VIDHYADEEP UNIVERSITY

B.Sc. BOTANY (05)

Teaching & Evaluation Scheme

Semester – I & II

Course name: Bachelor of Science (Botany)			**Semester I**						
Grade System:									
Subject			Teaching Scheme		Examination Scheme		Passing Scheme		Total Marks
Subject Code	Paper No.	Paper Title	Hours/week	Credit	Theory		Passing Head		
			Theory	Theory	Internal	External	Internal	External	
1102105101	BOT. 101	Diversity of plant virus, Bacteria, Algae, Fungi, Lichen.	2	2	20	50	9	17	70
1102105102	BOT. 102	Lower cryptogames, Nusrsery Mangement, And utilization.	2	2	20	50	9	17	70
1102105103	BOT.P 103	Practicals	4	2	20	40	9	14	60

Course name: Bachelor of Science (Botany)			**Semester II**						
Grade System:									
Subject			Teaching Scheme		Examination Scheme		Passing Scheme		Total Marks
Subject code	Paper No.	Paper Title	Hours/ week	Credit	Theory		Passing Head		
			Theory	Theory	Internal	External	Internal	External	
1102205201	BOT. 201	Plant Physioloy, plant Ecology, Plant Anatomy, Medicince plant, and plant pathology, major crops.	2	2	20	50	9	17	70
1102205202	BOT. 202	Weed Mangement, plant diversity, cell biology, Phanerogamees	2	2	20	50	9	17	70
1102205202	BOT.P 203	Practicals	4	2	20	40	9	14	60

VIDHYADEEP UNIVERSITY
VIDHYADEEP INSTITUTE OF SCIENCE, ANITA (KIM)
DEPARTMENT OF BOTANY (05)
F.Y. B.SC. SEM-1 & SEM - 2 SYLLABUS

- **BOTANY PAPER - 101 DIVERSITY OF PLANT, VIRUS, BACTERIA, ALGAE, FANGI, LICHEN.**
  - **UNIT-1 DIVERSITY OF PLANT**

    INTRODUCATION OF PLANT DIVERSITY
    CONCEPT OF PLANT KINGDOM (EICHLER SYSTEM)
    CRYPTOGAMS AND PHANEROGAMS DIVERSITY IN PLANT KINGDOME
    POSITION IN FIVE KINGDOME SYSTEM
    PROKARYOTIC CELL AND EUKARYOTIC CELL
    PROKARYPTIC CELL AND EUKARYOTIC CELL STRUCTURE AND FUNCTION OF CELL ORGANELLES.

  - **UNIT-2 VIRUS AND BACTERIA**

    VIRUS DISCOVERY, PHYSIOCHEMICAL, BIOLOGICAL CHARACTERSTICS, GENERAL CHARACTERSTICS, STRUCTURE, IMPORTANCES
    BACTERIA DISCOVERY ,BACTERIA STRUCTURE, TYPES OF BACTERIA
    GRAM NEGATIVE AND GRAM POSITIVE STAIN METHOD
    STUDY OF ROOT NODULES BY RHIZOBIUM BACTERIA.
    BACTERIA IMPORTANCES
    ARCHAEBACTERIA AND EUBACTERIA ,GENERAL CHARACTERS

  - **UNIT-3 FUNGI**

    GENERAL CHARACTERSTICS, THALLUS STRUCTURE (INTERNAL) AND TYPES OF

    REPRODUCATION

    (1) AGARICUS (2) MUCOR

  - **UNIT-4 ALGAE**

    OCCURENCES AND RANGE OF THALLUS ORGANIZATION, CHARACTERSTIC FEATURES, CELL STRUCTURE ANE TYPES OF REPRODATION.
    (1)NOSTOC (2) SPIROGYRA
    ECONOMIC IMPORTANCES OF ALGAE.

  - **UNIT-5 LICNEN** DEFINATION OF LICNEN, CLASSIFICATION, GENERAL CHARACTERS, EXTERENAL AND INTERNAL CHARACTERS, REPRODUCATION AND ECONOMIC IMPORTANCES OF LICHEN.

