletion, photochemical smog, acid rain, stone leprosy. Ganga river pollution, mass death of fishes in lakes,; Legislation for environment protection in India, Pollution control board in Karnataka-functions

				2.Parasitic protozoa (entamoeba), nematodes (Ancylostoma), helminthes (tape worm) and their human diseases (symptoms of diseases, mode of transmission, control measures) 3.Vectors: Mosquitoes, ticks, mites, cockroaches, rat and their human diseases. (vector species, mode of transmission, control measures)	
4		V SEM ZOOLOGY DSE 1A: BIOCHEMISTRY AND APPLIED ZOOLOGY	UNIT III.	Wild life a. Uniqueness of Indian wildlife, Important fauna of Indian forests; b. Endangered, threatened, vulnerable, rare and extinct species (definitions with examples), Red data book, green data book. c. Biodiversity hotspots- meaning, Salient features of biodiversity hotspots of India (number of plant and animal species, endemic species to be highlighted)	Students can understand the concepts of Indian wildlife.
5		V SEM ZOOLOGY DSE 1A: ENDOCRINOLOGY AND REPRODUCTION	UNIT III	Modern trends in human reproduction: a) Fertility control: Population explosion: meaning and causes, Need for birth control, Contraception – rhythm method, pills, diaphragm, IUD, condoms, coitus interruptus, sterilization. b) Assisted Reproductive Technology: In vitro fertilization, Test tube baby, artificial insemination, GIFT, ZIFT, sperm banks. Ethical issues of test tube baby.	Students can learn Modern trends in reproduction to control increasing population
6		V SEM ZOOLOGY SEC I: APICULTURE	Unit I	Social organization of bee colony,	Students can learn about colony organisation, division of labour

Commerce and Business Administration

Sl. No	Course Name	Subject Name	Unit Name	Concept relating to Professional Ethics, Gender, Human Values, Environment and Sustainability	Remarks
1	BBA CBCS 1st SEM	Indian Business Environment	Unit - 5	Business Ethics and CSR Corporate Soeial Responsibility	It helps the students to build in Ethics towards Business and also understand the CSR
2	5th SEM	Marketing Strategies	Unit – 5	Social Responsibility of Marketing	The students will be able to understand the concept like Marketing Ethics – Consumerism – Environmentalism, societal marketing.
3	6th SEM	Company Law	Unit -5	Auditing and Accounts	It helps the students to ascertain the Duties and Responsibility of auditors along with professional ethics of auditors.
4	6th SEM	Financial Services (Elective – 4)	Unit – 4	Consumer Finance	Here the students will be understanding the concept of Credit Cards, Credit Rating System and the Rating Symbols.
5	B. Com. (CBCS) 1 st SEM	Business Management	Unit – 6	Entrepreneurship	This unit mainly concentrate on Women Entrepreneurship, its importance and the problems faced by Women Entrepreneurs.
6	4th SEM	Income Tax - II	Unit – 3	Assessment of firms	The students come into close contact about the Computation of Total income and Tax Liability including Taxable Income of the Partners.
7	4th SEM	Computer Applications	Unit – 5	Cyber Ethics	The students will be guided about Major provisions of Cyber Laws and Information Technology Act.
8	5th SEM	Business Ethics	Unit – 5	Modern Business Ethics & Dilemmas	The students will know about Corporate governance and Ethics.
9	6th SEM	Principles and Practice of Auditing	Unit – 2	Audit Planning and Control	They will understand that how an Auditor is appointed, their qualifications and disqualifications, and the duties and responsibilities of a company Auditor.
10	BBA (NEP)	Retail Management	Unit – 3	Information Technology in Retailing	The students will understand about Bar

	2nd SEM				Coding, Electronic Article surveillance, Electronic shelf labels, Customer database management system.
11	B.Com (NEP) 2nd SEM	Company Law	Unit - 3	Company Administration	The students gain the knowledge about Company Secretary : Qualifications, Appointment, Rights, Duties, Liabilities and Removal.
12	2nd SEM	Law and Practice of Banking	Unit - 5	E – Banking :	Here the students will understand the Advantages and Disadvantages of E-Banking – Security Measures – Real Time Gross Settlement (RTGS) – National Electronic Fund Transfer (NEFT).
13	M.Com. (NEP) 1st SEM	Corporate Governance and Business Ethics	Module – 3	Business Ethics	Here the students will study the issues related to Professional Ethics such as Principles of Business Ethics, Arguments for and against Business Ethics, Benefits of Corporate Ethics.
14	1st SEM	Corporate Governance and Business Ethics	Module – 4	Corporate Social Responsibility	The students will study the Corporate crimes – company and society relations, corporate social challenges – corporate accountability – business and ecology – case analysis.
15	1st SEM	Marketing Management	Module – 1, 2 and 3	Marketing Concepts and Tools	This module helps the students to develop the knowledge about marketing and its significance and E-Commerce, Online Marketing.,
16	1st SEM	Business Policy and Environment	Module 2, 3	Business Ethics and Business Policy	The objective of this course is to provide the students the knowledge about social system, internal and external environment, business ethics, social responsibility and business policy to be maintained in the organisations.

17	1st SEM	Advanced Auditing	Module 1,2,3,4	Auditing Standards, Audit procedures, Audit Reports, Rules and Regulations	From these modules one can understand the conceptual ideology of auditing and its practices, principles etc.
18	2nd SEM	Human Resource Management	Module 1,2,3,4	HR Planning, Procurement, Development and Compensation management	The main purpose of this course is to provide the students with knowledge about Human resources and their management.
19	2nd SEM	Organisational Behaviour	Module 1,2,3,4	Foundations of Individual behaviour, Motivation and foundations of group behaviour,	The objective of this course is to provide the knowledge about Organisations and their constitution and the behaviour of people in the organisations.
20	3rd SEM	International Business	Module 1,2,3,4	International Business Environment, Multinational corporations,	This specialization course on International business is designed to equip the students with policy and practice skills related to international business.
21	3rd SEM	Management of Social Enterprises	Module 2,3,4	Establishment of resource mobilization, HRM, Operational issues	This is a course structured to make the students familiar with the emerging forms of businessess, often referred to as Social Enterprise or Social Business.
22	3rd SEM	Business Taxation 1	Module 1,2,3,4	Indirect Tax Law and Practice	This is to educate the students about Indian Tax System.
23	3rd SEM	Human Resource Management	Module 1,2,3,4	Strategic Management of Human Resources	The Objective of this course is to provide the student the knowledge about human resources, their significance and managing them strategically in organisations.

Time: 3 HOURS

Max. marks: 20

- I. Identify the specimens **A** and **B**, giving reasons
(One from Pteridophytes and one from Gymnosperms) 4 Marks
- II. Prepare a temporary stained transverse section of the given material **C**. Sketch, Label and Identify giving reasons. Leave the preparation for evaluation
(Preparation- 2 marks, Identification with diagram-1 mark and reason-1 mark) 4 marks
- III. Write critical notes on **D** and **E**
(One from Pteridophytes and one from Gymnosperms) 4 marks
- IV. Identify the microslides- **F, G, H** and **I** with labelled sketches, giving reasons 8 marks
(One from Pteridophytes, one from Gymnosperms, one from Anatomy and one from Paleobotany)

NOTE: In Paleobotany : Photograph or Slide may be kept

The candidates shall produce the records which shall be signed by the examiners

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SYLLABUS FOR IV SEMESTER

THEORY PAPER - IV

MORPHOLOGY OF ANGIOSPERMS, REPRODUCTIVE BIOLOGY AND ECOLOGY

THEORY: 60 + 10 Marks

42 HOURS

3 hours per week

Unit I: MORPHOLOGY OF ANGIOSPERMS

1. **Parts of a flowering plant** : Monocot and Dicot plant
- Root System** : Tap and Fibrous root system
2. **Root modifications** : Fusiform, Napiform, Conical, Fasciculated, Tuberous.
Prop, Stilt, Climbing, Respiratory, Parasitic and Epiphytic
- Shoot system:-**
3. **Stem modifications** : Rhizome, Tuber, Corm, Bulb, Runner, Stolon, Offset, Sucker,
Phylloclade (*Opuntia*, *Euphorbia tirucalli*),
Cladode (*Ruscus*, *Asparagus*)
4. **Leaf** : Parts, Phyllotaxy, Simple and Compound leaves (Pinnate and
Palmate)
- Leaf modifications** : Tendril, Spine, Phyllode, Pitcher
5. **Inflorescence** : Racemose types, Cymose types and Special types
(Cyathium, Thyrsus, Verticillaster, Hypanthodium)
6. **An account of floral morphology**
7. **Fruits** : Classification- **Simple** (Dry dehiscent, dry indehiscent,
Schizocarpic and Fleshy types), **Aggregate** and **Composite** types
8. **Structure of seed** : Dicot
9. **Structure of Grain** : Monocot

10 Hours

Unit II - REPRODUCTIVE BIOLOGY (Embryology)

1. **Structure of Anther**, T.S. of anther, Microsporogenesis, Development of male gametophyte, Role of tapetum. Palynology- Sculpturing, Apertures, NPC- System. Applied aspects- Paleo-palynology and Melitto palynology
2. **Structure of Ovule**, types of Ovule, Megasporogenesis, Development of female gametophyte (Polygonum type)
3. **Pollination Biology** : Types, Contrivances and significance of cross pollination, pollen pistil interaction.
4. **Fertilization** : A general account.
5. **Endosperm** : Types and development- a brief account
6. **Embryo** : Dicot type with development- Crucifer type
7. **Experimental embryology**, Apomixis, Polyembryony
8. **Scope of Reproductive biology**

13 hours

Unit III- ECOLOGY

1. **Ecosystem** : Classification, Concepts and components of ecosystem, concept of biosphere
2. **Ecological factors** : Brief account (Climatic, Edaphic, Topographic and Biotic)
3. **Study of** : **Forest** (dry deciduous), **Freshwater** (Pond) and **Marine water** ecosystems
4. **Endangered plants**, : Endemism and Red data books
5. **Biogeochemical cycles** : Carbon cycle, Nitrogen Cycle, Phosphorous cycle
6. **Ecological adaptations** : Hydrophytes, Xerophytes, Halophytes, Parasites, Epiphytes
7. **Plant succession** : Definition, Steps of succession and types (Xerosere, Hydrosere)
8. **Phytogeography** : Definition, Vegetational types of Karnataka

16 hours

3 Hours

IV SEMESTER PRACTICALS **PRACTICALS IV**

One practical of 3 hours per week

14 practicals

Practical 1: Study of parts of the Dicot (*Mustard*) and Monocot (*Maize/Sorghum*) plants and Modifications of Root (2 practicals)

Practical 2: Modifications of Stem

7. Evert, R.F. (2006) Esau's Plant Anatomy: Meristem, Cells, and Tissues of the Plant Body: Their Structure, Function and Development. John Wiley and Sons, Inc
8. Fahn, A.1992. Plant Anatomy, Pergamon Press, USA
9. Johri, B.M. I. 1984.Embryology of Angiosperms, Springer-Verlag, Netherlands.
10. Karp G., 1985. Cell Biology; Mc.Graw Hill Company
11. Maheshwari, P 1950. An introduction to the embryology of angiosperms. New York: McGraw-Hill
12. Mauseth, J.D. (1988). Plant Anatomy, the Benjamin/Cummings Publisher, USA.
13. Nair P .K .K - Pollen Morphology of Angiosperms - Scholar Publishing House, Lucknow
14. Pandey S.N. 1997, Plant Anatomy and Embryology .A. Chadha, Vikas Publication House Pvt Ltd;
15. Pandey, B. P., 1997. Plant Anatomy, S.Chand and Co. New Delhi
16. Raghavan, V., 2000. Developmental Biology of Flowering plants, Springer, Netherlands.
17. Saxena M. R. – Palynology – A treatise - Oxford & I. B .H., New Delhi.
18. Shivanna, K.R., 2003. Pollen Biology and Biotechnology. Oxford and IBH Publishing Co. Pvt.Ltd. Delhi.
19. Vashishta .P.C .,1984. Plant Anatomy – Pradeep Publications – Jalandhar
20. Vashishta, P.C. 1997. Plant Anatomy, Pradeep Publications

B.Sc. BOTANY: Semester - 4

Theory: Discipline Specific Core Course

(DSCC) Title of the Course and Code:

BOT-A-4.1 ECOLOGY AND CONSERVATION BIOLOGY

Course No	Type of Course	Theory/ Practical	Credits	Instruction Hour Per week	Total No. Lectures/ Hours/ Semester	Duration Of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
BOT A-4.1	DSCC	Theory	04	04	56 hrs	2 hrs	40	60	100

Unit	ECOLOGY AND CONSERVATION BIOLOGY	Teaching Hours
I	Introduction to Ecology and Conservation Biology: Definitions, Principles of Ecology, Brief History, Major Indian Contributions, Scope and importance. Ecological levels of organization. Ecological factors: Climatic factors: light, temperature, precipitation and humidity. Edaphic factors: Soil and its types, soil texture, soil profile, soil formation; soil pH, soil aeration, soil water, soil humus and soil microorganisms. Topographic Factors: Altitude and Slope	15 Hrs

	<p>Biotic factors: A brief account</p> <p>Ecological groups of plants and their adaptations: Morphological and anatomical adaptations of hydrophytes, xerophytes, epiphytes and halophytes.</p>	
II	<p>Ecosystem Ecology: Introduction, types of ecosystems with examples -terrestrial and aquatic, natural and artificial.</p> <p>Structure of ecosystem: Biotic and Abiotic components, detailed structure of a pond ecosystem.</p> <p>Ecosystem functions and processes: Food chain, Food web and Ecological pyramids, energy flow in an ecosystem.</p> <p>Bio-geo chemical cycles: Gaseous cycles -carbon and nitrogen, Sedimentary cycle- Phosphorus.</p> <p>Ecological succession: Definition, types- primary and secondary. General stages of succession. Hydrosere and xerosere.</p> <p>Community Ecology: Community and its characteristics – frequency, density, Abundance, cover and basal area, phenology, stratifications, life-forms. Concept of Ecotone and Ecotypes.</p> <p>Intra-specific and Inter-specific interactions with examples.</p> <p>Ecological methods and techniques: Methods of sampling plant communities – transects and quadrates. Remote sensing as a tool for vegetation analysis, land use – land cover mapping.</p> <p>Population Ecology: Population and its characteristics – Population density, natality, mortality, age distribution, population growth curves and dispersal.</p>	15 Hrs
III	<p>PHYTOGEOGRAPHY AND ENVIRONMENTAL ISSUES</p>	11 Hrs
	<p>Theory of land bridge, theory of continental drift, polar oscillations and glaciations. Centre of origin of plant – Vavilov's concept, types. Phytogeographical regions – concept, phytogeographical regions of India.</p> <p>Vegetation types of Karnataka – Composition and distribution of evergreen, semi-evergreen, deciduous, scrub, mangroves, shola forests and grasslands. An account of the vegetation of the Western Ghats.</p> <p>Pollution: Water pollution: Causes, effect, types; water quality indicators, water quality standards in India, control of water pollution (Waste water treatment). Water pollution disasters – National mission on clean Ganga, Minimata, Pacific gyre garbage patch, Exxon valdez oil spill.</p> <p>Air pollution: Causes, effect, air quality standards, acid rain, control.</p> <p>Soil pollution: Causes, effect, solid waste management, control measures of soil pollution.</p>	
IV	<p>BIODIVERSITY AND ITS CONSERVATION</p>	15 Hrs
	<p>Biodiversity: Definition, types of biodiversity - habitat diversity, species diversity and genetic diversity, Global and Indian species diversity. SDG's in biodiversity conservation.</p> <p>Values of Biodiversity – Economic and aesthetic value, Medicinal and timber yielding plants. NTFP. Threats to biodiversity.</p>	

	<p>Concept of Biodiversity Hotspots, Biodiversity hot spots of India.</p> <p>Concept of endemism and endemic species.</p> <p>ICUN plant categories with special reference to Karnataka/ Western Ghats.</p> <p>Biodiversity Conservation- Indian forest conservation act, Biodiversity bill (2002).</p> <p>Conservation methods – <i>In-situ</i> and <i>ex-situ</i> methods</p> <p><i>In-situ</i> methods –Biosphere reserves, National parks, Sanctuaries, Sacred grooves.</p> <p><i>Ex-situ</i> methods-Botanical gardens, Seed bank, Gene banks, Pollen banks, Culture collections, Cryopreservation.</p>	
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1. Sharma, P.D. 2018. Fundamentals of Ecology. Rastogi Publications.
2. Odum E.P. (1975): Ecology By Holt, Rinert& Winston.
3. Oosting, H.G. (1978): Plants and Ecosystem Wadworth Belmont.
4. Kochhar, P.L. (1975): Plant Ecology. (9th Edn.,) New Delhi, Bombay, Calcutta-226pp.,
5. Kumar, H.D. (1992): Modern Concepts of Ecology (7th Edn.,) Vikas Publishing Co., New Delhi.
6. Kumar H.D. (2000): Biodiversity & Sustainable Conservation. Oxford & IBH Publishing Co Ltd. New Delhi.
7. Newman, E.I. (2000): Applied Ecology, Blackwell Scientific Publisher, U.K.
8. Chapman, J.L&M.J. Reiss (1992): Ecology (Principles & Applications). Cambridge University Press, U.K.
9. Malcolm L. Hunter Jr., James P. Gibbs, Viorel D. Popescu, 2020. Fundamentals of Conservation Biology, 4th Edition. Wiley-Blackwel.
10. Saha T. K., 2017. Ecology and Environmental Biology. Books and Allied Publishers.

