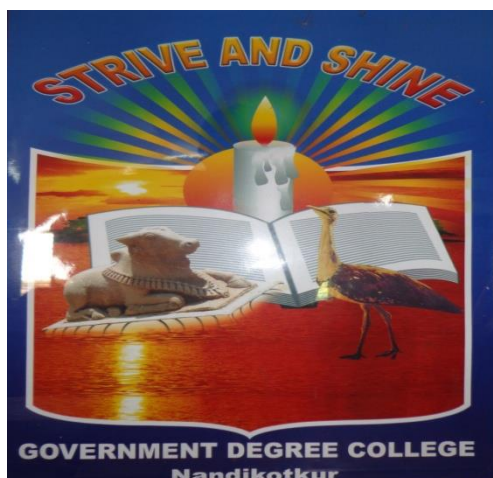


Government Degree College, Nandikotkur



1.1.1: The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

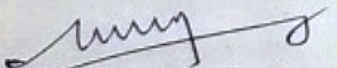
TEACHING SYNOPSIS 2020-21

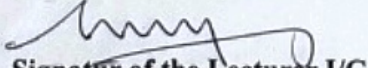
TEACHING NOTES ACADEMIC YEAR

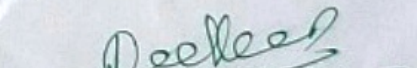
Academic Year : 2020-2021

Name Of The Topic Fundamental components of Taxonomy Course B.Sc (BZC)

Hours Required	8
Learning Objectives	1. to understand process of identification 2. nomenclature and classification of plants 3.
Previous Knowledge To Be Reminded	Binomial nomenclature, Botanical gardens
Topic Synopsis : The major components of Taxonomy are the following a) identification: identification of the selected plant by comparing with the help of floras, key descriptions, illustrations etc. b) nomenclature: to provide the ^{unique} appropriate name to identified taxa is essential to avoid confusion as per the international rules like ^(ICBN) Binomial nomenclature. c) classification: Based on the similarities and differences taxa should be arranged into categories according to their levels, and each category giving a name following the rules of nomenclature. The taxonomic group should be placed in their position in taxonomic hierarchy.	
Teaching Aids Used	Floras, Keys
Additional Inputs taught	Flora of Madras Presidency, Kew Botanical Garden
References cited	Advanced plant Taxonomy - A.K. Maudslayi Taxonomy of Angiosperms - Singh & Jain
Student Activity Planned After The Teaching	Students planned to visit library, internet in order to get information from floras, keys.


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Types of classification:

The classifications made by the scientist are broadly categorised in three types

a. Artificial system of classification:

It is based on morphological characters ex: Linnaeus system of classification

b. Natural system of classification

It takes in consideration morphological characters as well as experimental evidences. The concept of "evolution of species" is the backbone to this type of classification. ex: Bentham & Hooker's system of classification

Keys: Botanical keys are devices consisting of a series of contrasting statements or propositions requiring the identifier to make comparisons and decisions based on statements in the key as related to the material to be identified.

Herbarium:

A Herbarium is a store house of dried and pressed plant specimens collected from different places, which are mounted on the appropriate sheets and arranged according to some known system of classification and kept in the pigeon holes of steel or wooden cupboards specially prepared for the purpose.

Additional input:

Flora of Madras Presidency:

Gamble, a fellow of Royal Society collected and described the ~~flora~~^{flora} of Southern India (Madras Presidency) and published in the name of Gamble flora of Madras Presidency. It is renowned as Gamble volumes.

TEACHING NOTES ACADEMIC YEAR

Academic Year : 2020 - 2021

Name Of The Topic Elements of Ecology Course III B.Sc (BZ)

Hours Required	6
Learning Objectives	1. to get knowledge on various branches of Ecology 2. Ecology 3. to understand the process of soil and its components
Previous Knowledge To Be Reminded	Plants, moles, weathering process