BOTANY PAPER - 102 LOWER CRYPTOGAMS, NURSERY MANAGEMENT AND UTILIZATIONS.

- **UNIT-1 BRYOPHYTES**

  OCCURENCE AND RANGE OF THALLUS ORGANIZATION, CHARACTERSTICS FEATURES, REPRODUCTION LIFE CYCLES
  FUNARIA

- **UNIT-2 PTERIDOPHYTES**

  STUDY OF LIFE CYCLE, SPOROPHYTES, GAMETOPHYTES AND REPRODUCTION OF NEPHROLEPIS. (EXTERNAL AND INTERNAL STUCTURES)

- **UNIT-3 NURSERY MANGEMENT**

  INTRODUCATION
  TYPES OF NURSERIES AND LANDSCAPING.
  PLANT PROPAGATION METHOD -CUTTING, BUDDING, GRAFTING AND LAYERING.
  FERTILIZER AND PESTICIDES
  METHOD OF IRRINGATION DRIP AND SPRINKLER

- **UNIT-4 PLANT MARPHOLOGY**

  ROOT:DETINATION
  CHARACTERS OF ROOT
  PART OF ROOT
  TYPES OF ROOT
  FUNCTIONS AND MODIFICATION OF ROOT

  STEM: DEFINATION
  CHARATERS OF STEM
  SHAPE AND SURFACE,
  TYPES OF STEM, FUNCTION & MODIFICATION OF STEM

  LEAF: DEFINATION
  CHARACTERS & PARTS OF LEAF
  TYPES OF STIPULES,VENATION, TYPES OF LEAF
  FUNCTION AND MODIFICATION OF LEAF

  FLOWER: DEFINATION

  STRUCTURE OF TYPICAL FLOWER
  ARRANGEMENT OF FLORAL LEAF
  TYPES OF FLOWER

UNIT: 5 MAJOR CROPS

CULTIVATIONS OF THE FOLLOWING CROPS IN RELATION TO THEIR ORIGIN DISTRUBUTION CLIMATE, SOIL, PROPAGATION, METHOD OF CULTIVATIONS AND USES.

1. SUGARCANE 2.PADAY 3.MANGO 4.BRINJAL.

BOTANY PRACTICAL

- **BOTANY – PAPER -103 PLANT DIVERSITY, NURSERY MANAGEMENT AND UTILIZATION .**

- **PRACTICAL-1** TO SYUDY MICROSCOPIC EXAMINATION OF CURD.

PARMANENT SLIDE OF BACTERIA (SPIRO BACTERIA, VIBRYO BACTERIA, GRAM POSSITIVE AND GRAM NEGATIVE BACTERIA, E.COIL BACTERIA)
CHART /SPECIMEN OF DIFFERENT TYPES OF VIRUS.

- **PRACTICAL-2** NOSTOC

TO STUDY THALLUS AND AKINETS IN NOSTOC

PRACTICAL-3 SPIROGYRA

TO STUDY THALLUS STRUCTURE, REPRODUCATION IN SPIROGYRA.
(PERMANENT SLIDE OF THALLUS. W.M SCALARIFORM CONJUGATION, LATERAL CONJUGATION)

- **PRACTICAL-4** AGARICUS

TO STUDY THE VEGETATIVE STRUCTURE, BASIDIOCARP, GILLS, BASIDIA, BASIDIOSPORE, PARMANENT SLIDE OF AGARICUS STIPE T.S., PILEUS T.S.

- **PRACTICAL-5** MUCOR

TO STUDY THE THALLUS STRUCTURE AND REPRODUTIVE STRUCTURE
PARMANENT SLIDE OF MUCOR VEGETALIVE,
VEGETATIVE W.M. MUCOR SPORANGIA, MUCOR ZYGOSPORE.