B.Sc. BOTANY: Semester - 4

Practical: Discipline Specific Core Course (DSCC)

Title of the Course and Code:

BOT-A-4.2: ECOLOGY AND CONSERVATION BIOLOGY

Course No.	Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
BOT-A-4.2	DSCC	Practical	02	04	52 hrs	3hrs	25	25	50

LIST OF PRACTICALS IN ECOLOGY AND CONSERVATION BIOLOGY

Practical No.	Experiments
1	Determination of pH of different types of Soils, Estimation of salinity of soil/water samples.
2	Study of Ecological instruments – Altimeter, Hygrometer, Soil thermometer, Rain Gauge, Barometer, etc

Practicals: One Practical of 2 Hours /Week-32 Hrs

- 1) Study of morphology, anatomy and reproductive organs of *Psilotum*, *Selaginella*.
 - 2) Study of morphology, anatomy and reproductive organs of *Equisetum*, *Marselia*
 - 3) Study of morphology, anatomy and reproductive organs of *Cycas*
 - 4) Study of morphology, anatomy and reproductive organs of *Pinus*
 - 5) Study of morphology, anatomy and reproductive organs of *Gnetum*
 - 6) Modifications of root.
 - 7) Modifications of stem.
 - 8) Modifications of leaf
 - 9) Study of Inflorescences: Racemose, Cymose and Special types.
 - 10) Study of Fruits-simple, aggregate and composite type
 - 11-14) Scientific description of the following plant families: Malvaceae, Fabaceae, Asteraceae, Apocynaceae, Solanaceae, Euphorbiaceae, Liliaceae and Poaceae.
- Field Visits:** Field trips to the local areas to study identify and record the Flora. Field visit report shall be submitted at the time of practical examination.

BOTANY - THIRD SEMESTER -DSCB- 1.3**PLANT ECOLOGY, PLANT ANATOMY AND PLANT PHYSIOLOGY**

(Course duration: 16 weeks with 4 hours of instruction per week)

Theory-64 Hrs

Unit-1: Plant Ecology: Introduction, definition and concept; Ecological factors-brief account of climatic, edaphic, topographic and biotic factors; Structure and function of Ecosystem; Energy flow in an ecosystem; Food chains and food webs; Ecological pyramids; Plant adaptations- hydrophytes, xerophytes, halophytes, parasites, epiphytes; Plant succession, steps of succession; hydrosere and xerosere; Phytogeography - vegetation of Karnataka.

Unit -2: Plant Anatomy: Structure of a plant body; Tissue and organ system; Meristems - types, Tissues - simple tissues, parenchyma, collenchyma and sclerenchyma and their characteristics; Complex tissues: xylem, phloem, vascular bundle, types; Tissue system- epidermal, trichomes and stomata, structure and types; Anatomy of dicot and monocot root, stems and leaf; Secondary growth in dicot stem; Anomalous secondary growth in *Dracaena*; Laticifers - structure, types and functions.

Unit-3: Plant Physiology: Water relations- diffusion, imbibitions, osmosis, cell as an osmotic system; short distance transport-active and passive absorption of water; Long distance transport- ascent of sap; TCT Theory; Absorption of mineral salts- carrier concept; Transpiration- definition, types, mechanism of stomatal movement (K⁺ ion concept); Guttation; hydroponics and aeroponics; phloem transport - Munch's hypothesis; plant growth - definition, phases of growth, sigmoid curve; phyto-hormones- application of auxins, gibberellins, cytokinins,

**DSE-2.2: ADVANCES IN MICROBIOLOGY, BIOSTATISTICS
AND INTELLECTUAL PROPERTY RIGHTS**

Paper VI

64 (4hrs/week)

Unit I Genomics and Metagenomics

16 hrs

Evolution of Microbial Genomes: Salient features of sequenced microbial genomes, coregenome pool, flexible genome pool and concept of pangenome, Horizontal gene transfer (HGT).

Metagenomics: Brief history and development of metagenomics, Understanding bacterial diversity using metagenomics approach. Basic knowledge of viral metagenome, metatranscriptomics, metaproteomics and metabolomics.

Unit II Recent developments in Microbiology

16 hrs

Molecular Basis of Host-Microbe Interactions: Epiphytic fitness and its mechanism in plant pathogens, Hypersensitive response (HR) to plant pathogens and its mechanism. Biofilms: types of microorganisms, molecular aspects and significance in environment, health care, virulence and antimicrobial resistance.

Systems and Synthetic Biology: Networking in biological systems, Quorum sensing in bacteria, Co-ordinated regulation of bacterial virulence factors, Future implications of synthetic biology.

Unit III Biostatistics

16 hrs

Introduction to biostatistics: Data structure, sampling methods, data collection, tabulation. Graphical representation, histogram, frequency, polygon, frequency curve, mean, median, mode, mean deviation, standard deviation, standard error, co-efficient of variation.

Hypothesis testing: Z test, T test, Anova, multiple comparisons, LSD, DMRT, Chi – square test, regression and correlation. Non parametric.

Unit IV Intellectual Property Rights

16 hrs

Introduction to Intellectual Property: Patents, Types, Trademarks, Copyright & Related Rights, Industrial Design and Rights, Traditional Knowledge, Geographical Indications, importance of IPR, patentable and non patentables.

Grant of Patent and Patenting Authorities: Types of patent applications: Ordinary, PCT, Patent of Addition; Patent licensing and agreement;

**SEMESTER-VI
ADVANCES IN MICROBIOLOGY, BIOSTATISTICS
AND INTELLECTUAL PROPERTY RIGHTS**

PRACTICAL-VI

(4hrs/week)

1. Extraction of metagenomic DNA from soil
2. Understand the impediments in extracting metagenomic DNA from soil
3. Demonstration of PCR amplification of metagenomic DNA using universal 16s ribosomal gene primers

- Preparation of wine
- Test on *in vitro* antagonism
- Visit to biotechnology related industries and institutions

PAPER 8: ENVIRONMENTAL BIOTECHNOLOGY AND BIOINFORMATICS

4 hours/week x16= 64 Hours

Bioinformatics

Unit I

Bioinformatics and the internet: Introduction, internet basics, connecting to the internet, electronic mail, File transfer protocol, the World Wide Web.

DNA databases, Genbank, EMBL, DDBJ, protein sequence databases, PIR-PSD, SWISSPROT, dendrograms, gene families phylogenetic and mutation studies databases, literature databases (searching and downloading). **10 h**

Unit II

Information retrieval from databases: Database similarity searching, FASTA, BLAST search, sequence alignment global alignment, local alignment, sequence aligning ClustalW, ClustalX, DIALIGN2, Multalin, Navigating the NCBI website OMIM, PubMed.

proteomics, protein

identity based on composition, physical properties based on sequence, motifs and patterns, secondary structure and folding classes, special structures or features, tertiary structure **12 h**

Unit III

Predictive methods using protein sequences

Genomics: genome analysis, bacterial genome sequence project, Human Genome Project

Microarray technologies: Expression, Profiles and protein functions and applications **10h**

Environmental Biotechnology

Unit-I

Introduction: Major issues in environmental pollution – role of biotechnology to solve the problems.

Biotechnological methods of pollution detection: general bioassay, cell biological methods, immunoassays, DNA-based methods, use of biosensors.

Biotechnological methods in pollution abatement: Reduction of CO₂ emission. Waste water treatment – conventional wastewater treatment, use of algae, Bioreactors for waste-water treatment, eutrophication, use of cell immobilization

10 h

Unit-2

Renewable and non-renewable resources; current status of biotechnology in environment protection.

Bioremediation: Concepts and principles, bioremediation using microbes, in situ and ex situ bioremediation, biosorption and bioaccumulation of heavy metals.

Xenobiotics: Degradation by microorganisms with reference to pesticides, herbicides, polyaromatic hydrocarbons.

Renewable energy: Relevance of GMO to the environment.

Solid waste management: Waste as a source of energy, biotechnology in paper and pulp industry, production of oil and fuels from wood waste, anaerobic and aerobic composting, vermiculture, biofuels.

Biotechnology and Biodegradation: Degradation of xenobiotic compounds- Simple, aromatic, chlorinated, poly aromatic, petroleum products, pesticides and surfactants.

Biohydrometallurgy and biomining: Bioleaching, biosorption, oil degradation, creation of superbug. 12 h

Unit-3

Treatment of Industrial wastes: Dairy, pulp, dye, leather and pharmaceutical industries. Solid waste management. Genetically engineered microbes for waste treatment

Ecofriendly bioproducts: Biomass resources, Biogas, alcohol as fuel, biological hydrogen generation, biodegradable plastics. 10 h

PRACTICAL : – 2X 16=32 CREDITS

- Seed inoculation with *Rhizobium* culture and observation for root nodulation
- Photographic demonstration of transgenic crop plants/animals and agriculture biotechnology innovations
- Preparation of bio control formulations
- Biofertilizer formulation
- Analysis of sewage water for 1. BOD
2. Toxic chemicals
3. Microbial flora
- Visit to National Bioinformatics Centre

SKILL ENHANCEMENT COURSE-SEC

V Semester

SEC 1.1

Intellectual Property Rights

16X2=32 HRS

Unit 1

OVERVIEW OF INTELLECTUAL PROPERTY introduction and the need for intellectual property right (IPR) IPR in India – Genesis and Development IPR in abroad Some important examples of IPR. 10 hrs

Unit 2

Definition of COPYRIGHT, PATENTS, TRADEMARKS, GEOGRAPHICAL INDICATIONS INDUSTRIAL DESIGNS and BIOLOGICAL INVENTIONS. 10hrs

Unit 3

ENFORCEMENT OF INTELLECTUAL PROPERTY RIGHTS Infringement of intellectual property rights Enforcement Measures **EMERGING ISSUES IN INTELLECTUAL PROPERTY** Overview of Biotechnology and Intellectual Property Biotechnology Research and Intellectual Property Rights Management Licensing and Enforcing Intellectual Property Commercializing Biotechnology Invention **UNFAIR COMPETITION** What is unfair competition? relationship between unfair competition and intellectual property laws? **12hrs**

SEC 1.2

Biophysics and Biochemical techniques 16X2=32 HRS

Unit 1

Basic biophysics: Structure of atoms, molecules and chemical bonds Stabilizing interactions (Van der Waals, electrostatic, hydrogen bonding, hydrophobic interaction, etc.). Principles of biophysical chemistry (pH, buffer, reaction kinetics, thermodynamics, colligative properties). **6 Hr**

Unit 2

Basic principle of chromatography, principle, procedure and application of- paper chromatography, TLC, Gel permeation chromatography, Ion-exchange chromatography HPLC and GC. **6 Hr**

Separation techniques: Homogenization, Membrane filtration and Dialysis, Solvent fractionation, Centrifugation, Electrophoresis-paper electrophoresis, gel electrophoresis, SDS-PAGE, Disc gel, gradient gel, isoelectric focusing, **7hr**

Spectroscopy –Electromagnetic spectrum, properties of the electromagnetic radiations, Basic principle and applications of Absorption spectroscopy, Colorimetry and UV-visible spectrophotometry, fluorescence spectroscopy, circular dichroism, and NMR **6hr**

Unit 3

Microscopy – Light Microscopy: Bright, Dark Field and Phase contrast Microscopy, fluorescence and confocal microscopy. Resolving power and Magnification Electron Microscopy – Working principle, Principle, Sample preparation and contrast enhancement techniques. Comparison between SEM, STEM, STM, Atomic force microscopy (AFM). Instrumentation and applications. **7 hr**

Skill enhancement course: Course Code: SEC-1T:BC-104.1;

Course Title: Biochemical Techniques-1 (theory)

Course title	Biochemical Techniques-1
Course code	SEC-1T: BC-104.1
Course credits	02
Total contact hours	28
Duration of ESA (Hour)	03
Formative assessment marks	30
Summative assessment marks	70

Course Level Learning Outcomes: Students will be exposed to various spectrophotometry and chromatographic techniques and their applications in separation of chemicals like biomolecules, organic chemicals, drugs etc.

Content of Theory course- Biochemical Techniques-1	28 hr
Total credits =2	
Unit 1: Photometry:	14 hr
Principle of light absorption by molecules. Beer-Lambert law, Types of spectrophotometers. Principals and working of colorimeter, Visible spectrophotometer, UV-Visible spectrophotometer, Fluorescent spectrophotometry, nano-drop-spectrophotometry, Atomic absorption spectrophotometry. Types of Detectors-Phototube, Photomultiplier tube, Photo diode, Diode array detector, Charge coupled device detectors. Applications of spectrophotometry in estimation of organic compounds, enzyme assays, enzyme kinetics, recording spectrum, time-lapse studies,	
Unit 2: Chromatography:	14 hr
Separation of small molecules by TLC, column chromatography, HPLC, and GLC.RP-HPLC, normal phase HPLC, HILIC. Column materials, ODS v/s BDS columns, Different columns used in HPLC, and GLC. Different types of detectors used in HPLC and GLC. Preparation of sample for separation by HPLC and GLC. Importance of column material and pore size. Isocratic v/s gradient HPLC	
References	
<ol style="list-style-type: none"> 1. Biophysical Chemistry, Principles & Techniques - Upadhyay, Upadhyay and Nath -Himalaya Publ. House. 2. Principles & Techniques of Practical Biochemistry - Wilson, Walker- Cambridge Univ.Press. 3. Chromatography - G. Abbott. 4. Physical Biochemistry- Application to biochemistry and molecular biology by David Freifelder. W. H. Freeman & Co. San Fransisco. 2nd Edition 	

Pedagogy: MOOC/desk work/book chapter/problem solving /assignment

Formative Assessment	
Assessment occasion	Weightage in marks
Class test (Two class tests)/ Continuous evaluation	20
Seminar/ class work	05

Treatment: Psychotherapy, Medications, Surgery, Medical devices, and Self-care. Dimensions of Health: Physical, Mental, Spiritual, Emotional, Environmental, and Philosophical.	
Unit 2: Communicable Diseases:	14 hr
Tuberculosis, Cholera, Typhoid, Conjunctivitis.	
Sexually transmitted diseases (STD): Information, statistics, and treatment guidelines for STD, Prevention: Syphilis, Gonorrhea, AIDS, etc.	
Non-communicable diseases: Malnutrition- Under nutrition, Over nutrition, Nutritional deficiencies; Anemia, Stroke, Rheumatic heart disease, Coronary heart disease, Cancer, blindness, accidents, mental illness, Iodine deficiency, Fluorosis, Epilepsy, Asthma.	
Genetic disorders: Down's syndrome, Klinefelter's syndrome, Turner's syndrome, Thalassemia, Sickle cell anemia.	
Lifestyle disorders: Obesity, Liver cirrhosis, Diabetes mellitus, Hypertension (Causative agents, symptoms, diagnosis, treatment, prognosis, prevention)	
Unit 3: Health Promotions:	14 hr
Preventing drug abuse, Oral health promotion by tobacco control.	
Mental hygiene and mental health: Concepts of mental hygiene and mental health, Characteristics of mentally healthy person, Warning signs of poor mental health, Promotive mental health, strategies and services, Ego defense mechanisms and implications, Personal and social adjustments, Guidance and Counseling.	
Infection control: Nature of infection, Chain of infection transmission, Defenses against infection transmission	
References <ol style="list-style-type: none"> 1. Modern Nutrition in Health and Disease 2006 10th Edition by Maurice E. Shils, Moshe Shike, A Catharine Ross. 2. Clinical Biochemistry and Metabolic Medicine, 2012 Eighth Edition by Martin Andrew Crook, CRC Press, 3. Nutrition & Health in Developing Countries, 2000, Editors: R. Semba and M.W. Bloem, Humana Press 	

Pedagogy: MOOC/desk work/book chapter/problem solving /assignment

Formative Assessment	
Assessment occasion	Weightage in marks
Class test (Two class tests)/ Continuous evaluation	20
Seminar/ class work	05
Assignment/ open discussion/ quiz	05
Total	30

Unit 3: Organometallic Compounds:	14 hr
<p>Metal atom linked organic compounds. Preparation of Grignard reagents and structure, limitations, protonolysis and reactions. Organolithium compounds, preparation and reactions. Organozinc compounds. Organoboranes its mechanisms. Ferrocenes.</p> <p>Introduction to mineral and ores, classification, concentration, extraction, refining, uses of minerals and metals and its importance.</p> <p>Porphyrins and Metal ions: Role of metal ions in biological systems, Fe, Cu, Zn, structure and functions of porphyrins, metalloporphyrins and iron-sulphur clusters with suitable examples and their role in biological systems.</p>	
Unit 4: Inorganic Chemistry:	14 hr
<p>Nomenclature of inorganic molecules and coordination compounds, formula. IUPAC nomenclature. Central metal ion, ligand, coordination number, sphere, complex ion, oxidation number of central atom, homoleptic and heteroleptic complexes. Isomerism in complexes, structural, ionisation, solvate, linkage and coordination, Stereoisomerism, geometrical, optical isomerism with simple inorganic complexes. Applications of qualitative, quantitative analysis, photographic, metallurgy, medicine, catalysis and biosystems.</p> <p>Heavy Metal Poisons: Introduction, poisons, lead, mercury, aluminium, arsenic, corrosives, cyanide, irritants, phosphorus, CO₂, SO₂, SO₃, NO₂, halide and acid fumes, poisoning, sources, signs and symptoms. Free radicals: introduction, definition, generation and scavenger systems. Redox reactions, types, stock notations, change in oxidation number and combination. Endergonic and exergonic reactions with examples. The Importance in biological systems.</p>	
References <ol style="list-style-type: none"> 1. Physical Chemistry 2006, Peter Atkins. 8th edition, W.H. Freeman and Company 2. Inorganic Chemistry: Principles of structure and Reactivity, 2006, Huheey JE, Keiter EA, Keiter RL, Pearson Education India 3. Stereochemistry: Conformation and Mechanism, 2009, Kalsi PS, New Age International Publications 4. Introduction to Stereochemistry 2012, Kurt Mislow, Dover Publications 5. A text book of Organic Chemistry 2016, Raj K Bansal, 6th edition, New Age International Publications 6. Advanced Inorganic Chemistry 1999, Cotton et al , 6th edition, A Wiley - International 7. Principles of physical Chemistry by Puri, Sharma and Pathania. 8. Physical Chemistry by R. L. Madan, G. D. Tuli. S. Chand and Co. 9. A Text Book of Physical Chemistry by K.L.Kapoor. Vol.2.Mc. Millan Publisher, India Ltd. 10. Advanced Organic Chemistry by Bahl and Arun Bahl. 	

