

PRR & VS GOVT.DEGREE COLLEGE,

VIDAVALUR, SPSR NELLORE DT.

DEPARTMENT OF BOTANY



TEACHING NOTES (2021-22)

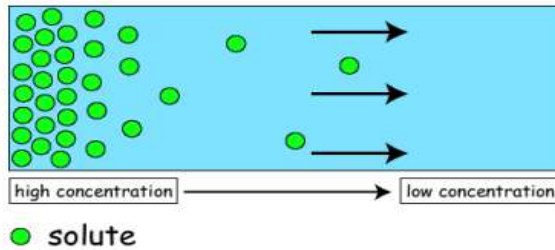
Paper-IV : *Plant Physiology and Metabolism*

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Plant-Water relations
Hours Required	5
Learning Objectives	students will be able: To study the plant water relations and physical properties of water. • To study physical processes of water, diffusion, osmosis, absorption of water and factors affecting water absorption process. • To study the ascent of sap and its mechanism.
Previous Knowledge to be reminded	Source of water and Importance of water
Examples/Illustrations	Scent bottle
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>* Water is an important factor for plant growth as it helps to fulfill all the vital activities of plants. Water is essential for photosynthesis, respiration, absorption of minerals and nutrients, metabolism and even to maintain the soil temperature too.</p> <p>* Beside this, water is also important in various other processes too, as it helps in the germination of seeds and in the process of transpiration etc.</p> <p>*Water helps a plant by transporting nutrients through the roots. Nutrients are drawn from the soil and used by the plant. Without enough water in the cells, the plants droop so water helps a plant stand.</p> <p>*Water carries the dissolved sugar and other nutrients through the roots. Plants absorb water through their entire surface- roots, stems and leaves. However, the majority of water is absorbed by root hairs. To maintain the level of water inside the plant cells, it is necessary, to loss excess water from plant cells either in the form of evaporation or through transpiration.</p> <p>*Evaporation of water from leaves is primarily controlled by stomata, sometimes lenticels and pores also helps in this process. This shows that, plants have a strong and significant relationship with water. Plant water relation means plants control the hydration of their cells including the collection of water from the soil, its transport within the plants and its loss by evaporation from the leaves.</p> <p>*Transpiration also includes a process called guttation, which is the loss of water in liquid form from the uninjured leaf or stem of the plant principally through water stomata known as hydathodes. Studies have revealed that about 10 percent of the moisture found in the atmosphere is releases by plants through transpiration.</p>	

Diffusion:

The diffusion means to spread; to flow out, to extend Diffusion can be simply defined as the movement of particles of matter due to their kinetic energy or the net movement from one point to another because of the random kinetic activities of molecules or ions is called diffusion. Diffusion refers to the process by which molecules intermingle as a result of their kinetic energy of random motion. However, the direction of movement of diffused particles is from the region of higher concentration to the region of lower concentration till both the concentrations equalize.

Diffusion



Osmosis:

* A plant cell has a cell membrane and cell wall as its boundary. The cell wall is freely permeable to water hence it is not buried to movement of water. Osmosis is the net movement of solvent molecule through a semipermeable membrane into a region of higher solvent concentration to the region of lower solvent concentration in the direction that tends to equalize the solute concentration on the two sides.

*If two solutions of different concentrations are separated by a semi-permeable membrane which is permeable to a small solvent molecules but not to the larger solute molecules than the solvent will tend to diffuse across the membrane from the less concentrated to more concentrated solution.

*Osmosis is essentially a special type of diffusion of liquids. In simple words, osmosis may be considered as diffusion when two solutions of different concentrations are separated by means of a semi-permeable.