- **PRACTICAL-6** LICHEN

TO STUDY EXTERNAL FEATURES AND INTERNAL STRUCTURE OF USNEA
(PERMANENT SLIDE OF LICHEN THALLUS, T.S. LICHEN SORIDIA)

- **PRACTICAL-7** MOSS FUNARIA

TO STUDY THE EXTERNAL FEATURE OF GAMETOPHYTE AND SPOROPHYTES.
(PERMANENT SLIDE OF FUNARIA ANTHERIA W.M., FUNARIA ARCHIGONIA W.M.)

- **PRACTICAL-8** NEPHROLEPIS

PREPARATION OF SLIDES FROM THE FRESH MATERIAL OF T.S. OF STOLON & T.S. OF RACHIS BY THE STUDENTS. (PERMANENT SLIDES: T.S. OF STOLON, T.S. OF RACHIS, T.S. FEAFLET PASSING THRAUGH SORI, NEPHROLEPIS PROTHALLUS, FERN SORI W.M. PROTHALLUS WITH ANTHERADIA PROTHALLUS WITH ARCHIGONIA, PROTHALLUS WITH SPOROPHYTES.

- **PRACTICAL-9** NURSERY MANGAMENT

(1) STUDY OF METHOD OF PRAPAGATION WITH THE HELP OF SUITABLE MATERIALS TUBERS, BULBS, RHIZOMS, CORMS, SUCKERS AND RUNNERS.

(2) PROPAGATIONS OF HORTICULTURAL PLANTS BY STEM CUTTING, AIR LAYERING, GRATTING AND T BUDDING

- **PRACTICAL-10** ROOTS

  TO STADY DIFFERENT TYPES OF ROOTS

  TAPROOT – VINCA

  FIBROUS – GRASS

  ADVANTITIOUS – SUGGARCANE

  TO STUDY MODIFICATION OF ROOT

  PROP ROOT – BANYAN TREE

  STILT ROOT – MAIZE

  PNEUMATOPHORES – AVICENNIA

  STORAGE ROOT – CARROT, SWEET POTATO

- **PRACTICAL-11** TO STUDY DIFFERENT TYPES OF STEM

  TO STUDY AERIAL STEM

  CUDEX – PALMS,

  CLUM – BAMBOO,

  SCAPE – CANNA AND ONION,

  EXCURRENT– POLYANTHIA LONGIFOLIA, CASURINA,

  DELIQUESCENT – MANGO,

  WEAK STEM – IPOMOEA

  TO STUDY UNDERGROUND STEM

  RHIZOME – GINGER, TURMERIC

  TUBER – POTATO

  BULB – ONION

  CORN – AMORPHOPHOLLUS

  TO STUDY SPECIALIZED STEM

  PHYLLOCLADE– OPUNTIA

  CLADODE – ASPARAGUS

- **PRACTICAL-12** LEAF

  TO STUDY DIFFERENT TYPES OF LEAF

  SIMPLE LEAF: BANYAN LEAF

  COMPOUND LEAF:

  PINNATE: UNIPINNATE – CASSIA, ROSE

  BIPINNATE – MIMOSA, CAESALPINIA

  TRIPINNATE – MORINGA

  DECOMPOUND – CARIANDER

  PALMATELY: UNIFOLIATE – CITRUS

  BIFOLIATE – BALAUITES, BAUHINIA

  TRIFOLIATE – CROTALARIA, OXALIS

  QUADRIFOLIATE – MARSILEA

  MULTIFOLIATE - BOMBAX

- **PRACTICAL-13** FLOWER

  TO STUDY DIFFERENT TYPES OF FLOWER

  1. REGULAR FLOWER : IPOMOEA
  2. IRREGULAR FLOWER : CLITORIA, CAESALPINIA
  3. UNISEXUAL FLOWER : COCCINIA
  4. BISEXUAL FLOWER : HIBISCUS

- **PRACTICAL-14** BOTANICAL NAME, FAMILY, ORIGIN, DISTRIBUTION AND USES OF THE FOLLOWING CROPS

  1.SUGAUCANE

  2. PADDY

  3. MANGO

  4. BRINJAL

VIDHYADEEP UNIVERSITY
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DEPARTMENT OF BOTANY
F.Y.B.SC SEM-2(05)