Pedagogy: MOOC/desk work/book chapter/problem solving /assignment

Formative Assessment	
Assessment occasion	Weightage in marks
Class test (Two class tests)/ Continuous evaluation	20

- The student will be able to apply basic nutrition knowledge in making foods choices and obtaining an adequate diet.
- The student gains competence in connecting the role of various nutrients in maintaining health and learn to enhance traditional recipes.

Content of Theory course- Nutrition and Dietetics	42 hr
Total credits =3	
Unit 1: Basic Concepts of Nutrition:	14 hr
Introduction, Basic principles of a balanced diet to provide energy and nutrients. Composition of foods and proximate analysis of foods. Calorific value of foods and Basal metabolism. Basal Metabolic Rate (BMR), Factors affecting BMR, Energy requirements for different physical activities, Specific dynamic action of food, Nutritive value of proteins. Energy requirements and recommended dietary allowance (RDA) for infants, children and pregnant women. Protein calorie malnutrition.	
Unit 2: Macronutrients and Micronutrients:	14 hr
Carbohydrates- Digestible and non-digestible, Dietary fibers, Essential fatty acids, lipoproteins and cholesterol. Essential amino acids, Fortification of foods, Protein requirement for different categories. Vitamins-Sources, requirements, functions and deficiency symptoms of Vitamin-C, Thiamine, Riboflavin, Pyridoxine, Folic acid, Vitamin B12. Absorption of fat-soluble vitamins- A, D, E and K. Micronutrients: Source, Daily requirement, functions and deficiency disease symptoms of Macro-minerals (Ca, P, and Cl) and micro minerals/trace elements (I, Fe, Zn and Se).	
Unit 3: Dietetics and Diet Therapy:	14 hr
Introduction. Food pyramid. Diet planning and introduction to diet therapy. Nutritional requirements for different age groups, anemic child, expectant women, and lactating women. Diet planning for prevention and cure of nutritional deficiency disorders. Diet therapy: Functional foods, Anthropometric measurements, dietary considerations during fever, malaria, and tuberculosis. Prevention and correction of obesity, underweight, and metabolic diseases by diet therapy. Dietary interventions to correct and or manage the gastrointestinal diseases (indigestion, peptic ulcer, constipation, diarrhea, steatorrhea, irritable bowel syndrome. Functional foods-based diet therapy for diabetes, cardiovascular disease and cancer.	
References	
<ol style="list-style-type: none"> 1. Clinical Dietetics and Nutrition, 2002, Antia FP and Abraham P. Oxford University Press; 4th Edition. ISBN-10: 9780195664157. 2. Oxford Handbook of Nutrition and Dietetics, 2011, Webster-Gandy J, Madden A and Holds worth M. Oxford University Press, Print ISBN-13: 9780199585823. 3. Krause's Food, Nutrition and Diet therapy, 2003, Mahan KL and Escott-Stump S. 	

General principles of chromatography, history of chromatography. Classification based on 1. physical way stationary and mobile phase are brought together- Planar and column chromatography. 2. based on types of mobile and/or liquid phase adsorption and partition- Gas chromatography and liquid chromatography. Based on stationary phase- thin layer chromatography, Paper chromatography - ascending, descending and circular, 2-D chromatography, Rf values.

Classification of chromatography based on separation: Principles, methodologies and applications of adsorption, partition, ion-exchange, gel-filtration and affinity-chromatography. Advanced chromatography- HPLC and FPLC, UPLC and GLC.

UNIT 3: Electrophoretic and radio isotopic methods

14 hours

Electrophoresis: General principle of electrophoresis, velocity of a charged molecule in the applied electric field, relevance of Ohm's law in electrophoretic separations. Supporting media for electrophoresis; work of Tiselius, paper, agarose, polyacrylamide. Chemistry of polymerization of acrylamide gels, methodology and applications of native PAGE and SDS-PAGE, 2-D electrophoresis, Identification of proteins post electrophoresis- dyes and biological activities. Agarose gel and Pulse field electrophoresis, Applications of capillary electrophoresis and isoelectric focusing. Cellulose acetate electrophoresis. Principle and applications of immune-electrophoresis.

Radioisotopic methods: Radioactivity-Types of radioactive decay, Properties of α , β , γ radiations. Group displacement law. Decay law - decay constant, Half-life period and average life of a radioactive element. Detection of radioactivity - GM counter and scintillation counters (only principal and working) Applications of radioisotopes - ^3H , ^{14}C , ^{131}I , ^{60}Co and ^{32}P . **Biological effects of radiations.** Radiolabeling, safety measure in handling radio isotopes.

UNIT 4: Spectroscopic methods of bio-analysis

14 hours

Spectroscopic methods: Wave particle duality of light, electromagnetic spectrum, transition in spectroscopy. Principle, design and application of UV-Vis spectrophotometer. Beer's law and its limitations, determination of molar absorption coefficient of molecules. Working principle and application of a colorimeter, flame photometer and fluorimeter. Principle and application of IR, and Raman, ESR and NMR spectroscopy.

REFERENCES:

1. Analytical techniques in Biochemistry and Molecular Biology; Katoch, Rajan. Springer 2011
2. Wilson and Walker's Principles and Techniques of Biochemistry and Molecular Biology 8th Edn. Andreas Hoffman and Samuel Cloekie, Ed., Cambridge University Press, 2018.
3. Biochemistry and Molecular Biology; 5th Edn. D. Papachristodoulou, A. Snape, W.H. Elliott, and D. C. Elliott, Oxford University Press 2014

SEMESTER - I

CORE: CHEMISTRY OF BIOMOLECULES

CLASS DURATION- 04 HOURS PER WEEK

MARKS= Theory 50 marks + Internal Assessment 20 marks, Total= 70 marks

64 hrs

PART-A : BIOINORGANIC CHEMISTRY**Overview of Biochemistry:**

3hrs

Definition, scope and significance of Biochemistry. Important discoveries in Biochemistry. An overview of elements, general reactions and biomolecules in living organisms.

Co-ordination compounds:

9hrs

Transition metals, Properties (Colour, Oxidation States, Magnetic Properties). Co-ordinate bond, double and complex salts – differences with examples. Co-ordination number.

Porphyrin nucleus, and classification. Important metallo porphyrins occurring in nature, structure and their biological importance (Hb, cytochrome, chlorophyll, Vit-B₁₂). Bile pigments chemical nature.

Radiochemistry:

4hrs

Natural and artificial radioactivity, Characteristics of radioactive elements, units of radioactivity, disintegration constant, Half-life, α , β and γ radiation. Detection of radioactivity by GM counter. Applications of radioisotopes – ^3H , ^{14}C , ^{131}I , ^{60}Co and ^{32}P . Biological effects of radiations. Safety measures in handling radioisotopes.

Nitrogen:

2hrs

Fixation of atmospheric nitrogen – symbiotic and non-symbiotic. Nitrogen cycle. Environmental pollution by nitrogen compounds.

Phosphorous:

1hr

Importance of phosphorus compounds in biological system, phosphorous cycle.

Oxygen:**2hrs**

Formation of ozone in atmosphere. Role of ozone in maintenance of life on earth. Effects of Environmental pollutants on ozone layer.

Sulphur and selenium :**2hrs**

Importance of compounds of sulphur and selenium in biological system. Effect of sulphur compounds on environmental pollution.

Biochemical Toxicology:**2hrs**

Toxicity of Lead, Mercury, Cadmium and Arsenic.

PART-B: BIO PHYSICAL CHEMISTRY**Concentration units:****2hrs**

Avagadro's number, molecular weight, mole, mole fraction, molarity, equivalent weight, normality, molality, percentage (problems to be worked out).

Properties of Water**2hrs**

Molecular structure of water, physical properties of water. Water as a universal solvent.

Colligative properties:**4hrs**

Osmotic pressure and its measurements by Berkely and Hartley's method. Laws of osmotic pressure. Hypo, hyper and isotonic solutions. Effects of osmotic pressure on living cells. Donnan membrane equilibrium. Relative lowering of vapour pressure. Raoult's law. Elevation of boiling point, depression of freezing point and their applications in determination of molecular weight.

Adsorption:**1 hr**

Freundlich and Langmuir's adsorption isotherm. Applications of adsorption.

Viscosity:**1hr**

Definition, determination of viscosity of liquids and solutions by Ostwals's viscometer (solutions of gums and proteins to be taken as examples).

Distribution law:**1hr**

Distribution law, partition coefficient, application of distribution law.

Balanced diet:**2 hrs**

Composition of balanced diet for infants, children, pregnancy and lactating women, old age.

Water Metabolism:**5 hrs**

Absorption, requirement, distribution of water in body fluid compartments. Factors influencing water metabolism, functions of water, deficiency and water intoxication in human body.

Antinutritional Factors:**4 hrs**

Sources and harmful effects of anti vitamins (example:- avidin, dicoumarol), natural toxicants (example:- Lathyrus sativus) and adulterants (Butter yellow, lead chromate & malachite green).

Digestion and absorption:**8 hrs**

GIT: secretion, composition and functions of saliva, gastric, bile, pancreatic and intestinal juices. Gastro intestinal hormones and its effects. Appetite, digestion, absorption and transport of carbohydrates, proteins and fats.

Nutraceuticals:**2hrs**

Introduction, functional foods and pre and pro-biotics in health and disease prevention.

PRACTICALS**NUTRITION****Practical Duration – 04 Hours per week****Examination – 03 Hours****Marks=30****Practical Proper-20 marks and Internal Assessment-10 marks**

Determination of moisture content of foods and detection of adulterants in food.

Extraction and estimation of calcium in ragi.

Estimation of reducing sugars (From jams and jellies) by Fehling's method.

Extraction and estimation of vitamin – C in biological sample.

Extraction and estimation of iron from mustard.

Determination of saponification value of oil.

Determination of iodine/acid/peroxide value of oil or fat.

Estimation of amino acid by Sorensen's formal titration.

Determination of pH of the given sample of fruit juice. (Eg: lemon, papaya, apple, sugar cane, bejois juice etc).

Estimation of lactic acid in milk.

Antigens:

2 hrs

Definition, types, chemical nature and antigenicity. Epitopes, paratopes, haptens and adjuvants.

Antibodies:

4 hrs

Definition, types and structure of a typical immunoglobulin (IgG - Light chain, heavy chain, hyper variable region, constant domains, Fab and Fc). Polyclonal and monoclonal antibodies. Production and applications of monoclonal antibodies.

Antigen -antibody reaction *in-vitro*:

3 hrs

Formation of antigen-antibody complex. Agglutination and precipitation. Principle, procedure and applications of immunodiffusion, RIA, ELISA.

Immunization:

2 hrs

Vaccines and their preparations, primary and secondary immune response.

Hypersensitivity:

2 hrs

Immediate and delayed type of hypersensitivity.

Immunological disorders:

3 hrs

Autoimmune disorder- systemic lupus erythomatus and rheumatoid arthritis.

Immunodeficiency diseases- AIDS.

Lewis concept of acids and bases. Ionic product of water. pH scale, buffers, Henderson Hasselbach equation, buffer capacity, preparation of acidic and basic buffer solutions. Theory of acid base indicators. Choice of indicators. pH titration curves and isoelectric pH of aminoacids. Electrodes (Hydrogen Electrode & Calomel electrode), Glass electrode. Conductometric titrations [Strong acid against strong base, weak acid (amino acid) against NaOH]. Determination of Pka value of amino acid by using pH meter.

• **Photochemistry:** **5 hrs.**

Laws of photochemistry, quantum efficiency, light absorption, Beer-lambert's law, spectrophotometer, colorimeter, fluorescence, phosphorescence, chemiluminescence, bioluminescence (Elementary treatment). Applications of UV-visible and fluorescence spectra. Principle of IR spectra and its applications.

PART: B-BIO INORGANIC- 22hr

• **Co-ordination compounds:** **9hrs.**

Transition metals, Properties (Colour, Oxidation States, Magnetic Properties). Co-ordinate bond, double and complex salts – differences with examples. Postulates of werner's theory. Types of ligands – Uni, bi and polydentate with examples. Co-ordination number.

Porphyrin nucleus and classification. Important metallo porphyrins occurring in nature-structure and their biological importance (Hb, cytochrome, chlorophyll, Vit-B₁₂). Bile pigments – Types, structure and chemical nature.

• **Nitrogen:** **2hrs.**

Fixation of atmospheric nitrogen – symbiotic and non-symbiotic. Nitrogen cycle. **Environmental pollution by nitrogen compounds.**

3. Phosphorous: **2hr**

Importance of phosphorus compounds in biological system, phosphorous cycle.

4. Oxygen: **2hrs.**

Importance of oxygen in Biological System. Formation and role of ozone in maintenance of life on earth. Effects of Environmental pollutants on ozone layer.

5. Sulphur and selenium **2hrs.**

Importance of compounds of sulphur and selenium in biological system. **Effect of sulphur compounds on environmental pollution.**

6. Biochemical Toxicology: **2 hrs**

7. Radiochemistry:

5hrs.

Natural and artificial radioactivity, Characteristics of radioactive elements, units of radioactivity, disintegration constant, Half-life, α , β and γ radiation. Detection of radioactivity by GM counter. Applications of radioisotopes – ^1H , ^{14}C , ^{131}I , ^{60}Co and ^{32}P . Biological effects of radiations. Safety measure in handling radio isotopes.

Suggested Textbooks:

1. Barrow, G. M. (2007) Physical Chemistry Tata McGraw-Hill, India.
2. Castellan, G. W. (2004) Physical Chemistry 4th Ed. Narosa, India.
3. Kotz, J. C., Treichel, P. M. & Townsend, J. R. (2009) General Chemistry Cengage Learning India Pvt. Ltd.: New Delhi.
4. Mahan, B. H. (1998) University Chemistry 3rd Ed. Narosa, India.
5. J. D. Lee, A new Concise Inorganic Chemistry, E L. B. S.
6. F. A. Cotton & G. Wilkinson. Basic Inorganic Chemistry, John Wiley.
7. Douglas, McDaniel and Alexander : Concepts and Models in Inorganic Chemistry, John Wiley.
8. James E. Huheey, Ellen Keiter and Richard Keiter : Inorganic Chemistry: Principles of Structure and Reactivity, Pearson Public
9. Pattabhi. V. and Gautham.N. (2002) Biophysics. Narosa Publishing House, India.
10. Physical Chemistry – Puri, Pathania & Sharma

PRACTICAL – I

Practical Duration – 03 Hours per week

Examination – 03 Hours

Marks=30

Practical Proper-20 Internal Assessment – Record-05+Class Test-05=10

- Use of analytical balance and weighting.
- Calculation, preparation of normal, molar and percentage solutions.
- Calibration of volumetric glasswares (Burette, pipette and measuring cylinder).