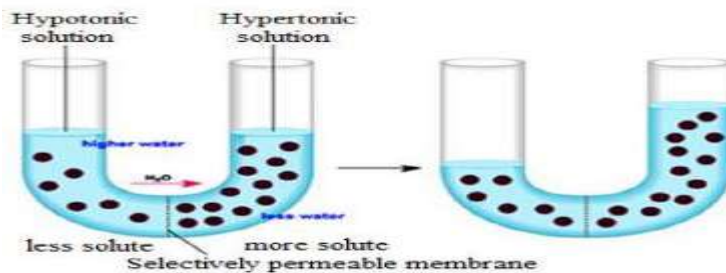


Fig.1.3 Demonstration of Osmosis Phenomenon

Mechanism of Water Absorption:

To know the exact mechanism of water absorption two main theories are proposed by the workers- (i) **Active absorption** (ii) **Passive absorption**

Active Absorption:

Water absorption takes place due to the activities of root, while shoot does not concern any affair. To explain the mechanism of active absorption various theories have been put forward by scientists/ workers from time to time. There are two major theories to explain the active absorption of water-

- (a) Osmotic theory of active absorption and
- (b) Non- osmotic theory of active absorption

Ascent of Sap:

As described previously that the absorption of water is takes place by root hairs of the plant from where it reaches to xylem via cortical cells and passage cells. It reaches top to the plant through xylem and then it transpired by leaves and also used for other metabolic activities. From time to time by a number of experiments it has been demonstrated that xylem is the main water conducting tissue. Thus the upward movement of water from stem base to tree top is called ascent of sap.

Mechanism of Ascent of Sap:

I .Vital Force Theories:

All those theories which considered the living cells to be responsible for the upward movement of water and minerals or ascent of sap are categorized under vital theories. Westerrmeir, Godlewski and Jones in 1880-84 stated that the living cells of a stem play a significant role in ascent of sap, according to them the living tissues involved in the ascent of sap.

Godlewski (1884) put forward ‘_Clambering’ (or relay pumping) theory to explain mechanism of ascent of sap.

Sir J.C. Bose (1923), the Indian scientist proposed —Pulsation Theory of Ascent of Sap|| and observed pulsatory activities performed by the innermost cortical cells lying just outside the endodermis.

II. Root Pressure Theory:

It is noted that if a plant stem is cut a few inches above from its base with a sharp knife, the xylem sap is seen flowing out through the cut end. This phenomenon is called —exudation or bleeding|| This process of upward flow of water by Priestley. He proposed that this flow is due to a hydrostatic pressure developed in root system. He said that root pressure is assort of hydrostatic pressure which develops in the roots due to accumulation of absorbed water. The term root pressure was postulated by Stephan Hales (1727) and observed that water rise in a 8 mm diameter tube to a height of 63 metres, (in several days) connected to a cut stump of vine system.

III.Physical Force Theory:

1.Capillary Theory: This theory was proposed by Boehm (1805)

2.Imbibitional Theory: Unger (1868)

3.Atmospheric Pressure Theory:

4.Transpiration Pull or Cohesion- tension Theory: This theory was proposed by Dixon and Jolly (1894)

*-Due to transpiration pull the water forms a continuous column from base of the plant to its top and remains under cohesion-tension. Thus the water is pulled up to the top of the tree according to the need of the plant.

*Nature of Cohesion-tension theory: This most accepted and important theory has the following significant features. i) Water forms a continuous column from base of the plant to its top. ii) First of all due to transpiration water is lost from mesophyll cells and develops a pulling force. It puts these cells under tension. iii) This tension may cause a break in the water column but due to cohesive property of water molecules or due to tensile strength of the column the continuity of column is not broken. iv) This tension of transpiration pull is transmitted to the base or root region to regulate absorption.

Signature of the Lecturer

Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	TRANSPIRATION
Hours Required	3
Learning Objectives	students will be able: • To study the phenomenon of transpiration. • To study the mechanism of opening and closing of stomata. • Different factors affecting transpiration
Previous Knowledge to be reminded	Source of water and Importance of water
Examples/Illustrations	Leaves & Young stems
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
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Any other activity	
Synopsis	

Plants absorb a considerable amount of water through their roots and carried to the top of the plant. The absorbed water is utilized by the plant. The remaining water is lost from a plant, primarily in the form of water vapours and rarely in the form of liquid from the aerial parts of plant. The loss of water from the living tissue of aerial parts of the plant in the form of water vapours is termed as "transpiration" and in the form of liquid is known as "guttation".