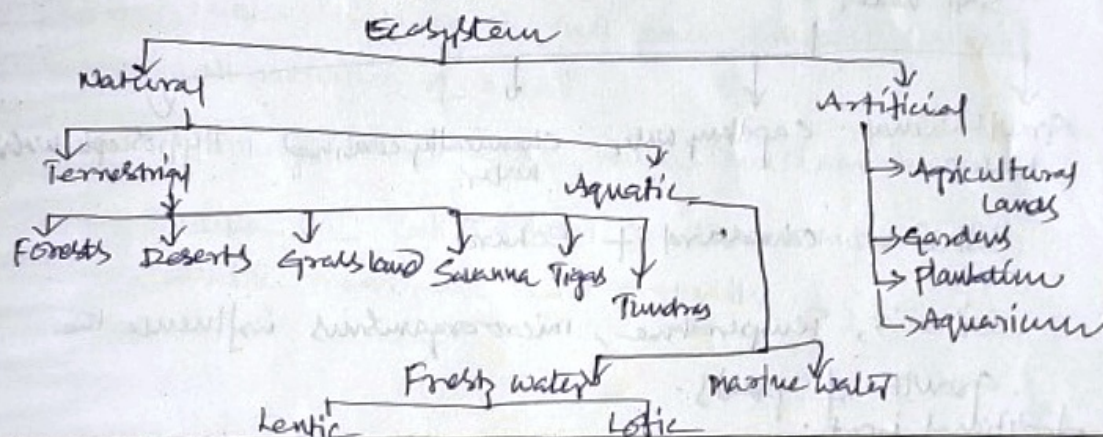
Topic Synopsis :

In Ecology we study the relationship among organisms and environment.

Branches of Ecology: Autecology, Synecology,

Subbranches: Habitat Ecology, population ecology, community ecology, Bionics, Biosphere, production ecology

Ecosystem: It is a structural and functional unit of Environment.



Teaching Aids Used	Different types of soil samples, downloaded photographs from internet
Additional Inputs taught	Waterbodies, check dams, percolated pits
References cited	Fundamentals of Ecology - P.D. Sharma
Student Activity Planned After The Teaching	Students planned to collect different types of soil sample and try to analyse the components in it

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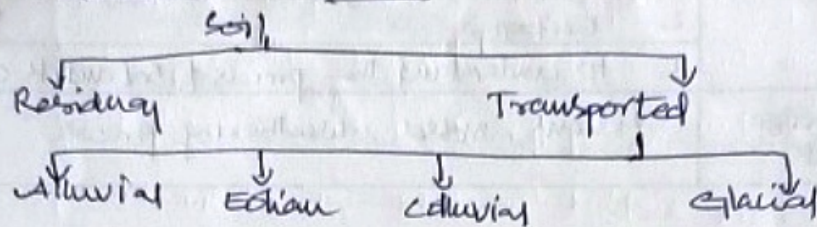
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Epiphic factor (Soil)

Top most layer of earth crust which facilitate plant growth is called soil. It is formed from rocks by the process of weathering (physical, chemical & biological)

Based on the mode of soil:



Soil profile: The layers of soil appear in trench - ^(horizons)

Horizon 'A' - It consists of subzones like A^0, A^1, A^2, A^3

A^0 has litter, A^1 has duff, A^2 with humus.

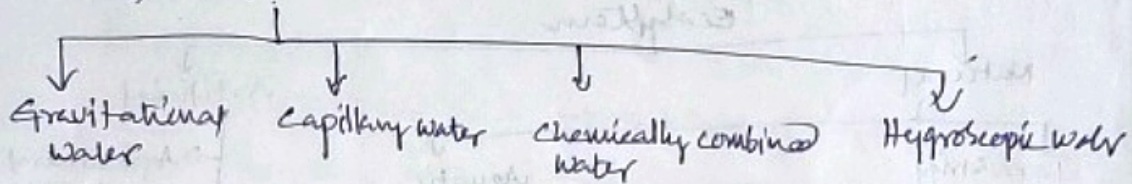
It provides nutrients for plant growth.

Horizon 'B': Soil particles are in light color in this zone.

Horizon 'C': It is source of groundwater.

Horizon 'D' - It contains rocks.

Soil water:



Holland = Orchard + Orchard

Soil air, Temperature, microorganisms influence the growth of plants.