Normal composition of urine – Volume, pH, colour, specific gravity. Constituents-urea, uric acid, creatinine, pigment. Abnormal constituents – glucose, albumin, ketone bodies, variations in urea, creatinine, pigments and their clinical significance in brief.

Blood:

Normal constituents of blood and their variation in pathological conditions - urea, uric acid, creatinine, glucose, bilirubin, total protein, albumin/globulin ratio. Lipid profile – cholesterol, Triglycerides, lipoproteins - HDL and LDL.

Liver function tests:

Alkaline phosphatase, SGOT and SGPT.

Cardiac injury profile CPK and LDH.

Inborn errors of Metabolism:

Sickle cell anaemia, phenyl ketonuria, Neimann – Pick disease, Type III glycogen storage disease (Cori's disease).

NUTRITION

24hrs

Introduction

3hrs.

Concept of Nutrition, calorific value of foods and its determination (Bomb calorimeter) different components of energy expenditure, respiratory quotient, Basal Metabolic Rate (BMR), determination of BMR, factors affecting BMR. Specific dynamic action of foods.

Carbohydrates:

1hr.

Dietary Sources, dietary fibres and protein sparing action.

Proteins:

3hrs.

Dietary sources, nutritional classification, Nutritional value of proteins – PER, NPU and Biological value of proteins (BV). Essential amino acids. Nitrogen balance, mutual supplementation of proteins, Malnutrition- Kwashiorkar and marasmus.

Fats:

1hrs.

Dietary sources of fats, invisible fat, essential fatty acids and their biological importance.

Vitamins:

6hrs.

Dietary sources, requirements, deficiency symptoms and biological role of water soluble vitamins
Thiamine, Riboflavin, Niacin, Pantothenic acid, Pyridoxine, Biotin, Folic acid, Vit B₁₂ and Vit-C.

Fat soluble vitamins : Vitamin A, D, E and K.

Hypervitaminosis.

Minerals:

2hrs.

Mineral metabolism of Ca, P, Fe, Cu, Zn, I

Water Metabolism:

1hr.

Distribution of water in body fluids, Regulation of water metabolism.

Antinutritional factors:

2hrs.

Sources and harmful effects of anti vitamins (eg avidin, dicoumarol), Natural toxicants (eg Lathyrus sativa) and adulterants (eg butter yellow, lead chromate, malachite green).

Digestion, absorption and transport of carbohydrates proteins and fats, GI tract, secretions, composition and function of – saliva, gastric, bile, pancreatic and intestinal juices. Appetite, gastrointestinal hormones.

5hrs.

Reference text books:

1. R.K.Murray, D.K. Granner, P.A. Mayes and V.W. Rodwell, HARPER'S BIOCHEMISTRY, 22nd edn.(1990), Prentice-Hall, International, USA.
2. P.K. Stumpf, OUTLINES OF BIOCHEMISTRY, 4th edn. (1994), Wiley Eastern, New Delhi, (Chapters 7 & 8).
3. Nelson and Cox, LEHNINGER's PRINCIPLES OF BIOCHEMISTRY, (2000), Kalyani Publishers, Ludhiana/Worth Publishers, Inc., New York.
4. L. Stryer BIOCHEMISTRY 4th Ed. (1995) W.H. Freeman Co., San Francisco, USA
5. G.L. Zubay BIOCHEMISTRY 4th Ed. (1998) W.C. Brown Publishers, USA.
6. Voet, D and Voet, J.G, (2009) Biochemistry, John Wiley and Sons, N.Y. USA.
7. Garret, R.H. and Grisham, C.M. (2005) Biochemistry, 3rd Edition. Thomson Learning INC.
8. MS Swaminathan - Nutritional Biochemistry.
9. Davidson S and Pasmor J.R Nutrition and dietetics.
10. B. Sreelakshmi. Food science.

4hrs

Antigens:

3hrs.

Definition, types, chemical nature and antigenicity. Epitopes, paratopes and Haptens, Adjuvants.

Antibodies:

4hrs

Definition, types and structure of a typical immunoglobulin (IgG – Light chain, heavy chain, hyper variable region, constant domains, Fab and Fc). Polyclonal and monoclonal antibodies. Production and applications of monoclonal antibodies.

Antigen –antibody reaction in Vitro:

4hrs.

Formation of Antigen-Antibody complex. Agglutination and precipitation. Principle, procedure and applications of Immuno diffusion, RIA, ELISA.

Immunization:

2hrs.

Vaccination – vaccines and their preparations, Primary and secondary immune response.

Hypersensitivity: Immediate and Delayed hypersensitivity. Type I hypersensitivity reaction (Anaphylaxis).

2hrs

Immunological disorders:

2hrs.

Autoimmune disorder- systemic lupus erythomatus and rheumatoid arthritis.

Immunodeficiency diseases- AIDS .)

Reference text books:

- M. Pelczar, E.C.S. Chan and M.R. Krieg, MICROBIOLOGY, McGraw Hill Inc., Singapore (1997).
- Powar, Daginawala – Himalaya Publishing House. General Microbiology, Vol. I & II.
- Stanier, Adelberg, Ingraham – The Macmillan Press – London. General Microbiology.
- Nandini Shetty . Introduction to Immunology.
- Janis Kuby. – W. H. Freeman and Co. Immunology.
- I.M. Riott, J. Brostoff, D. Male "Immunology" 3rd edn. W.H. Freeman and Pub. Company, USA.
- J. Kuby "Immunology" 3rd edn., Mosby Year Book Co., England

1. Course Description: The course provides coverage of concept of corporate governance, ethics, Corporate Social Responsibility and corporate governance in India and reforming of BOD and different Committees

2. Course Objectives: This subject aims to:

- a) Enable the student to understand the concept of corporate governance;
- b) Help students to know about corporate ethics and cultural influences;
- c) Impart knowledge of corporate social responsibility and accountability; and
- d) Give information about the corporate governance reforming committee reports in India.

3. Pedagogy: The subject matter will be presented through lecture, class discussion, student presentation, Guest lectures and laboratory experiences.

4. Course Contents:

Module 1: Concept of Corporate Governance: Its importance, Principles of corporate governance, OECD Principles of corporate governance, Theories of corporate governance-Agency theory and stewardship theory, Models of corporate governance around the world, Need for good corporate governance, present scenario and case studies.

Module 2: Corporate Governance and Role of committees in India: Need and Importance of Committee Reports, Emergence of corporate governance, corporate governance committees-Cadbury Committee on corporate governance, 1992, Sarbanes-Oxley Act, 2002, Kumar Mangalam Birla Committee, 1999, Naresh Chandra Committee Report, 2002, Narayana Murthy committee Report, 2003, Dr. J. J. Irani Committee Report on Company Law, 2005, -case studies.

Module 3: Business Ethics: Concept and Importance, Nature and importance of Business ethics, Principles of Business ethics, Arguments for and against business ethics, benefits of Created with PDFBear.com 7 corporate ethics, techniques to improve ethical conduct of business, Ethics in functional areas of business-marketing, HRM, Accounting and auditing, Finance, etc, ethics and Science and technology, philosophy and culture-managing ethics and legal compliance case analysis.

Module 4: Corporate Social Responsibility: Corporate crimes-company and society relations, corporate social challenges-corporate accountability-business and ecology-case analysis

SC01: BUSINESS POLICY AND ENVIRONMENT

1. Course Description: This course provides the coverage of business as a social system, internal and external environment, business ethics, social responsibility and business policy.

. Course objectives: The objective of this course is to provide the student the knowledge about human resources, their significance and managing them in organisations.

3. Pedagogy: Teaching method comprises of lecture sessions and tutorials. Lecture sessions focus on providing conceptual understanding and analytical setting for select aspects of the course content.

4. Course Contents:

Module 1: Introduction: Business in a social system; Concept and Nature and significance of business environment, Need to study business environment, Elements of Business Environment- internal environment and external environment- Economic-political-sociocultural-technological environment; Environmental analysis - Techniques, Government Business Interface, Changing Dimensions of Indian Business – case studies.

Module 2: Business Ethics: Principles of Business Ethics; Doctrine of trusteeship; unethical practices; good ethics and good business. Social responsibility of business; Doctrine of social responsibility: Rationale of social responsibility; recent trends in Corporate Social Responsibility; Salient features of Competition Act.

Module 3: Business Policy: Importance of business policy-essentials of business policy classification or business policy-Production policy-personnel policy- Financial policy- Marketing Policy case studies.

Module 4: Globalization and WTO; Make in India policy- objectives and features; Financial inclusion policy; Business incubators- meaning definition; types; services of incubators; stages of Created with PDFBear.com 10 incubation; Sun-rise sectors of India Economy. Challenges of Indian economy. Recent trends-Anti globalization wave- Reasons; US protectionism policies; Brexit.

1. Course Description: This paper is to educate the present auditing practices, conceptual understanding, different terminologies, International Auditing practices, comparison with Indian Auditing practices. To know leading & Top Auditing Firms and its importance, to learn Auditing and Digitalisation, Indian Standards on Auditing (SA), major scams in India and its impact on economy of the Country.

2. Course Objectives: After completion of the course the students should capable with:

- a) To understand the conceptual ideology of auditing and its practices.
- b) To know the importance of auditing with different accounting practices.
- c) To compare the national auditing practices with international auditing principles.
- d) To have a detailed knowledge on Auditing Standards and its uses.
- e) To evaluate impact of auditing on the Indian & global economy and its contribution for the economic development.

3. Pedagogy: The course content is covered class room lecture, students' interaction/seminar, case discussion, major scams and work out the practical insight of auditing issues, challenges as an auditor and also visiting companies for practical exposure. Practical Works: Auditing, Standards, Practice Manuals, Leading and pending cases on auditing issues, on-line auditing methods, proper scrutiny and verification of accounting for best auditing practices.

4. Course Contents:

Module 1: Introduction - Objectives of Auditing, Different Types of Auditing, Auditor - Qualification, Qualities, Rights and Duties, Computerised Environment, Auditing and Digitalisation, Audit Programme, Internal Check and Internal Control. Government Accounting, Professional Accounting, Auditing Boards - GAAS, CAG, PCAOB.

Module 2: Auditing Standards and Audit Procedures Auditing Standards - Generally Accepted Auditing Standards, Introductory Matters SA 100-199, General Principles and Responsibilities SA 200-299, General Activities SA 1200, Auditor Communications SA 260, Quality Control for an Audit of Financial Statements, Statements SA 220 and Guidance Notes -Case studies. Audit Procedures - Audit Planning and Risk Assessment SA 300-499, Auditing Internal Control Over Financial Reporting, Audit Procedures in Response to Risks—Nature, Timing, and Extent, Auditor's Responsibilities Regarding Supplemental and Other Information, Concluding Audit Procedures, Post-Audit Matters. Case Studies.

Module-3: Audit Reports - Auditor Reporting SA 700-799, Reporting on Audits of Financial Statements, Other Reporting Topics, Matters Relating to Filings Under Federal Securities Laws, Other Matters Associated with Audits (SA 6101, SA 6105, SA 6110, SA 6115). Standards on Quality Control (SQC), Standards on Auditing (SAs), Audit Committee and Corporate Governance, Audit of Limited Companies Schedule III of Companies Act 2013, Created with PDFBear.com 12 Environmental Auditing, Audit Data Analytics, Case Studies - Leading & Top Auditing Firms -Case studies.

Module: 4: Audit Regulation and Laws - CAG Recommendations, Hierarchy of Audit regulations in India, Investigation, Forensic Audit, Peer and Quality Review, Auditing Software - Winman, SAP, Audit related Penalties, Imprisonment and Prosecution, Rethinking of Audit, International Auditing Practices, Comparison with Indian Auditing practices. Indian Standards on Auditing (SA), Major Scams in India and its Impact on Economy of the Country. Case Studies- Kingston Cotton Mill Company 1896, Satyam Scandal/Scam 2008 and 2G Spectrum Scam 2010.

HC02: CORPORATE GOVERNANCE AND BUSINESS ETHICS

1. Course Description: The course provides coverage of concept of corporate governance, ethics, Corporate Social Responsibility and corporate governance in India and reforming of BOD and different Committees

2. Course Objectives: This subject aims to:

- a) Enable the student to understand the concept of corporate governance;
- b) Help students to know about corporate ethics and cultural influences;
- c) Impart knowledge of corporate social responsibility and accountability; and
- d) Give information about the corporate governance reforming committee reports in India.

3. Pedagogy: The subject matter will be presented through lecture, class discussion, student presentation, Guest lectures and laboratory experiences.

4. Course Contents:

Module 1: Concept of Corporate Governance: Its importance, Principles of corporate governance, OECD Principles of corporate governance, Theories of corporate governance-Agency theory and stewardship theory, Models of corporate governance around the world, Need for good corporate governance, present scenario and case studies.

Module 2: Corporate Governance and Role of committees in India: Need and Importance of Committee Reports, Emergence of corporate governance, corporate governance committees-Cadbury Committee on corporate governance, 1992, Sarbanes-Oxley Act, 2002, Kumar Mangalam Birla Committee, 1999, Naresh Chandra Committee Report, 2002, Narayana Murthy committee Report, 2003, Dr. J. J. Irani Committee Report on Company Law, 2005, -case studies.

Module 3: Business Ethics: Concept and Importance, Nature and importance of Business ethics, Principles of Business ethics, Arguments for and against business ethics, benefits of Created with PDFBear.com 7 corporate ethics, techniques to improve ethical conduct of business, Ethics in functional areas of business-marketing, HRM, Accounting and auditing, Finance, etc, ethics and Science and technology, philosophy and culture-managing ethics and legal compliance case analysis.

Module 4: Corporate Social Responsibility: Corporate crimes-company and society relations, corporate social challenges-corporate accountability-business and ecology-case analysis

HC07: ORGANISATIONAL BEHAVIOUR

1. Course Description: This course provides the coverage of scope of OB, different contributing discipline to OB, foundational of individual behavior, motivational theories and foundations of group behaviour.

2. Course Objectives: The objective of this course is to provide the student the knowledge about organisations, their constitution and the behaviour of people in organisations.

3. Pedagogy: Teaching method comprises of lecture sessions and tutorials. Lecture sessions focus on providing conceptual understanding and analytical setting for select aspects of the course content.

4. Course Contents

Module1: Introduction: Meaning-Definitions and scope of organisational behaviour – Fundamental Concepts of OB – Key elements of OB: people-Organisational structure-technology and environment - Contributing Disciplines to OB-Psychology-Sociology-social psychologyAnthropology- Political science-OB and Management-Comparative roles in organisationFormal and Informal organisation - Case studies.

Module 2: Foundations of Individual Behaviour: Personal factors, Psychological factors, Organisational factors, Environmental factors - Personality - Personality determinantsTheories of Personality - Perception-meaning and definition, factors influencing perception; Attitudes, formation of attitudes, changing attitudes, attitudes and Job satisfaction; Values, Importance of Values-Sources of Values -Case studies.

Module 3: Motivation: The concept of Motivation-Early Theories of Motivation-Hierarchy of Needs theory-theory X and Theory Y-Hygiene theory-contemporary theories of motivation-ERG Theory-three needs theory-cognitive evaluation theory and others; Work stress, sources of stress, stress Management – Case studies.

Module 4: Foundations of group behaviour: Defining and classifying groups-group process-group tasks-cohesive groups-group dynamics-Leadership-nature and importance-functions styles-Communication: Nature and Types-Effective communication-Roles of Formal and Informal communication-Conflict management-The process of conflict-Types of conflict -Functional and Dysfunctional conflict-Resolution of conflict-Case studies.



SARADA VILAS COLLEGE



10th DECEMBER - 2021

INTERNATIONAL ANIMAL RIGHTS DAY

"VOICE OF ANIMALS"

AN INTERACTIVE SESSION WITH PFA MYSURU

TIME 11:30AM - 1PM

VENUE AV Hall

GUESTS

ASHIKA APPAIAH
SOCIAL MEDIA & PUBLIC
RELATION MANAGER
PFA

SAVITA NAGABHUSHAN
HONORARY MANAGING TRUSTEE
PEOPLE FOR ANIMAL, MYSORE

KOKILA JAIN
BIOLOGIST AND SPARROW
CONSERVATOR

PATRONS

Dr. SUBRAYA B M
PRESIDENT, SVEI

Sri. N CHANDRASHEKHAR
Hon. SECRETARY, SVEI

Dr. DEVIKA M
PRINCIPAL, SVC

ORGANISORS:

GOWRI A HOYSALA
ASSISTANT PROFESSOR

SHAKUNTALA
ASSISTANT PROFESSOR &
HEAD OF THE DEPARTMENT ZOOLOGY

JYOTHSNA V MADHU



SARADA VILAS COLLEGE
DEPARTMENT OF ZOOLOGY
MYSURU

09.12.2021

An interactive session with People for Animals, Mysuru is arranged on 10/12/2021 on the occasion of International Animal Rights day.