BOTANY –P-201 – THEORY

- **BOTANY - 201 Plant Physiology, Plant ecology, Plant Anatomy, medicince Plants and Plant Pathology, major Crops.**
  - **UNIT-1 PLANT Physiology,**

    DIFFUSION, WATER POTANTIAL,
    ACTIVE AND PASSIVE TRANSPORT, PERMEABILITY, PLASMOLYSIS
    OSMOTIC RELATION OF PLANT CELL, OSMOSIS,
    PLANT MOVEMENT

    PLANT MOVEMENT – DEFINATION AND TYPES OF MOVEMENT
    PHOTOSYNTHESIS: DEFINATIAN, PIGMENT, LIGHT AND DARK REACTION, C3 AND C4 CYCLE, CAM.

  - **UNIT-2 PLANT ECOLOGY**

PLANT ADAPTATIONS
MORPHOLOGICAL AND ANATOMICAL CHARACTERS OF HYDROPHYTES, MESOPHYTES AND XEROPHYTES WITH APPROPRIATE EXAMPLES

- **UNIT-3 PLANT ANATOMY, CELL BIOLOGY**

CELLWALL: LAYER FUNCTIONS, FORMATION OF CELL WALL
TISSUE SYSTEME OF PLANT, DEFINATION OF TISSUE, TYPES OF TISSUE
MERISTEMATIC AND PERMANENT TISSUE
VUSAELAR BUNDLE: - DEFINATIAN AND TYPES
TYPES OF VASCULAR BUNDLE
-STELE:
DEFINATION, TYPES OF STELE

- **UNIT-4 MEDICINAL PLANT AND MAJOR CROPS**

(SCIENTIFIC NAME, FAMILY, USE OF PLANT AND MEDICINAL USE OF FOLLOING)

(1) OCCIMUN SANCTEUM
(2) ADHATODA VASICA
(3) ALOE BARBEDENSE
(4) AZADIRACHTA INDICA
(5) ZINGIBER OFFICINACE

MAJAR CROP –

LEGUMES – (PIGAON PEA, GREEN GRAM, GREEN PEA, SOYABEAN, CHICK PEA)
SCIENTIFIC NAME, LOCAL NAME, FAMILY, USED PLANT AND USES.

➢ UNIT-5 PLANT DISEASES.

PLANT PATHOLOGY:-

CAUSAL ORGANISMS, SYMPTOMS, CONTROL MEASURES OF THE FOLLOING PLANT DISEASES

(1) LEAF SPOT OF MANGO
(2) RED ROT OF SUGAR CANE
(3) BACTERIAL BLIGHT OF PADDY
(4) LITTLE LEAT OF BRINGAL
(5) CITRUS CANKER

PAPER -202 – THEORY (05)

WEED MANGEMANT, PHANAROGAMS AND PLANT DIVERSITY, CELL BIOLOGY.

➢ UNIT-1 WEED MANGEMANT AND CELL BIOLOGY

DEFINATION OF WEED MANGEMANT AND INTRODUCTION OF WEED MANGEMANT
WEED CANTROL: PHYSICAL, CHEMICAL AND BIOLOGICAL METHODS
SUSTAINABLE USE OF WEEDS.
CELL BIOLOGY – GENERAL STRUCTURE AND CONSTITUENTS OF CELL, STRUCTURE AND FUNCTION OF PLANTS CELL, CHLOROPLAST, MITOCHONDRIA.

➢ UNIT-2 GYMNOSPERM:-

CLASSIFICATIONS, EXTERNAL MORPHOLOGY, INTERNAL STRUCTURE, REPRODUCTION AND ALTERNATIONS OF GENERATION IN CYCAS.