Additional input:

Watersheds: It is an area of land that drains or sheds water into a specific waterbody. It helps in increasing the water table.

check dams: It is a small dam constructed across a wide, drainage ditch to counteract erosion by reducing water flow velocity.

percolation pit: It is a simple hole dug into the ground. It facilitates ground water recharge through infiltration of surface runoff into the soil or rock.

TEACHING NOTES ACADEMIC YEAR

Academic Year : 2020-21

Name Of The Topic

Cell

Course

: III B.Sc (BZC)

Hours Required	06
Learing Objectives	1. to understand the structure and functions 2. of cell & cell organelles 3. to get knowledge on prokaryotes & Eukaryotes
Previous Knowledge To Be Reminded	cell theory, cell organelles

Topic Synopsis :

- cell is a structural & functional unit of life
- presence of cell wall is the unique character of the plant cell
- plasma membrane earmark the protoplasm
- cytoplasm contains cell organelles like chloroplast, mitochondria, lysosomes, Ribosomes, E.R; nucleus etc.
- Nucleus treated as cell brain since it controls all activities of a cell
- prokaryotic cell doesn't have nuclear membrane
- Eukaryotic cell contain nuclear membrane and double membrane cell organelles.

Teaching Aids Used	Bio-visual charts, downloaded photographs from net
Additional Inputs taught	plasmodium, cyanobacteria
References cited	introduction to the cell - poular
Student Activity Planned After The Teaching	Students collect material in connected with the topic from difference reference books, internet etc -

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- prokaryotic cell doesn't have prominent nuclear membrane.
- it has no double membrane cell organelles like E.R, Golgi complex, lysosomes, plastids.
- nuclear matter only with DNA. Histone proteins are absent - Ribosomes are 70S type - eg. prokaryotes
- Eukaryotes with distinct nuclear membrane.
- protoplasm divided into cytoplasm and nucleus
- chromosomes with DNA and histone proteins are
- presence of cell wall is the distinguishing character of plants.
- chloroplast concerned with photosynthesis.
- mitochondria concerned with respiration
- lysosomes treated as suicidal bags of cell
- chromosomes are the physical basis of heredity

TEACHING NOTES ACADEMIC YEAR

Month & year : December 2020

Academic Year : 2020-21

Name Of The Topic

Bentham & Hooker's system of classification of plants

Course

: B.Sc (BZC)

Hours Required	15
Learning Objectives	1. to understand the various types of classification 2. and its merits & demerits 3. to understand the acceptable floral characters of given taxa
Previous Knowledge To Be Reminded	plant morphology & description
Topic Synopsis : - Bentham & Hookers are British Botanists. - They classify the phanerogams into 202 families - They adopt the natural system of classification. It is based on de Jussieu and de Candolle classification - They classify in Latin in the book Genera plantarum. phanerogams <pre> graph TD A[phanerogams] --> B[Dicotyledons] A --> C[Gymnosperms] B --> D[Polypetalae] B --> E[Gamopetalae] D --> F[trapiflorae] D --> G[disciflorae] D --> H[calyciflorae] E --> I[superf] E --> J[Helicomenae] E --> K[Bicarpellatae] C --> L[Monochlamydeae] C --> M[Monocotyledons] M --> N[Micropylae] M --> O[Epigynae] M --> P[Coronariae] M --> Q[Calycinae] M --> R[ruiflorae] M --> S[Apocynae] M --> T[Glumaceae] </pre>	
Teaching Aids Used	plant material
Additional Inputs taught	APG system of classification
References cited	Taxonomy of Angiosperms - Singh & Jain Advanced plant Taxonomy - A.K. Maudslayi
Student Activity Planned After The Teaching	Student collect different taxa in their habitats and classify them according to B&H, E&P systems of classification.