We cordially invite you to attend this Interactive session.

Thanking you,

Venue: AV HALL

Date: 10.12.2021

Time: 11.30 PM


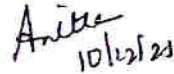

HOD of Zoology

Head of the Dept. of Zoology
SARADA VILAS COLLEGE
MYSURU


Principal

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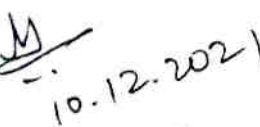
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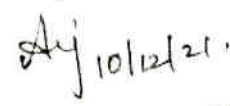
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SARADA VILAS COLLEGE
DEPARTMENT OF ZOOLOGY
MYSURU

09.12.2021

An interactive session with People for Animals Mysuru is arranged on the occasion of International Animal Rights day.

All the third semester and fifth semester students are informed to attend this interactive session.

Venue: AV HALL

Date: 10.12.2021

Time: 11.30 PM



HOD of Zoology

Head of the Dept. of Zoology
SARADA VILAS COLLEGE
MYSURU



Principal

Principal
SARADA VILAS COLLEGE
MYSURU

SARADA VILAS COLLEGE, MYSURU
DEPARTMENT OF ZOOLOGY

Organizing an Interactive session with People for animals, Mysuru

On 10/12/2021

"International animal rights day"

TABLE OF AGENDA

Date- 10/12/2021

Time : 11.30 am

Venue – AV Hall

Welcome Speech and Guest Introduction	–	Mrs. Shakunthala Assistant Professor & Head Department of ZOOLOGY
Inagural Speech	–	Dr. M. Devika Principal Sarada Vilas College Mysuru
Resource Person	–	Mrs. Savitha Nagabhushan Honorary Managing Trustee People For Animals Mysuru Ashika Appaiah Social media and Public relation manager Kokila Jain Biologist and Sparrow Conservator
Vote of Thank	-	Ms. Jyothsna V Madhu Assistant Professor Department of ZOOLOGY

Moderator :
Mrs Shakunthala
Assistant Professor & Head
Department of Zoology

Host :
Gowri A Hoysala
Assistant Professor
Department of Zoology

SARADA VILAS COLLEGE, MYSURU

PLATINUM JUBILEE LECTURE SERIES

DEPARTMENT OF ZOOLOGY
ORGANIZED

"VOICE OF ANIMALS"

AN INTERACTIVE SESSION WITH PFA, MYSURU

INTERNATIONAL ANIMAL RIGHTS DAY CELEBRATION

Report

Date: 10/01/2022

Venue: AV Hall

On the occasion of "International Animal Rights day" on 10th December 2021, the Department of Zoology, Sarada Vilas College, Krishnamurthy Puram, Mysore conducted "Voice of animals" an interactive session with 'People for Animals', Mysore with regard to inculcate awareness among the students about the untold rights of animals.

The session started at 12:00 PM on 10/12/2021, started with the instructions to the participants. Mrs. Shakunthala, Assistant Professor and Head, Department of Zoology welcomed the gathering and introduced the guests and Dr.M.Devika, Principal, Sarada Vilas College presented the Inaugural speech. The scientific session was moderated by Ms. Gowri. A. Hoysala, Assistant Professor, Department of Zoology.

The resource persons are Mrs. Savitha Nagabhushan, The Honorary Managing Trustee, PFA, Mrs. Kokila Jain, A Biologist and Sparrow Conservator and Ms. Ashika Appaiah, Social media and Public relation manager, PFA

Mrs. Savitha Nagabhushan has served as honorary managing committee member at CUPA & as a trustee at Wildlife Rescue Center in Bangalore. She also photographed captive elephants in Assam, Andaman's, Bihar, Karnataka and especially in Kerala. Mysore City Corporation was still poisoning the street dogs till 2010, but in the year 2010 reaching out to Animals got the contract for sterilization of the dogs. She has worked for stray animals for more than twenty years. She also photographed electrocution. After her photos reached Maneka Gandhi (Member of Lok Sabha), the killing of dogs was stopped in Bangalore.

Ms. Ashika Appaiah is a gold medalist from University of Mysore. She started her carrier as content writer and slowly upgraded her skills to a graphic designer, Movie Director, Photographer, Videographer and editor she also manages the social media and Public Relations of PFA Mysore.

She elaborated the structure and functioning of People for animals and exposed the inside world of PFA beautifully through her presentation. The idea of pet adoption was conveyed to the students.

Mrs. Kokila Jain is a Biologist and Sparrow Conservationist and working for the environment too by making seed balls and saplings which are being distributed. She is a science graduate and strongly believes in the philosophy of Live and Let Live. She shared her concern and conservative activities on diminishing Sparrow of India.

Mrs. Savitha Nagabhushan, The Honorary Managing Trustee, PFA clarified various queries raised by the students. The program was concluded with vote of thanks by Ms. Jyothsna. Madhu, Assistant Professor, Department of Zoology, Sarada Vilas College. The Session was very informative and well appreciated by the participants.

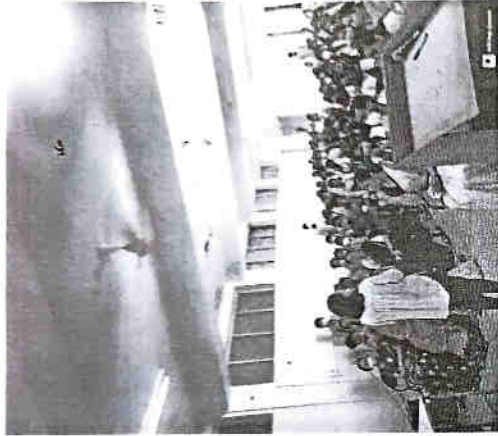
Thanking you.



Head of the Dept. of Zoology
Sarada Vilas College
Mysore
Smf. Shakunthala
Assistant professor and Head
Department of Zoology
Sarada Vilas College, Mysuru



Dr. M. Devika
Principal
Sarada Vilas College, Mysuru



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"INTERNATIONAL ANIMAL RIGHTS DAY 2021"

INTERACTIVE SESSION WITH PFA MYSURE

"VOICE OF ANIMALS"

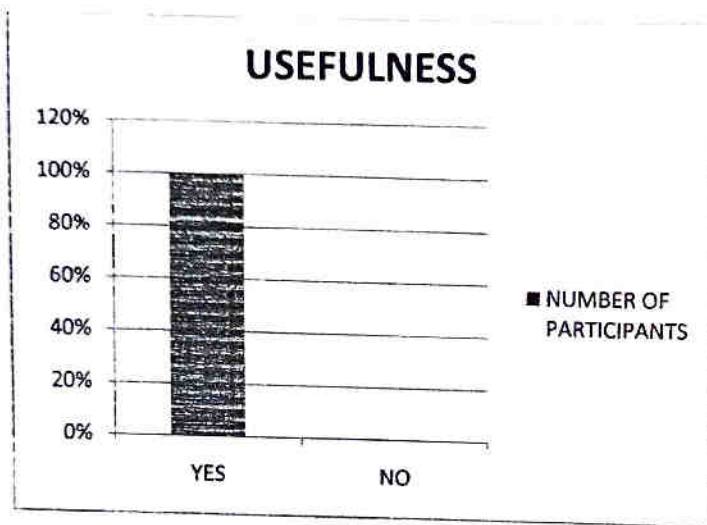
FEEDBACK ANALYSIS OF THE 52 PARTICIPANTS

WAS THE
YES: 98.0
NO: 2.0

1. WAS THE INTERACTIVE SESSION USEFUL?

YES: 100%

NO: 0%

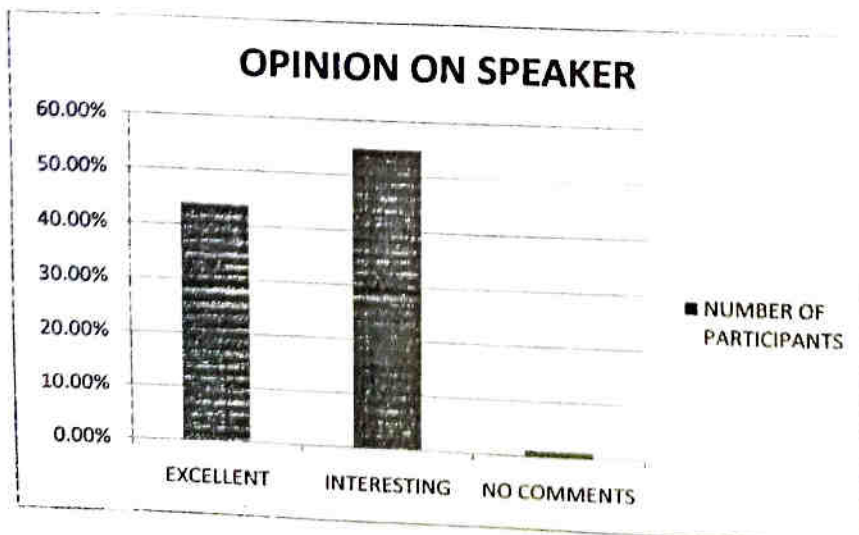


2. OPINION ON THE RESOURCE PERSON/SPEAKER

EXCELLENT: 44%

INTERESTING: 55%

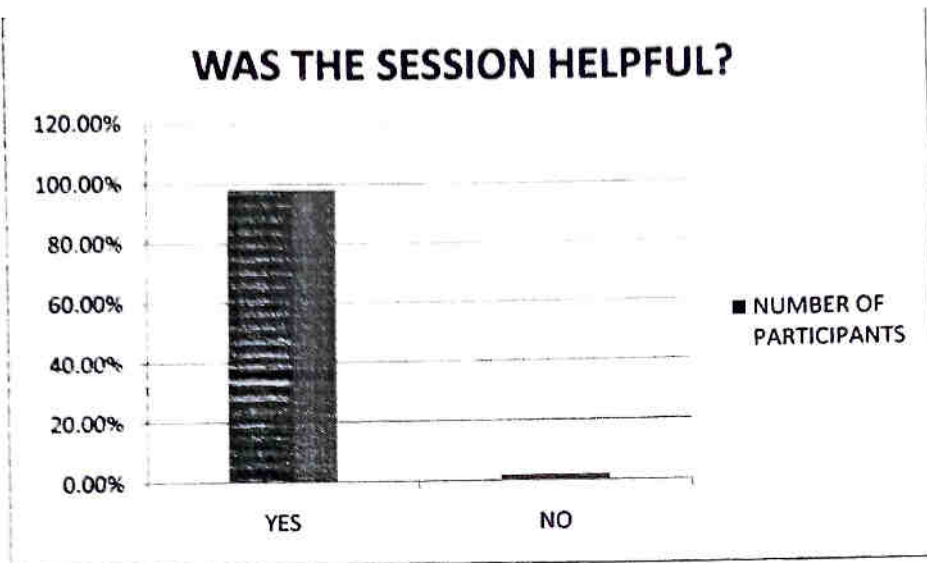
NO COMMENTS: 1%



3. WAS THE TOPIC CHOSEN FOR THE SESSION HELPFUL?

YES: 98.08%

NO: 1.92%

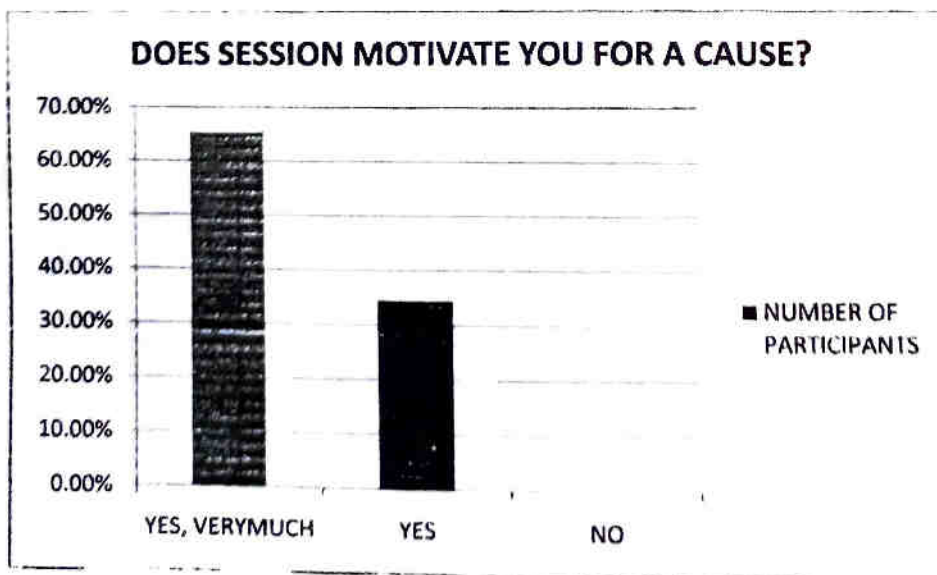


4. DOES THE SESSION HELP YOU STAY MOTIVATED ABOUT THE PRESENT CRISIS?

YES, VERY MUCH: 65.38%

YES: 34.61%

NO: 0%





SARADA VILAS COLLEGE
DEPARTMENT OF ZOOLOGY
Krishnamurthypuram, Mysore – 570 004



Date: 1/6/2022

The department meeting was held on 01/6/2022 at 10:30 am in the Zoology lab regarding the world environment day 2022 celebration in the college.


Agenda of the meeting is as follows

1. To list events to be conducted
2. Clubbing innovative ideas
3. Budget planning
4. Short listing resource person

Proceedings of the meeting


1. We planned to organize a weeklong event regarding the 2022 theme "one earth only"
2. On the first day of the event we planned to adopt an animal from zoo
3. A special lecture from an environmental scientist was planned to be organized.
4. Making arrangements to inaugurate vermicomposting unit on one of the days
5. Completion of the ground work in the composting unit beforehand
6. Organizing a nest installation camp in the college premises in order to conserve the sparrows


The meeting was concluded by Smt. Shakunthala after summarizing the targets while forming teams to organize each event seamlessly.


Shakunthala
Head of the Dept. of Zoology
Sarada Vilas College
MYSORE

Attendees:

1. Shakunthala
2. Gowri A Hoysala


1/6/22


Professor
Sarada Vilas College
Mysore

SARADA VILAS COLLEGE, MYSURU

DEPARTMENT OF ZOOLOGY

WORLD ENVIRONMENT DAY 2022

"ONLY ONE EARTH"

SPECIAL LECTURE REPORT

The department of Zoology organised a week-long programme regarding the celebration of "World Environment Day- 2022" having the theme "Only One Earth" from the 4th of June to 8th of June 2022.

To create awareness among the students and employees of the college about the need of conservation and protection of wild life, the Department of Zoology adopted an "Indian cobra" from Jayachamarajendra Zoological Garden, Mysuru. Students with faculties visited the Zoological Garden on 4th June noon at 2:30 pm and enjoyed visiting the adopted animal in the premises.

On 6th June 11:30am, a special lecture with interactive session was organised by the department. **Former scientist, Mr. Yogendra B S, In charge Education Section, RMNH, Mysuru.,** was the chief speaker. Mr. Yogendra spoke about the need of conservation of the **only planet** we currently have to support life. He expressed that the use of plastic is efficient whereas the use of "single use plastic" has to be minimal. Interaction was made about the **4R's** that one needs to follow in there day to day life with regard to the use of resource. By the end of the session, all the students pledged to not go for the use of single use plastics and would refuse spontaneously.

Sarada Vilas Educational institution is fortunate to have a wide campus with a vivid flora distribution. Keeping in mind, the reducing number of sparrows due to habitat loss, the department of Zoology made a small survey to list down the number of buildings possessing baked clay tiles as the roofing materials.

Beautifully tailored earthen nets with a coat of coir over it were bought and installed in such sparrow friendly places of the institution on 6th June 2022. The presence of dignitaries of the institution, Dr. M Devika, Principal Sarada Vilas College, Dr. Hanumanthachar joshi, Principal, College of Pharmacy, and other sister institution heads graced the function.

Under the sector of green waste management of college, the department also inaugurated the "**Vermi-composting**" unit setup located in the playground area of the institution under the guidance of *pragathi para krishika*, Mr. Rohit R and Mrs. Rekha Rohit. Students actively participated in the activities; they learnt the sustainable way of recycling the available resources by composting. In-house green waste was gathered, stacked and regularly watered by the students. Earthworms were later introduced into the compost units.

The efforts & dedication of Zoology students as well as faculties., Mrs. Shakunthala (Assistant Professor & Head) and Ms. Gowri A Hoysala (Assistant Professor) was appreciated by the principal and the management of the institution.

The encouragement and appreciation shown by the Principal Dr. M Devika has always been the driving force for all the departmental activities for which the department members feel thankful and grateful.