Types of Transpiration:

Lenticular Transpiration:

Cuticular Transpiration:

Stomatal Transpiration:

Mechanism of Stomatal Opening and Closing:

Microscopic direct observation and measurement studies show that the movement and the opening and closing of stomata are brought about by changes in the volume and shape of the guard cells. It is revealed that the expansion and contraction of the guard cells must be due to turgidity and flaccidity respectively i.e. when guard cells are pores are open but when flaccid the pores are closed. The size of the pore depends on upon the degree of turgidity of guard cells. When the guard cells absorb water from the surrounding cells and become turgid. When turgidity increases, the outer thin walls of guard cells stretch outward causing outward stretching of their inner wall. The inner inelastic wall becomes concave and as a result the space surrounding the pore become wide and the pore opens. Thus in the opening and closing of stomata, turgidity of guard cells plays significant role. So what is the mechanism working behind the change in turgidity in guard cells has a question of great controversies. To explain it many theories has been proposed.

1. **Theory of Photosynthesis in Guard Cells:** According to Von Mohl (1956), stomata open in

day and close at night. Based on this hypothesis he proposed that in the presence of night, photosynthesis occurs in the guard cells and produces carbohydrates due which osmotic pressure of guard cells increases. The opening sequences explains the mechanism of stomatal opening-In presence of light----- Photosynthesis (in guard cells)----- Sugar formation takes place- -----Osmotic pressure of cell sap increases-----Resulting Endosmosis (water enters from neighbouring epidermal cells) ----- Turgidity of guard cells increases-----Stomata increases

2. **Theory of Starch** -----Sugar Inter-conversion: According to Lloyd (1905), Loftfield (1921) and Sayre (1926), the amount of starch in the guard cells increases during night and decreases during day time. Hence the insoluble starch present in the guard cells in hydrolysed into soluble glucose -1- 1P in presence of phosphorylase enzyme during day time and soluble glucose -1-P is converted into soluble starch during night. Thus both these reactions are reversible as follows-

Starch + Phosphorylase =====Day/ Night===== Glucose1- PO4 (Insoluble) (Soluble)

3. **Theory of Proton Transport**-This theory was proposed by Levitt (1974) base on proton - transport concept. It explains the mechanism of opening and closing of stomata.

* According to this theory, potassium ions (K⁺) have been found to play a critical role. The opening and closing of the stomata are the result of an active transport of potassium ions into the guard cells and out of them. At first malic acid is formed from starch in the guard cells which dissociates into cations and anions- (R (COOH) 2 ===== R (COO-) 2 + 2H⁺) H + ===== K⁺ The organic acid provide H⁺ in exchange for Potassium (K⁺) and anions to balance the charges of K⁺.

Malic acid is synthesized in illuminated guard cells which accomparises the influx of potassium ions.

The exact biochemical steps involved are not fully known. One of them possible step many be that during day time starch is metabolized to malic acid and then light triggers the excretion of malic acid from chloroplast into the cytoplasmic guard cells. For stomatal opening and closure Noggle and Fritz (1976) have summarized the events-- i) During day time, light- induced stomatal opening as follows: Light -----Malic acid production ----- Dissociation into hydrogen and malic ions ----- Influx of K⁺ and efflux of H⁺ ----- Transport of Potassium malate into the vacuoles -----Osmotic entrance of water into guard cells ----- increase of turgor pressure -----stomata open.

Closing to this an abscissic acid (ABA), an inhibitor involves in the closing of stomata, which functions in presence of CO₂. ABA inhibits K⁺ uptake by changing the diffusion and permeability of guard cells. The K⁺ moves out to the subsidiary cells. ABA results in lowering of PH of guard cells and induces the process of acidification. At low PH starch is synthesized and thus osmotic pressure of guard cells lowers and water moves out of guard cells to subsidiary cells. Due to this the guard cells became flaccid and stomatal pore is then closed.

Plant Anti -respirants:

* As a fact the total water absorbed by the plant, almost 98% of the total water is lost in transpiration and only an insignificant amount is utilized by the plat for its own purpose.

*Due to this, plans have to face several problems, this enormous loss of water can be reduce, it will be an asset to nature and to the agriculturists.

* Recently scientists made efforts to find antirespirant substances reducing the transpiration rate without adversely affecting exchange of gases during photosynthesis and plant growth.