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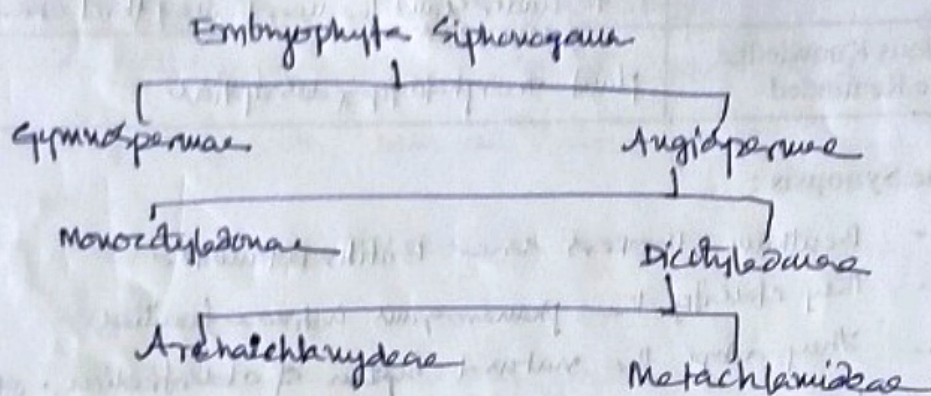
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Engler and Prantl system of classification

- Engler and Prantl are German plant taxonomists.

They classified the entire plant kingdom in phylogenetic system. It is based on Eichler system.



Additional input:

Eudicots	Neither	Monocots
Unassigned	Unassigned	Not cornelinoid
Core Eudicots		Cornelinoid
Rosidae		
Asterids		
Probably Eudicots		

Arnonaceae:

Flowers: Bixeal, complete, pentamerous, hypogynous, actinomorphic, hemiaphic.

♂ Apocarpous fruit

Seeds are reniform

Brassicaceae:

Flowers: Tetramerous, crossiform corolla

Fruit: Siliqua or Siliqua

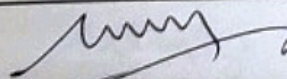
TEACHING NOTES ACADEMIC YEAR

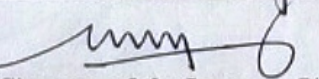
Month & year: December - 2020

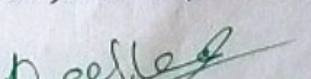
Academic Year : 2020-21

Name Of The Topic: population & community Ecology Course : III BSc (BZC)

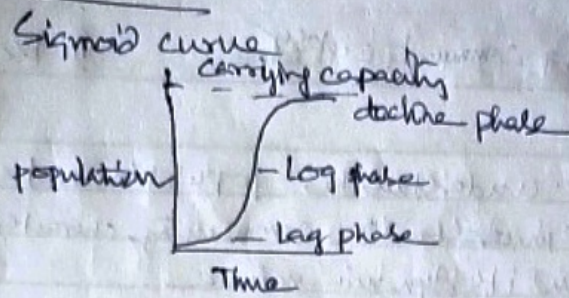
Hours Required	12
Learning Objectives	1. to understand the population ecology 2. to understand the community characters 3. and its dynamic nature
Previous Knowledge To Be Reminded	population, community
Topic Synopsis : A group of individuals belongs to same species are called population <u>characters of population:</u> <u>Density</u>: - a) crude density <u>Specific density</u>: - it depends on deaths, births, migration, emigration etc. <u>Natality</u>: - no. of new species joined to the existing one over a period of time in the specific area is called <u>mortality</u>: - it depends on population number, ratio of male & female species, age of attaining reproduction, clutch size etc. <u>Mortality</u>: - no. of deaths occur in specific area over a period of time.	
Teaching Aids Used	Vegetation in the campus
Additional Inputs taught	
References cited	Fundamentals of Ecology - P.D. Sharma
Student Activity Planned After The Teaching	Students collect material from various sources like reference books, internet


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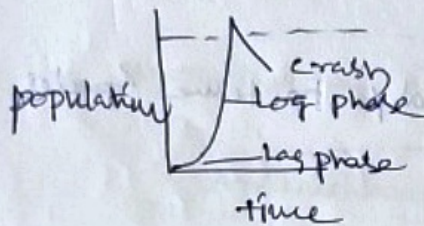

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Growth curves:



J-curve



Ecade: Environmental factors influence the morphology of the plant species. But they are not heritable. eg. *Euphorbia hirta*

Ecotype: Environmental factors influence the morphology of the plant and are heritable. Factors like longitude, altitude, climate, edaphic factors might be responsible for the changes.