Head Of The Department



Head of the Dept. of Zoology,
Sarada Vilas College
MYSORE



Principal,

Sarada Vilas College
MYSORE

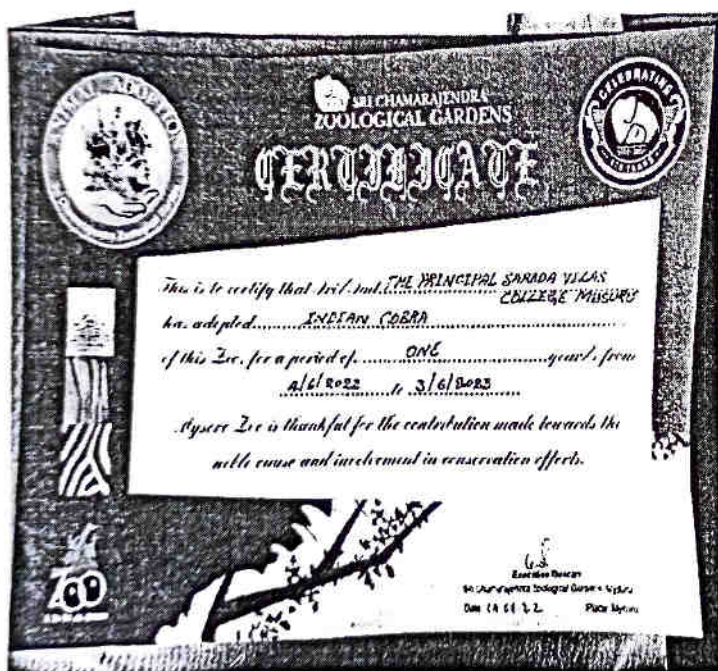
WORLD ENVIRONMENT DAY 2022

AS A PART OF CONSERVATION OF BIODIVERSITY

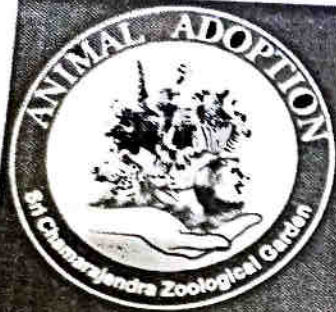
"ANIMAL ADOPTION"

Date- 4th June 2022

VENUE: JAYACHAMARAJENDRA ZOOLOGICAL GARDEN MYSURU



To create awareness among the students and employees of the college about the need of conservation and protection of wild life, the Department of Zoology adopted "Indian cobra" from Jayachamarajendra Zoological Garden, Mysuru. Students with faculties visited the Zoological Garden to enjoy the flora and fauna of the vast environment.



 SRI CHAMARAJENDRA
ZOOLOGICAL GARDENS




CERTIFICATE

This is to certify that Sri/Smt. THE PRINCIPAL SARADA VELAS
has adopted..... INDIAN COBRA COLLEGE MYSURU
of this Zoo, for a period of..... ONE year/s from
..... 4/6/2022 to 3/6/2023

Mysore Zoo is thankful for the contribution made towards the
noble cause and involvement in conservation efforts.


A Zoo For All Seasons


Executive Director,
Sri Chamarajendra Zoological Gardens, Mysuru
Date: 14/06/2022

Executive Director

SRI CHAMARAJENDRA ZOOLOGICAL GARDENS
MYSORE 570 010, KARNATAKA



Phone : 0821-2520302, 2440752
Mobile : 96866 68866
Website : www.mysuruzoo.info
E-mail : zoomysore@gmail.com

No.MZA/CR/ADOP/2022-23 / 278

Date: 8/6/2022

To,
The Principal
Sarada Vilas College
Mysuru-570004
Ph 9986064343
shakunthalanayak11@gmail.com

Dear Sir/ Madam,

Sub: Adoption of animal under Animal Adoption Scheme of Mysuru Zoo- Reg.


☆☆☆☆☆☆

We are highly thankful to you on behalf of Mysuru Zoo for adopting the "Indian Cobra" for a period of one year from 4/6/2022 to 3/6/2023 by making payment of Rs.3,000/- (Rupees Three Thousand only). We promise you that, the money donated would be used in the most transparent manner for the noble cause of environmental conservation with emphasis to display the fauna and flora in most naturalistic condition.

We also welcome your suggestions or any ideas that would further strengthen the cause of environmental protection. Your concern about the zoo animals is very much appreciated. The complimentary adoption certificate is enclosed herewith.

Thanking you once again and requesting your continued patronage and contribution towards this noble scheme, which inspires others.

Yours faithfully,


Executive Director,
Sri Chamarajendra Zoological
Gardens, Mysuru

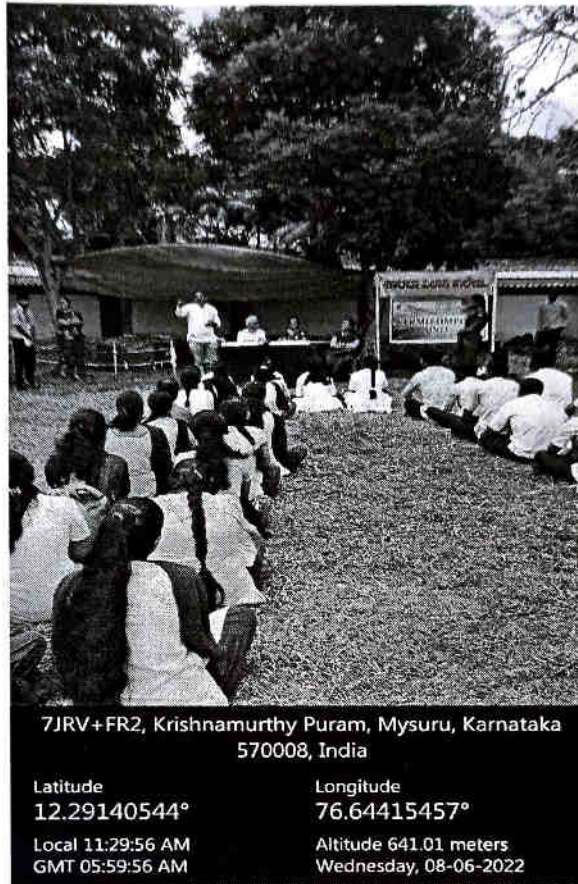
Encl: Adoption Certificate + Receipt.

Sarada Vilas College
Krishnamurthypuram, Mysuru



Distribution of **Bird Nest** to sister concern institution to initiate saving of birds on the occasion of Environmental Day – 2022

Sarada Vilas College
Krishnamurthypuram, Mysuru



**“Vermi – Composting” inauguration on the occasion of
Environmental Day – 2022**

STAR OF MYSORE

"We believe comment is free, but facts are sacred."

Editor: M. GOVINDE GOWDA, M.A.

Mysuru, Wednesday 28th July 2021

City College donates to CM's COVID-19 Relief Fund



The employees of Sarada Vilas Educational Institutions, expressing solidarity with the people to fight COVID-19 as well as to reach out and support to the best of their ability, have donated Rs. 85,000 to the Chief Minister's COVID-19 Relief Fund. Heads of the Sarada Vilas Educational Institutions, under the guidance of Hon. President Dr. B.M. Subraya and Hon. Secretary N. Chandrashekar, presented the cheque to Deputy Commissioner Dr. Bagadi Gautham in city recently. Seen in the picture are (from left) Dr. Bagadi Gautham, Dr. M. Devika, Principal, SVC, Udaykumar, Principal, SVLC, Ashok Kumar, Principal, SVPUC and Venkataramana Bhat, SVGHS.



Government Of Karnataka

HUMAN RESOURCE MANAGEMENT SYSTEM (HRMS)

Consolidated Pay Bill For The Month Of September 2018

Department : EC-DEPARTMENT OF COLLEIGEATE EDUCATION

Establishment No/Name: 15-15 / Regional Joint Director Of Collegiate Education Mysuru

DDO Code : 0900EC0001		Head Of Account : 2202-03-104-1-01		FINAL PAY BILL TO BE PRESENTED TO TREASURY 00	
Earnings	Amount	Deductions	Name	Amount	
Basic Salary (For Group A & B):	473470	General Provident Fund(GPF)			
Basic Salary (For Group C & D):	99400	Karnataka Govt Insurance Department (KGID)			
FA/Advpay		Income Tax(IT)		265300	
Allowances		Professional Tax(PT)		3000	
Dearness Allowance (DA)	828066	State Govt., Employees Contribution towards Flood Relief (Kodagu and other districts) (SGECKRF)		53785	
House Rent Allowance (HRA)	130174	GSLIC(GSLIC)		1100	
City Compensatory Allowance(CCA)	4200	Life Insurance Corporation(LIC)		24461	
Grade Pay(GRADE-PAY)	78000	FBF(FBF)		150	
Small Family Norms (SFN)	300	Recoveries			
		Description	Premium	Interest	Total
Total Earnings					1613610
Total Deductions					347796
Net Pay					1265814
AMOUNT Rs. Twelve Lakh Sixty Five Thousand Eight Hundred And Fourteen Rupees Only					

Principal
Sunada Vilas College
Mysore-570 004

55

Token No: 0302100200

Head Of Account: 2202-03-104-1-01

FINAL PAY BILL TO BE PRESENTED TO TREASURY
2-03-104-1-01

SNO		Employee Name	Employee No	Basic Pay	Allowances	Gross Salary	Deductions	Recoveries	Total Deductions	Net Salary
GRAND TOTAL						1,613,610			347,796	1,265,814
Earnings				Amount				Amount		
Basic Salary (For Group A & B) :				473,470						
Basic Salary (For Group C & D) :				99,400						
Fas/Adhpay										
Allowances										
Dearness Allowance(DA)				828,066						
House Rent Allowance(HRA)				130,174						
City Compensatory Allowance(CCA)				4,200						
Grade Pay(GRADE-PAY)				78,000						
Small Family Norms(SFN)				300						
Deductions										
General Provident Fund(GPF)										
Karnataka Govt Insurance Department(KGID)										
Income Tax(IT)										
Professional Tax(PT)								265,300		
State Govt., Employees Contribution towards Fk								3,000		
GSLIC(GSLIC)								53,785		
Life Insurance Corporation(LIC)								1,100		
FBF(FBF)								24,481		
								150		
Recoveries										
								Premium	Interest	Total
Total Earnings				1,613,610						
Total Deductions				347,796						
Net Pay				1,265,814						
Net Pay in Words				TWELVE LAKH SIXTY-FIVE THOUSAND EIGHT HUNDRED FOURTEEN ONLY						

पुणे / PAY-CH SLIP

पुणे / पुरावा / CASH/TRAN



भारतीय स्टेट बैंक STATE BANK OF INDIA

K M Puran Branch

दिनांक / Date 07-11-18

आणि या प्रमाणे बँकेतून पैसे देण्यात येणारे असल्याचे नोंद घ्यावे

TYPE OF ACCOUNT SB / CA / RD / CC / TL / DL

खाते क्रमांक / Account No

37887098605-

हे पैसे या खातेवर देण्यात येणारे / For the credit of the bank account of

रक्कम (रुपये) Amount in words Rupees

53,785/-

पैसे देण्याचे कागदपत्र / Details of Cash/Cheque	रक्कम / Amount ₹
Cheque NO. 041828	53,785/-
Date 7-11-2018	
योग रक्कम / Total	53,785/-

Code 1110000 State Bank of India

पुणे / SWO

पैसे देणारा अधिकारी / पैसे देणाऱ्याचे अधिकारी / Cash Officer / Passing Officer

Contributions received
 Chief Minister Relief Fund - Rs 53,785/-
 Contribution
 57

Establishment No/Name:15/SARADA VILAS COLLEGE MYSORE

DDO Code: 0900EC0001

Token No: 0301126303

FINAL PAY BILL TO BE PRESENTED TO TREASURY

Head Of Account: 2202-03-104-1-01

SNO	Employee Name	Employee No	Basic Pay	Allowances	Gross Salary	Deductions	Recoveries	Total Deductions	Net Salary
GRAND TOTAL					1,508,435			270,692	1,237,743
Earnings			Amount			Deductions	Amount		
Basic Salary (For Group A & B) :			400,010			General Provident Fund(GPF)	0		
Basic Salary (For Group C & D) :			164,800			Karnataka Govt Insurance Department(KGID)	0		
Fa/Adhpay						Income Tax(IT)	189,000		
						Professional Tax(PT)	3,000		
						State Govt. Employees Contribution towards Fik	50,280		
Allowances						GSLIC(GSLIC)	900		
Dearness Allowance(DA)			744,970			Life Insurance Corporation(LIC)	27,362		
House Rent Allowance(HRA)			121,530			FBF(FBF)	150		
City Compensatory Allowance(CCA)			4,950						
Grade Pay(GRADE-PAY)			72,000						
Small Family Norms(SFN)			175						
						Recoveries	Premium	Interest	Total
Total Earnings			1,508,435						
Total Deductions									
Net Pay									
Net Pay In Words									

TWELVE LAKH THIRTY-SEVEN THOUSAND SEVEN HUNDRED FORTY-THREE ONLY

पेमेंट / PAY-IN SLIP

कैश / कैश / CASH TRANS



भारतीय स्टेट बैंक STATE BANK OF INDIA

K m parser शाखा / Branch

दिनांक / Date 22/01/2020

क्रेडिट का प्रकार : बैंक खाते/काश खाते/संचालित खाते/संचालित खाते/संचालित खाते

TYPE OF ACCOUNT : SB / CA / RD / CC / TL / DL

खाता नंबर / Account No.

37887098605-

बैंक खाते में क्रेडिट के लिए / For the credit of the bank account of (क्रेडिट)

₹ 20,000.00 (Twenty thousand only)

रकम (शब्दों में) Amount in words Rupees (शब्दों में)

20,000.00 (Twenty thousand only)

कैश/चेक का विवरण / Details of Cash/Cheque	रकम / Amount ₹
Cheque No 000075	₹
22/01/2020	
योग रुपये / Total	₹ 20,000.00



प्रमुख अधिकारी / BWO

कैश अधिकारी / पासिंग अधिकारी / Cash Officer / Passing Officer



Sarada Vilas Educational Institutions (R.)

Sarada Vilas College

Krishnamurthypuram, Mysuru - 570 004



Cordially invites you to the celebration of

International Biodiversity Day

23-05-2022 Monday

"Building a shared future for all life"

Chief Guest

Prof. Dr. Deviprasad

Retd. Professor DoS in Environmental Science
University of Mysuru

Sepecial Invitees

Dr. B. M. Subraya

President

Sarada Vilas Educational Institutions, Mysuru

Sri. N. Chandrashekar

Hon. Secretary

Sarada Vilas Educational Institutions, Mysuru

Presided by

Dr. Devika M.

Principal

Sarada Vilas College, Mysuru

23-05-2022 Monday

Time : 11-00 a.m.

Venue : A. V. Hall , SVC, Mysuru

All are invited

Management, Staff & Students



Phone No: 0821-2332479, Fax:0821-2330221

E- mail: principal@saradavilas.com

Website: www.saradavilas.com

SARADA VILAS COLLEGE
Krishnamurthy puram, Mysore - 570 004 Karnataka
Affiliated to University of Mysore
Re accredited by NAAC with B+ grade (CGPA: 2.70)



Dr. Devika M, M.Sc., M. Phil., Ph. D
Principal
Mob: 9880024483

Date:18.05.2022

Notice

Department of Botany is organizing a Science lecture competition as a part of the celebration of 'World Biodiversity Day' on 21-05-2022. All the students are hereby informed to register their names with the Department of Botany on or before 20-05-2022.

Theme: "Innovative Ideas for Conservation of Energy"

Date:21-5-2022

Venue: ~~A.V. Hall~~


Dr. M. Devika
M.Sc., M.Phil., Ph.D.
Principal
Sarada Vilas College,
Krishnamurthypuram, Mysuru.

SARADA VILAS COLLEGE, Mysuru

BIODIVERSITY WEEK-2022

SCIENCE LECTURE COMPETITION

Topic: "Innovative Ideas for Conservation of Energy".

Date: 21.05.2022

NAME OF THE JUDGE: Suganthi S. Singh

Sl.No	Name of the Participant	Marks
1.	Suman . K. (PPT) <u>VI</u> Sem BMBT	$6 + 9 = 15$
2.	Ananya a.N.Rao (PPT) <u>VI</u> Sem BMBT	$5.5 + 7.5 = 13$
1 st 3.	Sevanthi Mayurvi.A (PPT) <u>IV</u> Sem CBZ	$8.5 + 9.5 = 18$ 1 st place
4.	Gayathri Ajith.B (PPT) <u>IV</u> Sem CBZ	$6 + 8.5 = 14.5$
5.	Abhinav <u>IV</u> Sem PCM	—
2 nd 6.	Pruthvi.A. <u>VI</u> Sem BMBT	$7 + 9 = 16$ 2 nd place
3 rd 7.	Vinod <u>VI</u> Sem CBZ Kumar . H.S.	$7.5 + 8 = 15.5$ 3 rd place
8.	Marikanta.B <u>IV</u> Sem CBZ	$7.7 + 7.5 = 15.2$
9.	Tejas Gowda <u>IV</u> Sem CBZ	$5 + 6 = 11$

List of winners

- 1) Sevanthi Mayurvi . A
- 2) Pruthi . A
- 3) Vinod Kumar , H.S.