*Any material applied to plants for the purpose of retarding transpiration is known as anti-aspirant. Examples of anti-aspirants are colorless plastics, silicon oils, low viscosity waxes, abscissic acid, CO₂ etc.

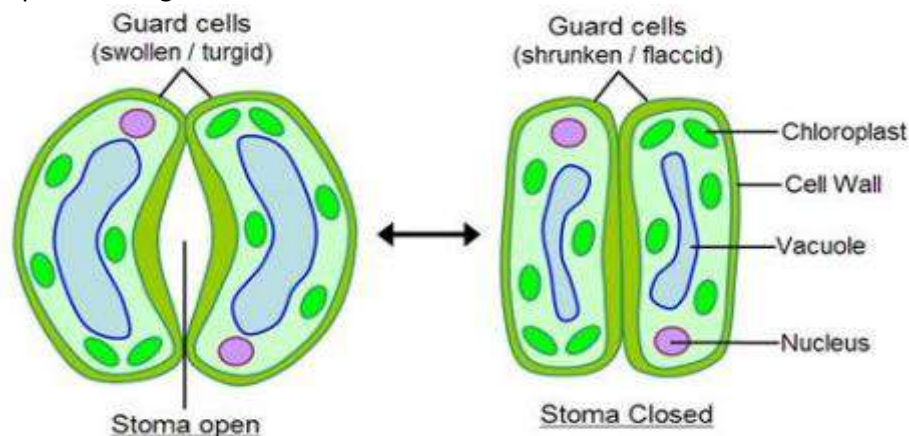
* Among them colorless plastics, silicon oils and low viscosity waxes, sprayed on the

leaves and these substances forms a thin film permeable to CO₂ and oxygen but not to water. This approach gets only limited success.

* Similarly the fungicide phenyl mercuric acetate when applied in low concentration. it exercised very little toxic effect upon leaves and resulted in partial closure of stomatal pores for over two weeks, it works as anti-espitant.

Carbon-dioxide:

Carbon-dioxide is an effective and anti-espitant. It is reported that a little rise in CO₂ concentration from the natural 0.03 to 0.05% in atmosphere includes partial closure of stomata. But its higher concentration is harmful which results in complete closure of stomata and adversely affecting photosynthesis and respiration, while use of CO₂ inhibited phosphorylation. Its usage cannot be economical and is practically feasible in experimental glass houses.



P. J.

Signature of the Lecturer

B. S.

Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Mechanism of phloem transport; source-sink relationships.
Hours Required	2
Learning Objectives	students will be able- • To study structural organization of phloem tissue • To understand significance and mechanism of phloem translocation • To learn about different theories of translocation • Different environmental factors affecting the process of translocation.
Previous Knowledge to be reminded	Source of water and Importance of water
Examples/Illustrations	Phloem
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

* The process of translocation of solutes occurs through phloem tissue.

Phloem tissue is made up of different types of cells, each of which performs a specific function in the process of translocation. Translocation of solutes is a pressure driven transport process, solutes are transported from the region where their concentration is high to the regions which require nutrients. Several physiological and environmental factors such as temperature, oxygen, age of plant, seasonal variation, developmental stage of plant, water etc affect the rate of translocation.

Structure of phloem tissue----

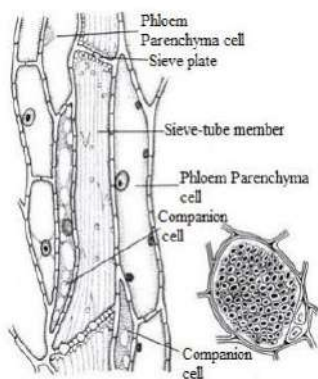


Fig.4.1 Organization of phloem tissue

Evidences which show translocation occurs through phloem—

I. Ringing experiment:

II. Exudation incision in bark:

(iii) Evidences from tracer techniques:

(iv) Chemical analysis:

MECHANISM OF PHLOEM TRANSPORT (PHLOEM LOADING AND UNLOADING)---

Munch mass flow hypothesis:

The hypothesis was proposed by Munch (1927-1930). This hypothesis is also known as pressure flow hypothesis. Protoplasm of sieve tubes is connected by plasmodesma which forms an uninterrupted permeable system known as symplast. According to this theory, solute gets accumulated in leaves as a result of photosynthesis. This increases the osmotic potential of leaves, due to which water is absorbed from xylem elements and turgor pressure directs transport of solution (containing solute) into sieve tube (phloem).