➢ UNIT-3 PLAINT MORPHOLOGY

PHYLLOTAXY –DEFINATION AND TYPES OF PHYLLOTAXY
AESTIVATIONS – DEFINATION AND TYPES OF AESTIVATION.
INFLORESCENSE – DEFINATION AND TYPES - RACEMOSE AND CYMOSE
PLACENTATION - DEFINATION AND TYPES

➢ UNIT-4 ANGIOSPERM (FLOWERING PLANT)

CLASSIFICATION AS PER BENTHAM AND HOOKERS SYSTEM OF CLASSIFICATION
GENERAL CHARACTERSTICS, COMMON NAME OF FAMILY PLANT, ECONOMIC IMPORTANT PLANT OF THE FOLLOWING FAMILIES FLORAL FORMULA SYMBOL AND FLORAL CHARACTERSTICS.
(1)MALVACEAE (2) RUBIACEAE (3) CONVOLVULACEAE (4) AMARILLIDACEAE

➢ UNIT-5 BIODIVERSITY AND CANSEALATION OF PLANT BIODIVERSITY.

INTRODUCTION TO BIODIVERSITY, WHY PRESURE BIODIVERSITY?
CONSERVATIONS: DEFINATION, NEED TO CONSERVE, BIODIVERSITY, METHOD OF CONSERVATION OF LIVING RESOURCE
IN SITU CONSERVATION AND EX SITU CONSERVATION.
BOTANICAL GARDEN.

PAPER -203 PRACTICAL

BOTANY PAPER -203- PLANT PHYSIOLOGY, PLANT ECOLOGY, PLANT ANATOMY, MEDICINCE PLANT, MAJOR CROPS, PLANT DISEASES WEED MANGEMANT AND PLANT CELL BIOLOGY, PHANAROGAMES, BOIDIVERSITY.

- **PRACTICAL – 1 PLANT PHYSIOLOGY – (EXPERIMANT TO DEMONSTRATED)**

(1) **PLASMOLYSIS -**TRADENCANTIA

(2) PLANT MOVEMENT

GEOTROPISM
PHOTOROPISM
HYDROTROPISM

(3) PHOTOSYNTHESIS

MOHL'S HALF LEAF EXPERIMENT
LIGHT IS NECESSARY FOR PHOTOSYNTHESIS

- **PRACTICAL – 2 PLANT ECOLOGY (FRESH SPECIMENS TO BE SHOWN TO THE STUDENT)**

HYDROPHYTES:-

HYDRILLA, VALLISNARIA, EICHNARIA, PISTIA, NYMPHAEA, MARSILEA**.**

MESOPHYTES:-

CORIANDER, TRIGONELLA, GARLIC, (ENTIRE PLANTS)

XEROPHYTES

SOLANUMXANTHOCARPUM, CASUARINA, ALOEVERA, OPUNTIA, EUPHORBIA, TIRUCULLI

- **PRACTICAL – 3 TISSUE : TISSUE (PERAMANENT SUDES):**

(1) ROOT APEX

(2) SHOOT APEX

(3) PARENECHYMA

(4) AERENCHYMA

(5) CHIORENCHYMA

(6) COLLENCHYMA

(7) SCLERENCHYMA

(8) XYLEM –SPIRAL VESSELS, PITTED VESSELS

(9)PHLOEM ELEMENT

- **PRACTICAL – 4 STELE: (PERMANENT SLIDES)**
  (1) ACTINOSTELE
  (2) PLECTOSTELE
  (3) AMPHIPHLOIC SIPHONOSTELE
  (4) EUSTELE
  (5) ATACTOSTELE
- **PRACTICAL – 5 CELLWALL (PARMNENT SLIDE)**
  CELLWALL (T.S) (L.S)

- **PRACTICAL - 6 VASCULAR BUNDLES**
  RADIAL
  AMPHICRIBRAL
  COLLATERAL AND OPEN
  COLLATERAL AND CLOSED
  BICOLLATERAL
- **PRACTICAL – 7 MEDICINAL** PLANTS
  SCIENTIFIC NAME, FAMILY, PART USE AND MEDICINAL USES OF FALLOWING
  OCIMUM SANCTUM
  ADHATODA VASICA
  ALOE BARBEDENSE
  ZINGIBER OFFICINALE
  ABRUS PRECATORIUS