1st place
2nd place
3rd place

Suganthi S. Singh
Signature of the Judge

SARADA VILAS COLLEGE, Mysuru

BIODIVERSITY WEEK-2022

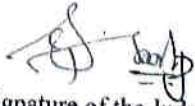
SCIENCE LECTURE COMPETITION

Topic: "Innovative Ideas for Conservation of Energy".

Date: 21.05.2022

NAME OF THE JUDGE:

Sl.No	Name of the Participant	Marks
1.	Samant. K (VI Sem) (PPT)	A ⁺ - 9
2.	Ananya N Rao (VI Sem) (PPT)	B - 7.5
3.	Seranthi Mayuri (IV Sem) (PPT)	A ⁺⁺ - 9.5
4.	Gayatri Ajit (IV Sem) (PPT)	B ⁺⁺ - 8.5
5.	Abhishek (IV Sem)	
6.	Pratish (VI th Sem)	A ⁺ - 9
7.	Vinod (IV th Sem) Kumar	B ⁺⁺ - 8
8.	Manikanta (IV Sem)	B ⁺ - 7.5
9.	Tujas Gowda. (V th Sem)	B - 6


Signature of the Judge

SARADA VILAS COLLEGE, MYSURU

Krishnamurthypuram, Mysuru- 570004

INTERNATIONAL BIODIVERSITY DAY-2022

Programme List

Time: 11.00 am

Date: 23.05.2022

Venue: Zoology Lab

Welcome note:

Keerthisree.U.

II year CBZ student

Guest Introduction:

Amruth Sagar K S

III year CBZ student

Oath-taking program:

Prof. Dr. Deviprasad

Retd. Professor

DoS in Environmental studies, UoM

Chief Guest:

Prof. Dr. Deviprasad

Retd. Professor

DoS in Environmental studies, UoM

Principal Address:

Dr. M. Devika

Principal, SVC

Prize distribution:

Prof. Dr. Deviprasad

Retd. Professor



DoS in Environmental studies, UoM

Vote of Thanks:

Tejas Gowda B

III year CBZ student

REPORT ON CELEBRATION OF INTERNATIONAL BIODIVERSITY DAY

BIODIVERSITY DAY 22 MAY

#BiodiversityDay

Sarada Vilas Educational Institution (R)
SARADA VILAS COLLEGE
(Affiliated to University of Mysore and Re-accredited by NAAC by B+ Grade CGPA 2.70)
Sarada Vilas Road, Krishnamurthypuram, Mysuru-570004

Department of Botany
Invites you for the celebration of
BIODIVERSITY WEEK-2022
"BUILDING A SHARED FUTURE FOR ALL LIFE"
On 20th, 21st and 23rd of May 2022

20 th MAY CAMPUS CLEAN UP & PLANTING SAPLINGS	21 st MAY POSTING ARTICLES ON THE WALL MAGAZINE LECTURE COMPETITION FOR STUDENTS	23 rd MAY INVITED TALK DISTRIBUTION OF SAPLINGS
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Venue: Sarada Vilas College, Mysuru

Patrons

Dr. B. M. Subbraya President SVC, Mysuru	Sri. N. Chandrashekar Hon. Secretary SVC, Mysuru	Dr. M. Devika Principal SVC, Mysuru
--	--	---



Sarada Vilas College is the most sought educational institution in the city of Mysuru, which not only has academic excellence but also involves itself in various other activities which fulfil social and environmental objectives, such as the celebration of important National and International days, conducting workshops, seminars, invited talks, organizing processions, awareness programmes, relating to social and environmental issues, which evokes the social responsibilities, among the students.

One such activities was the celebration of 'International Biodiversity Day' organized by the Department of Botany.

Conservation of biodiversity is vital for maintaining the earth's environment and sustaining life on the planet. There are number of ways in which the richness of biodiversity helps in maintaining the ecological systems. Conservation of biodiversity is important for the survival of living beings on earth. Hence a lot of emphasis is being given on the conservation of biodiversity.

With this objective, every year UNO celebrates, International Biodiversity Day on 22nd May, to create awareness among its nations regarding the Conservation of Biodiversity. Every year the day is celebrated with the theme, this year theme was 'BUILDING A SHARED FUTURE FOR ALL LIFE'.

With respect to the theme of International Biodiversity Day' series of events were organized by the department which portrays the necessity of conserving the biodiversity. The programme was scheduled for three days of 20th, 21st, and 23rd of May 2022 with various environmental related activities by the students.

Sarada Vilas Educational Institutions (R.)
Sarada Vilas College
Krishnamurthypuram, Mysuru - 570 004

Cordially invites you to the celebration of

International Biodiversity Day
23-05-2022 Monday
"Building a shared future for all life"

Chief Guest
Prof. Dr. Deviprasad
Retd. Professor CoS in Environmental Science
University of Mysuru

Special Invitees
Dr. B. M. Subbraya
President
Sarada Vilas Educational Institutions, Mysuru

Sri. N. Chandrashekar
Hon. Secretary
Sarada Vilas Educational Institutions, Mysuru

Presided by
Dr. Devika M.
Principal
Sarada Vilas College, Mysuru

23-05-2022 Monday Time: 11-00 a.m.
Venue: A. V. Hall, SVC, Mysuru

All are invited
Management, Staff & Students

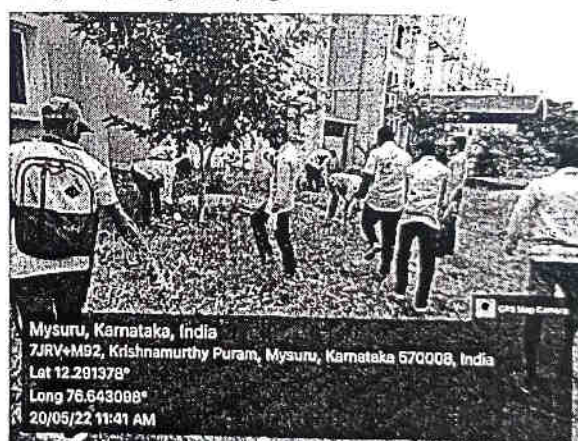
On 20th May 2022, the celebration of biodiversity day commenced with Cleaning up of Campus by the students in association with NCC and NSS. The celebration continued with the planting of saplings in and around the campus as part of green initiative with the solicit presence of our Hon'ble Secretary of SVEI. It was also witnessed by Dr. M. Devika, Principal, Sarada Vilas College and Head of the Department Botany and Capt. R.A. Manjunath, NCC officer and Head of the Department Microbiology and Biotechnology.

It was followed by a science lecture competition on the 21st of May 2022, with the theme-innovative ideas for the conservation of energy. Students belonging to various streams of the college participated enthusiastically in lecture competition presenting their own ideas on the conservation of energy. The lecture competition was evaluated by Smt. Suganthi S Singh, Head of the Department, Physics and Sri. Shivashankar, Asst. Professor in Environmental Studies.

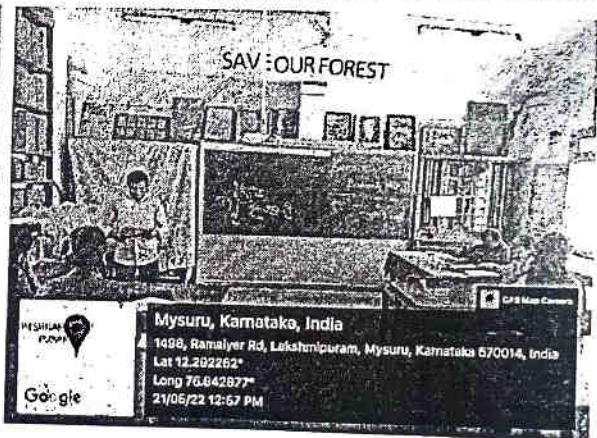
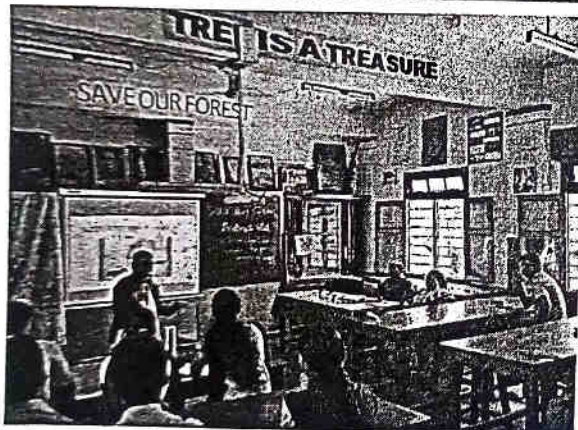
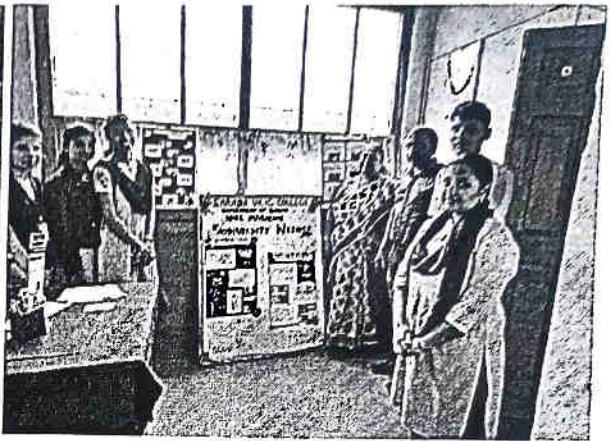
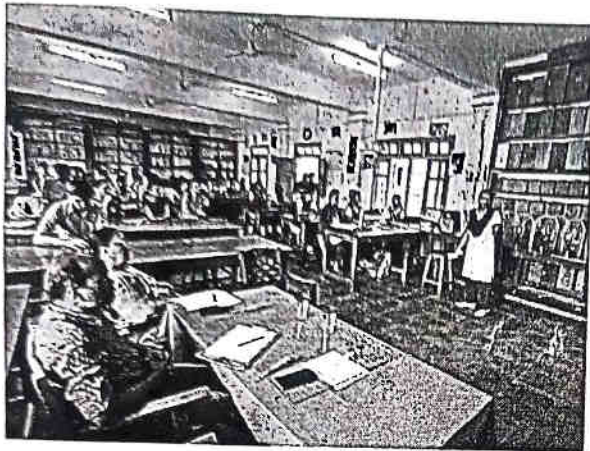
On 23rd May 2022, an invited talk was organized to create awareness about biodiversity conservation among the students. The talk was delivered by Dr. A. G. Deviprasad, Retd. Professor Department of Studies in Environmental Science, University of Mysore. The resource person not only shared his insight with us but also awoken students minds to the need to conserve biological diversity. We also had an Oath-taking session, all the students and faculties took an oath to say no to the products that harm biological diversity and lead an eco-friendly life. The event was concluded by the presidential address, honouring the chief guest as a token of respect and a short valedictory note.

Organizing such events often in the educational institutions makes the students a socially responsible citizen and admonishes everyone's responsibility in conserving our MOTHER EARTH.

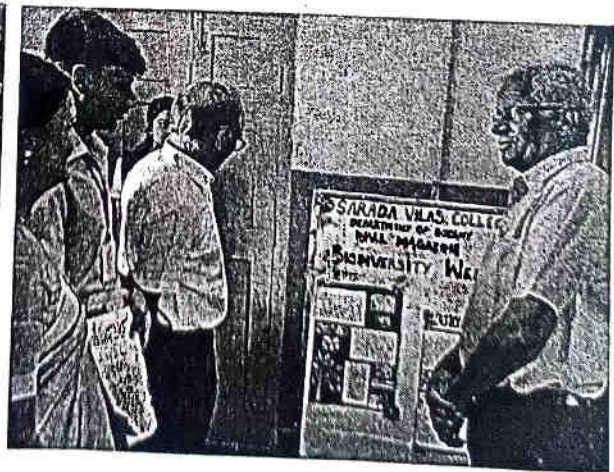
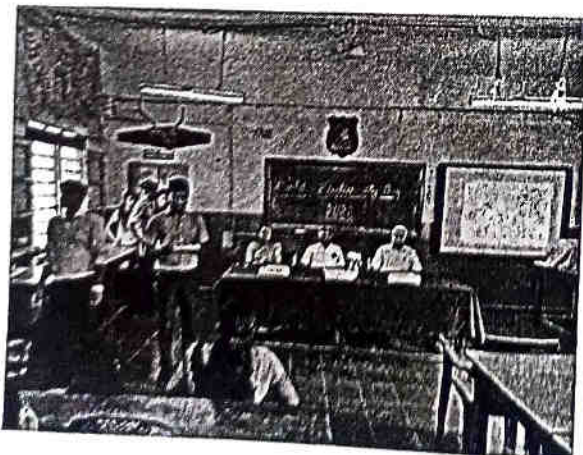
Students participation in campus cleaning and planting the saplings

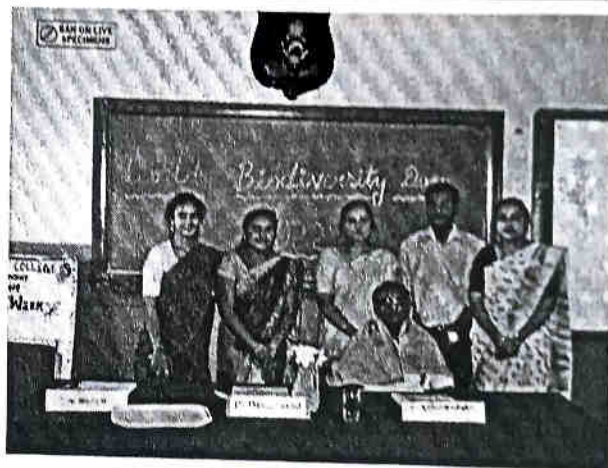
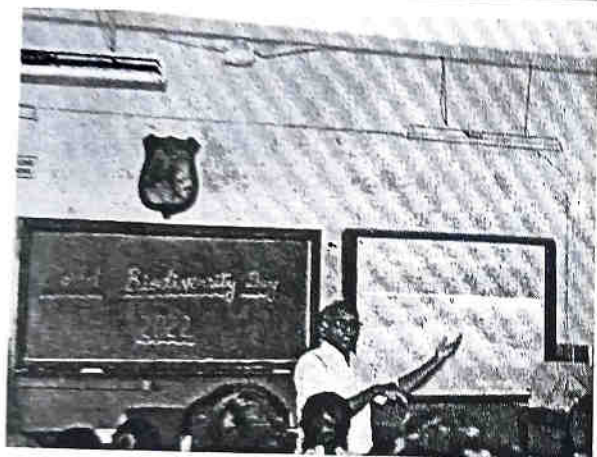


Students participation in science lecture competition and Wall Magazine activity



Invited talk by Dr. Deviprasad and distribution of prizes to the winners in science lecture competition.



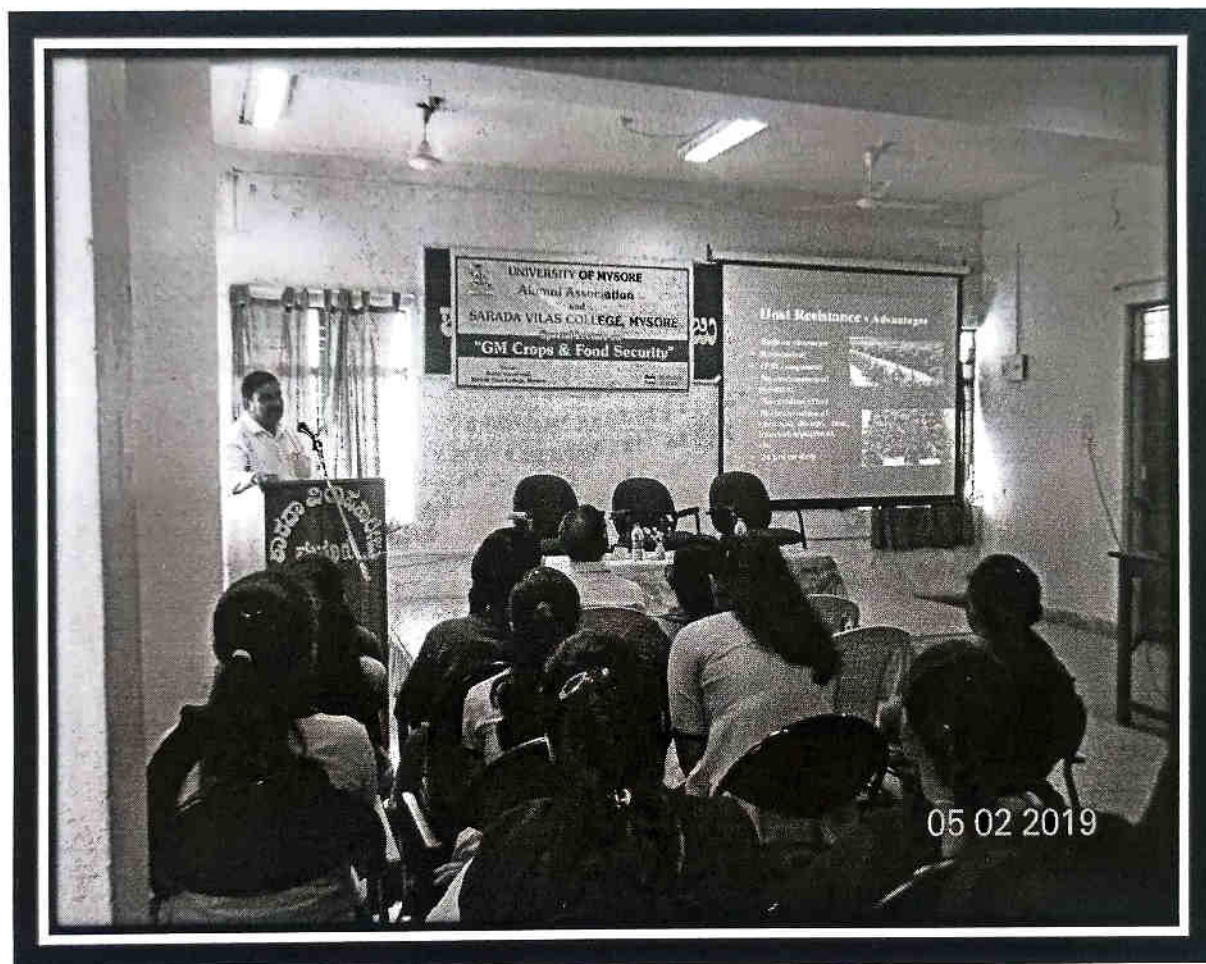


Kan
Principal
Sarada College
Bhuvneshwar - 751 004

SARADA VILAS COLLEGE, MYSURU.