In other regions of plants such as roots and storage organs, the solutes are utilized or get converted into insoluble form. This results in lowering of osmotic pressure, which lowers turgor pressure. Overall, this results in a turgor pressure gradient with high pressure in leaves (source) and lower pressure in roots (sink). Hence, water with solutes flows from source to sink.

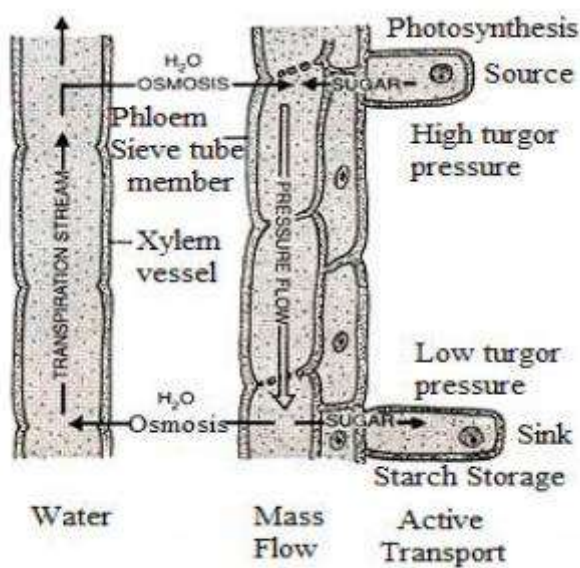


Fig.4.8: Representation of Munch mass flow hypothesis

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Mineral nutrition,
Hours Required	3
Learning Objectives	student will be able understand- • about the Mineral nutrition • about essential macro-elements, their role, deficiency symptoms, toxicity symptoms • about the essential micro-elements, role, deficiency symptoms, toxicity symptoms • about Absorption of mineral salt • process of Mineral uptake
Previous Knowledge to be reminded	Source of water and Importance of water
Examples/Illustrations	Inorganic elements
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>To complete the life cycle normally a living organism requires the supply of a large number of substances from outside. The supply is called nutrition. The autotrophic plants manufacture organic food by the process of photosynthesis. These plants also require some inorganic salts like Potassium, Calcium, Iron, Sulphur etc for their growth. These inorganic substances occur in soil in form of solution. This inorganic nutrition of plants is commonly known as Mineral nutrition.</p> <p>ESSENTIAL MINERAL ELEMENTS—</p> <p>The important criteria for essential elements are as follows</p> <ol style="list-style-type: none"> 1- These elements are absolutely necessary for supporting normal growth and reproduction of plant. 2- 2- These elements are always specific and cannot be replaced by only other elements. 3- 3- These elements is directly involved in the metabolism of the plant. <p>It has since long been known that carbon, hydrogen and oxygen are essential elements for the plant. In the middle of last century water culture and sand culture experiments has established that the elements nitrogen phosphorus, potassium, magnesium, calcium and iron were indispensable for the plants. In the absence of any one of these elements the growth of shoots or roots are stunted. The essential elements are classified into two broad categories called (i) Macronutrients and (ii) Micronutrients.</p> <p>The macronutrients are carbon, hydrogen, oxygen nitrogen, phosphorus, sulphur, potassium, calcium, magnesium are generally present in plant tissues in concentrations of 1 to 10mg per gram of dry matter. The micronutrients or trace elements are manganese, copper, molybdenum, zinc, boron and chlorine, recently some other such elements have also been discovered, e.g. cobalt, vanadium and nickel. The microelements are required in very low quantity. i.e., about 0.1</p>	

mg per gram of dry matter.