- **PRACTICAL – 8 PLANT DISEASES**
  CAUSAL ORGANISMS, SYMPTOMS AND CONTROL MEASURES OF THE FOLLOWING

  1. LEAF SPOT OF MANGO
  2. RED ROT OF SUGARCANE
  3. BACTERICAL BLIGHT OF PADDY
  4. LITTLE LEAF OF BRINJAL
  5. CITRUS CANKER

- **PRACTICAL – 9 WEED MANGEMENT**
  OBSERVATION OF WEED WITH REFERNCE TO BACTERIAL NAME, FAMILY, MORPHOLOGYCALPECULIARITIES:
  NATIVE: CYNDON, CYPRUS, AMARANTHUS, PANICUM
  EXOTIC/ INVASIVE: ALTERNANTHERA, DESMOSTACHYA, EUPHORBIA, MALACHARA

PRACTICAL – 10 GYMNASPERMS
CYCAS:
PREPARATION OF SLIDE FROM THE FRESH MATERICAL BY THE STUDENT

1. T.S OF RACHIS
2. T.S OF LEAFLET

PARMANENT SLIDES: T.S OF LEAT LET, T.S OF RACHIS T.S OF COROLLOID ROOT, T.S OF MICROSPOROPHYLLUS, T.S OF MEGASPOROPHYLLUS L.S OF OVULE.

PRESERVE SPECIMEN: COROLLOID ROOT, MICROSPOROPHYLL AND MEGASPOREOPHYLL.

- **PRACTICAL – 11 PHYLLOTAXY**
  1. DISTICHOUS
  2. TRISTICHOUS
  3. PENTASTICHOUS
  4. OPPOSITE SUPERPOSE
  5. OPPOSITE DECUSSATE
  6. VERTICILLATE OR WHORLED
  7. HETROPHYLLY

- **PRACTICAL – 12 AESTIVATION**

  VALVATE: CALYX OF HIBISCUS
  TWISTED: COROLLA OF HIBISCUS
  IMBRICATE: COROLLA OF CAESALPINIA
  QUINCUNCIAL: COROLLA OF ANTIGONON
  VEXILLARY: COROLLA OF CLITORIA

- **PRACTICAL – 13 INFLORESCENCE**

  RACEMOSE

  RACEME – CAESALPINIA PULLCHERIMA, BRASSICA JUNCEA
  SPIKE – ACHRANTHUS ASPERA, POLIANTHESTUBEROSA
  SPADIX – COLOCASIA
  CATKIN – ACALYPHAHISPIDA
  SPIKELETS – POACEAE (ANY PLANT)
  CORYMB – CASSIA, IXORA
  UMBEL – CORIANDRUM
  CAPITATE – ACACIA, ALBIZZIA
  CAPITULUM – HELIANTHUS, TRIDAX

  CYMOSE

  UNBRANCHED

  SOLITARY, TERMINAL – DATURA
  SOLITARY, AXILLARY – HIBISCUS

  BRANCHED

  HELICOID – HAMELIA
  SCORPIOID – HELIOTROPIUM
  DICHASIAL OR BIPAROUS CLERODENDRUM NYCTANTHUS JASMINUM
  POLYCHASICAL OR MULLPAROUS NERIUM, CALOTROPIS

- **PRACTICAL – 14 PLACENTATION (PARMANENT SLIDE)**

  MARGINAL
  AXILE
  FREECENTRAL

PARIETAL
SUPERFICIAL
BASAL

- **PRACTICAL – 15 FAMILY PLANTS**

  MALVACEAE – HIBISCUS PLANT
  RUBIACEAE – IXORA (NAVERI)
  CONVOLULACEAE – IPOMEA PALMATA
  NYCTAGINACEAE– BOUGAINVALLIA
  AMARYLLIDACEAE – POLIANTHES (NAGDAMNI)

- **PRACTICAL – 16 MAJOR CROPS**

  LEGUMES – (PIGEONPEA, GREENGRAM, GREEN PEA, SOYABEAN, CHICKPEA)
  BEVERAGES – TEA, COFFE, COCCA

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