DEPARTMENT OF BOTANY

SPECIAL LECTURE – 2018-19



TOPIC: "GENETICALLY MODIFIED CROPS"

NAME AND DESIGNATION OF

RESOURCE PERSON: DR. VASANTHKUMAR TIMKAPUR

**PRESIDENT, UOM ALUMNI ASSOCIATION AND RENOWNED
AGRICULTURAL SCIENTIST, MYSURU**

DATE AND TIME: 05-02-2019, 11.30 am

VENUE: AUDIO-VISUAL ROOM

SARADA VILAS COLLEGE, MYSURU.

DEPARTMENT OF BOTANY

SPECIAL LECTURE - 2019-20



TOPIC: "SAGA OF PLANTS ON EARTH"

NAME AND DESIGNATION OF

RESOURCE PERSON: DR. SHARVANI K. A.

**ASSOCIATE PROFESSOR OF BOTANY, YUVARAJA'S COLLEGE,
UNIVERSITY OF MYSORE, MYSURU**


DATE AND TIME: 10-03-2020, 10.30 am


VENUE: BOTANY LAB

SARADA VILAS COLLEGE, MYSURU.

DEPARTMENT OF BOTANY


WEBINAR - 2020

**Sarada Vilas Educational Institutions®**
SARADA VILAS COLLEGE, MYSORE
Krishnamurthypuram, Mysore - 570 004
(Affiliated to University of Mysore & Accredited by NAAC with 'B' Grade)



Organises One Day Webinar
on
"Advances and Opportunities in Plant Sciences"

About the College
Sarada Vilas College located in the heart of the beautiful and heritage city of Mysore, was established in the year 1945 as an intermediate college and upgraded to degree college in the year 1952. Being one of the leading Science college of Karnataka, it is offering eight combinations encompassing physical as well as natural science, all leading to the B.Sc. Degree. The college expanded its academic activities by launching B.Com & BBA from 2013-14. It further extended its educational initiative by offering M.Sc. in Chemistry from 2014-15 and M.Com from 2017-18. The college, affiliated to University of Mysore is accredited B+ grade with 2.79 by NAAC in the 3rd cycle.





About the Webinar
The One Day Webinar intends to address the advance in Plant Science and also the opportunities open in plant sciences. The success of education depends to a great extent on the challenges faced during career building in plant sciences. This webinar throws light on the recent trends in plant sciences.

Registration link : <https://forms.gle/gNgNwT3C5xcMmFhB7>

Note:
Research Scholars, Faculty and Students can participate.

- All participants will be in mute upon entry by default.
- Participants can ask questions at the end of each session through chat.
- After the end of session, a feedback form link will be provided.
- upon successful submission of the feedback form, certificate of participation will be sent to the registered email ID. Kindly make sure that the email ID provided in the form is correct.
- Kindly make sure the Name and the Institution of the participant to be filled in the feedback form is not erroneous, as the same will be printed in e-certificate.


**Sarada Vilas Educational Institutions®**
SARADA VILAS COLLEGE, MYSORE
Krishnamurthypuram, Mysore - 570 004
(Affiliated to University of Mysore & Accredited by NAAC with 'B' Grade)



Department of Botany &
Internal Quality Assurance Cell (IQAC)
Organises One Day Webinar on
"Advances and Opportunities in Plant Sciences"

Date : 26-08-2020
Time : 11:00am -12:30pm
Venue : Google Meet


Speaker : Prof. G.R Janardhana
Professor of Botany
Department of Studies in Botany
University of Mysore.



Registration link : <https://forms.gle/gNgNwT3C5xcMmFhB7>

- No Registration Fee
- E-Certificate will be awarded to the participant

Convener : Smt. Suganthi S Singh
Associate Professor & IQAC Coordinator



Dr. M. Davika
Principal

Patrons

Sri. B.S. Parthasarathi **Sri. H.K. Srinath**

TOPIC:

NAME AND DESIGNATION OF

RESOURCE PERSON: DR. G. R. JANARDHANA

**PROFESSOR, DoS IN BOTANY, DIRECTOR, INTERNATIONAL CENTER,
UNIVERSITY OF MYSORE, MYSURU**

DATE AND TIME: 26-08-2020, 11.30 am

VENUE: GOOGLE MEET

SARADA VILAS COLLEGE, MYSURU.

DEPARTMENT OF BOTANY

WEBINAR 2020-2021

Sarada Vilas Educational Institutions^(R.)

Sarada Vilas College

(Affiliated to University of Mysore and Reaccredited by NAAC with B Grade CGPA 2.70)

Sarada Vilas Road, Krishnamurthypuram, Mysuru - 570 004

Cordially invite you to the

Webinar on

WORLD BIODIVERSITY DAY

Date : 22nd May 2021

Time : 10:30am

Topic: Deforestation and Afforestation

Speaker: Miss Anusha P
Assistant Conservator of Forest
Aranya Bhavana,
Department of Forest, Mysore Division
Government of Karnataka



Registration Link : <https://forms.gle/Qnqkx1YH8MdX4xg8>

Webinar Link : <https://meet.google.com/cnq-czay-yeo>

• Free Registration

• E - Certificate will be provided to the participants



Dr. Subraya B M
President, SVEI

Dr. Devika M
Principal, SVC

Sri. N. Chandrashekhar
Hon. Secretary, SVEI

All are invited : Management, Staff and Students

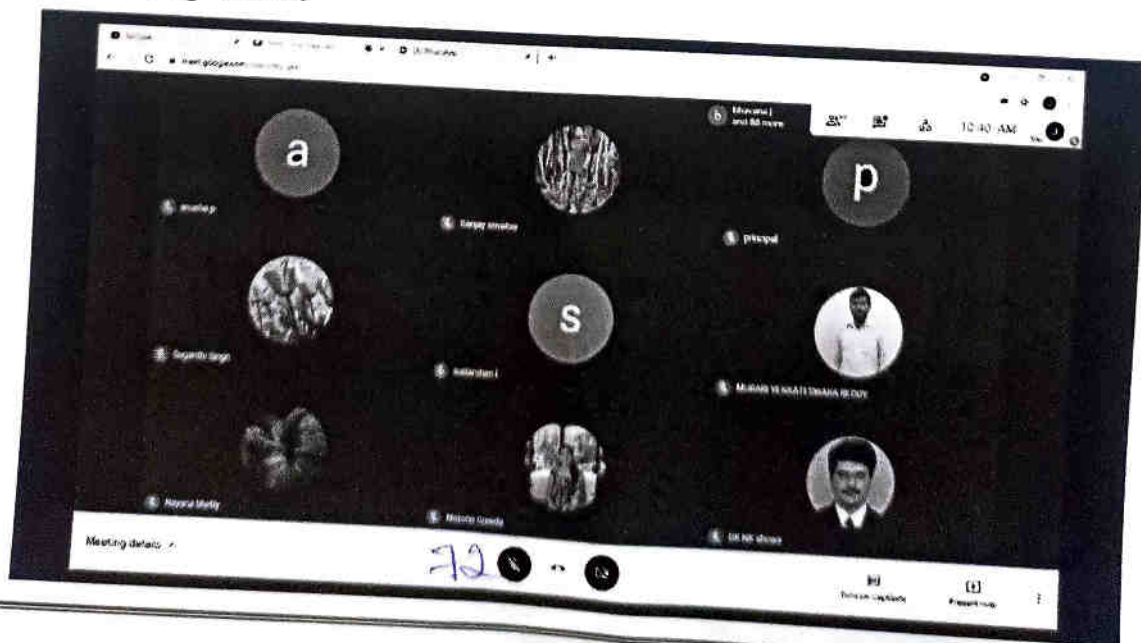
TOPIC: DEFORESTATION AND AFFORESTATION

NAME AND DESIGNATION OF THE RESOURCE PERSON:

Miss Anusha P Assistant conservator of forest Aranya Bhavana,
Department of Forest, Mysore Division Government of Karnataka.

Date and time: 22nd May 2021, 10:30am

Venue: Google meet



SARADA VILAS COLLEGE, MYSURU.

DEPARTMENT OF BOTANY

WEBINAR - 2020-21

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Sarada Vilas Road, Krishnamurthypuram, Mysuru - 570 004.

World Environmental Day
Department of Botany
Organises one day Webinar on

"RESTORATION OF FOREST ECOSYSTEMS WAYS AND MEANS"

Patrons:
Dr. Subraya B.M.
President, SVEI
Sri. N. Chandrashekhara
Hon. Secretary, SVEI
Dr. Devika M.
Principal, SVC

Speaker:
Dr. U.M. Chandrashekhara
Scientific Advisor and Senior
Principal Scientist (Retd.),
Kerala Forest Research
Institute Sub Centre,
Nilambur, Malappuram Dist,
Kerala, INDIA.

Date: 5th June 2021, Time: 2:30 pm - 5:00pm
Registration Link: <https://forms.gle/SpD7gKcG9LCHxkL7>
Webinar Link: <https://meet.google.com/adk-4fku-mzl>
YouTube Link: <https://youtu.be/SDoCytPuljY>
• Free Registration
• E - Certificate will be provided to the participants

With the UN declaring 2021-2030 the "Decade on Ecosystem Restoration", scope for studies and research on Restoration Ecology will gain importance, more than before
SO YOU HAVE THE OPPORTUNITY to work and prosper in this field
Thank you

TOPIC: "RESTORATION OF FOREST ECOSYSTEMS WAYS AND MEANS".

NAME AND DESIGNATION OF

RESOURCE PERSON: Dr. U. M. CHANDRASHEKHARA, SCIENTIFIC ADVISOR AND SENIOR PRINCIPAL SCIENTIST (RETD). KERALA FOREST RESEARCH INSTITUTE SUB-CENTRE, NILAMBUR, KERALA, INDIA.

DATE AND TIME: 05-06-2021, 02.30 pm

VENUE: GOOGLE MEET



SARADA VILAS EDUCATIONAL INSTITUTION

SARADA VILAS COLLEGE

KRISHNA MURTHY PURAM, MYSURU, 570004



DEPARTMENT OF BOTANY

CELEBRATING WORLD ENVIRONMENT DAY

"ONLY ONE EARTH"

BY PLANTING AND DISTRIBUTING SAPLINGS

DATE: 6/6/22

TIME: 3:00 Pm

PATRONS:

Dr. B M SUBBRAYA
PRESIDENT SVEI, MYSURU

Sri. N CHANDRASHEKAR
Hon, SECRETARY, SVEI, MYSURU

Dr. M DEVIKA
PRINCIPAL, SVC



REPORT ON CELEBRATION OF WORLD ENVIRONMENT DAY

People across the globe celebrate World Environment Day on June 5th every year. The main aim of the day is to create awareness among people about the importance of nature and its conservation. Several events are organized on this day by the United Nations Environment Programme (UNEP). Every year there is a different theme to celebrate the day. This year's World Environment Day theme is set as "Only One Earth".

Sarada Vilas College being the esteemed higher education institution in the city of Mysuru celebrates, several national and international days, to create social awareness among the students of the institution.

One such activity was the celebration of World Environment Day organized by the Department of Botany to convey the message to people about the need for the conservation of nature and natural resources.

With this objective an initiative was taken by the Department of Botany, to plant tree saplings in the campus, which glorifies the campus with greenery.

The department also made an attempt to spread the greenery in the campus by distributing the saplings to the sister institutions of Sarada Vilas College, thereby encouraging them to take part in the conservation of nature.

World Environment Day is not just a celebration but also a reminder to take the best care of our surroundings. Therefore, it is the duty of every person in the world to protect mother nature, in each and every step of life without over-exploiting her resources. This makes every day an ENVIRONMENT DAY rather than celebrating it for one day.



SARADA VILAS EDUCATIONAL INSTITUTION
SARADA VILAS COLLEGE
KRISHNA MURTHY PURAM, MYSURU, 570004



DEPARTMENT OF BOTANY

CELEBRATING WORLD ENVIRONMENT DAY

"ONLY ONE EARTH"

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DATE: 6/6/22

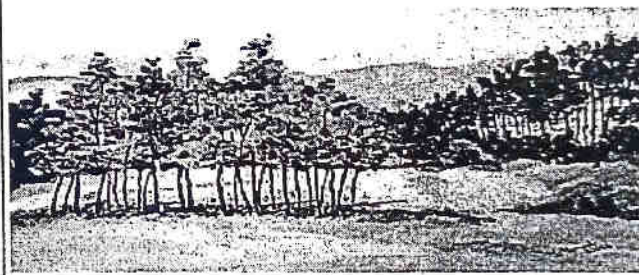
TIME: 3:00 Pm

PATRONS:

Dr. B M SUBBRAYA
PRESIDENT SVEL, MYSURU

Sri. N CHANDRASHEKAR
Hon. SECRETARY, SVEL, MYSURU

Dr. M DEVIKA
PRINCIPAL, SVC





Mysuru, Karnataka, India
 Sarada Vilas Road, Krishnamurthy Puram, Mysore 570004,
 Krishnamurthy Puram, Mysuru, Karnataka 570008, India
 Lat 12.291921°
 Long 76.643553°
 07/06/22 12:58 PM



Mysuru, Karnataka, India
 92, Krishnamurthy Puram, Mysuru, Karnataka 570008, India
 Lat 12.291378°
 Long 76.643098°
 07/06/22 04:09 PM



Mysuru, Karnataka, India
 7JRV+M92, Krishnamurthy Puram, Mysuru, Karnataka 570008, India
 Lat 12.291551°
 Long 76.642989°
 07/06/22 12:17 PM



Mysuru, Karnataka, India
 7JRV+92V, Krishnamurthy Puram, Mysuru, Karnataka 570008, India
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 Long 76.642859°
 08/06/22 04:39 PM



Mysuru, Karnataka, India
 7JRV+M92, Krishnamurthy Puram, Mysuru, Karnataka 570008, India

Sapling distribution to the sister institutions of the college.



Sarada Vilas Educational Institutions (R.)

Sarada Vilas College

Krishnamurthypuram, Mysuru - 570 004

In association with

Innerwheel Club Mysuru, AISIRI

Cordially invite you to the special lecture on

Awareness of Cervical cancer

Speaker

Dr. Shwetha Nayak, MBBS, DNB (OBG)
Laparoscopic Surgeon and Infertility Specialist
Gynaecologist, Mysuru

Guests of honour

Dr. B. M. Subraya

President

Sarada Vilas Educational Institutions, Mysuru

Sri. N. Chandrashekar

Hon. Secretary

Sarada Vilas Educational Institutions, Mysuru

Mrs. Radha Vinay

President

Innerwheel Club Mysuru, AISIRI

Presided by

Dr. Devika M.

Principal

Sarada Vilas College, Mysuru

11-01-2022 Tuesday

Time : 2 p.m

Venue : A. V. Hall , SVC, Mysuru

Staff & Students

Sarada Vilas College, Mysuru



7JRV+WCV, Krishnamurthy Puram, Mysuru, Karnataka
570008, India

Latitude

Longitude



7JRV+WCV, Krishnamurthy Puram, Mysuru, Karnataka
570008, India

Latitude

Longitude