MACRONUTRIENTS& MICRONUTRIENTS---

Macronutrients	Functions	Deficiency effects
Carbon (C) , oxygen (O), hydrogen (H)	Basic ingredients for photosynthesis	Inhibition of growth and metabolism, death
Nitrogen (N)	Components of proteins, nucleic acids, coenzymes, and chlorophyll	Inhibition of growth; young leaves are pale green; old leaves are yellow and fall-off easily (chlorosis)
Sulfur (S)	Components of some amino acids	Leaves are pale green or yellowish and growth is slow
Potassium (K)	Activator of enzymes, controlling water diluting balance, and influence osmosis	Slow growth; curling of old leaves' tip, spotted, scorching edge; plant body is weak and easily breaks
Calcium (Ca)	Control some cell functions and strengthen cell wall	Leaves are not formed; terminal bud dies; root growth is inhibited
Phosphor (P)	Components of nucleic acids, phospholipids, and ATP	Vascular bundles are purplish; inhibition of growth; little production of fruits and seeds
Magnesium (Mg)	Components of chlorophyll and activate some enzymes	Chlorosis and falling leaves; disturbed cell division

Chlorine (C)	Control root and stem growth and photolysis	Wilting; chlorosis; and dead leaves
Iron (Fe)	Control protein synthesis and electron transport	Chlorosis; formation of yellow lines and green on grass

TABLE 1.2 (continue)

Micronutrients	Functions	Deficiency effects
Boron (B)	Control germination, flowering, fertilization, cell division, and nitrogen metabolism	Shoot growth stops, lateral branches die; leaves thicken and curl and become fragile
Manganese (Mn)	Chlorophyll synthesis and coenzyme activation	Vascular bundles darken and leaves whiten and fall
Zinc (Zn)	Control production of auxin, chloroplast, amylum, and enzymatic components	Chlorosis; leaves are dark red and roots are abnormal
Copper (Cu)	Components of several enzymes	Chlorosis; spots on dead leaves; growth inhibition
Molybdenum (Mo)	Parts of enzymes used in nitrogen metabolism	Pale green and curly leaves



Signature of the Lecturer



Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Enzymes
Hours Required	12
Learning Objectives	students will be able to - • Explain the enzymes and their role. • Explain about discoveries related to enzymes. • Describe old and new pattern of enzyme nomenclature, and EC Code. • Classify the enzymes on the basis of their catalytic properties. • Describe the characteristic features and properties of the enzymes.
Previous Knowledge to be reminded	Proteins and their structures&types
Examples/Illustrations	
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad: Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	Chart preparation
Synopsis	
<p>Enzymes are biocatalyst, macromolecules of biological origin, which speeds up a chemical reaction but remain, unchanged itself at the end, so that it can be used again and again. They have extraordinary catalytic power, often far greater than that of synthetic or inorganic catalysts. Some enzymes can make their conversion of substrate to product occur millions of time faster. They have a high degree of specificity for their substrates. They accelerate chemical reactions tremendously and they function in aqueous solutions under very mild conditions of temperature and pH.</p> <p>DISCOVERY--</p> <p>*French chemist Anselme Payen was first to discover an enzyme, diastase in 1833. But biological catalysis was recognized and described in the 1850s by Louis Pasteur. He revealed that the 'living intact' yeast cells were responsible for fermentation of sugar in to alcohol and used the term 'ferments' for such catalysts.</p> <p>* 1897 Edward Buchner discovered that yeast extracts could ferment sugar to alcohol, because of this work he is credited for the discovery of enzyme.</p> <p>* Frederick W. Kuhne coined the word enzymes (en= in, zyme= yeast).</p> <p>* James B. Sumner (1926) isolated enzyme urease for the first time in crystalline form from Jack bean, <i>Canavalia ensiformis</i> at the Cornell University.</p> <p>* John Northrop crystallized pepsin, trypsin and other digestive enzymes and found them also to be proteins. On the basis of all these findings, he determined the proteinaceous nature of enzymes.</p>	

For such a pioneer and innovative work, Sumner and Northrop share the Nobel Prize in 1947. The discovery that enzyme could be crystallized eventually help in the X-ray crystallography of enzyme lysozyme by D.C. Phillips in 1965. J.B.S. Haldane first time suggested that weak bonding interactions between an enzyme and its substrate might be used to catalyze a reaction.

Properties of Enzymes---

1. **Catalytic Property** - Enzymes are capable of catalyzing biochemical reactions. They transform large number of substrate into products without undergoing any change themselves. Catalytic power of enzyme is measured in terms of —turn over number|. Turn over number is the number of substrate molecules converted into product per unit time, when the enzyme is fully saturated with substrates
2. **Colloidal Nature** - Enzymes are partly or totally proteins hence they are colloidal in nature. They have high molecular weight and low diffusion rate and form colloidal system in water.
3. **Reversibility** - In most of the cases the reactions catalyzed by the enzymes are reversible depending upon the requirements of the cell.
4. **Specificity** - Enzymes are highly specific in action with few exceptions, i.e. particular enzyme can catalyze only a particular type of reaction.
5. **Heat Sensitivity** (Thermostability) - The enzymes are proteinaceous in nature, hence they are thermo labile. They work in narrow range of temperature (20oC – 40oC). Beyond 45oC enzymes get denatured i.e. they loses their activity due to change in 3-D structure of protein and their properties are not restored even after giving suitable temperature.
6. **pH Sensitivity** - Each enzyme acts best at certain pH. Most of the enzymes act in neutral pH. Any increase or decrease in medium pH leads to slow down or inhibition of enzymatic activity.

-Major classes:

1. **Oxidoreductase** – catalyze oxidation-reduction reaction (transfer of electrons or protons).
2. **Transferases** – catalyze reaction which involves transfer of functional groups from one molecule to another molecule.
3. **Hydrolases** – catalyze breaking of one molecule in to two molecules by adding water molecule (transfer of functional group to water).
4. **Lyases** – catalyze reactions in which either a double bond is established due to the removal of a group or a group is added to the double bond.
5. **Isomerases** – catalyze isomerisation reactions (transfer of functional group within the molecule).
6. **Ligases** – also called as synthetases, catalyze those reactions in which linking of two molecules are coupled with the breakdown of pyrophosphate bond of ATP or similar triphosphate.

Mechanism of the enzyme action.

Enzyme-catalyzed reactions are characterized by the formation of a complex between substrate and enzyme (an ES complex). Substrate binding occurs in a pocket on the enzyme called the active site. The function of enzymes and other catalysts is to lower the activation energy, for a reaction and there by enhance the reaction rate. The rate of a reaction is dependent on the activation energy required for the formation of the transition state which further decays into products. Enzymes increase reaction rate by lowering the energy of the transition state, ES complex. For a reaction, a molecule must possess enough energy to collide with sufficient force to overcome their mutual repulsion and to break existing chemical bonds . A reaction without enzyme requires more activation energy than an enzymatic reaction. However, that the overall energy changes from the initial state to the final state is the same with and without the enzyme. Enzymes speed up the rate of a reaction by lowering the energy barrier between substrates

(reactants) and products but are not themselves used up in the reaction, and are regenerated at end. Thus, an enzyme increases the rate of a reaction but does not affect the equilibrium ratio of reactants and products, because the rate of the reaction in both directions are increased to the same extent.

Mode of Action-----

Lock and Key model:

This model was proposed by a German chemist Emil Fischer in 1898. According to this model, lock is analogous to enzymes and its socket (in which key fits) is analogous to active site, while key is analogous to substrate. It is believed that the enzyme and substrate both have strictly complementary structures which during complex formation fit to each other like a specific key in a particular lock. This model explains enzyme specificity in which a substantially rigid active site is likened to a 'lock' and the substrate to a 'key' that fits the lock. The enzyme-substrate complex dissociates only after the conversion of substrate into products and the enzyme becomes free and available for further reactions.

Induced Fit model:

This model was proposed by Daniel Koshland in 1966. According to this model, the enzyme and substrate do not have strictly complementary structures but the enzyme has flexible active site structure which is changed according to substrate configuration (Figure – 11.5). This model explains enzyme specificity in which a flexible active site is induced, by a substrate, to change its conformation to an orientation properly fitting the substrate's geometry. Enzyme-substrate complex brings about conformational change in active site, in such a fashion so that catalytic group lies opposite the substrate bonds to be broken. ES binding forces exert strain to form products.

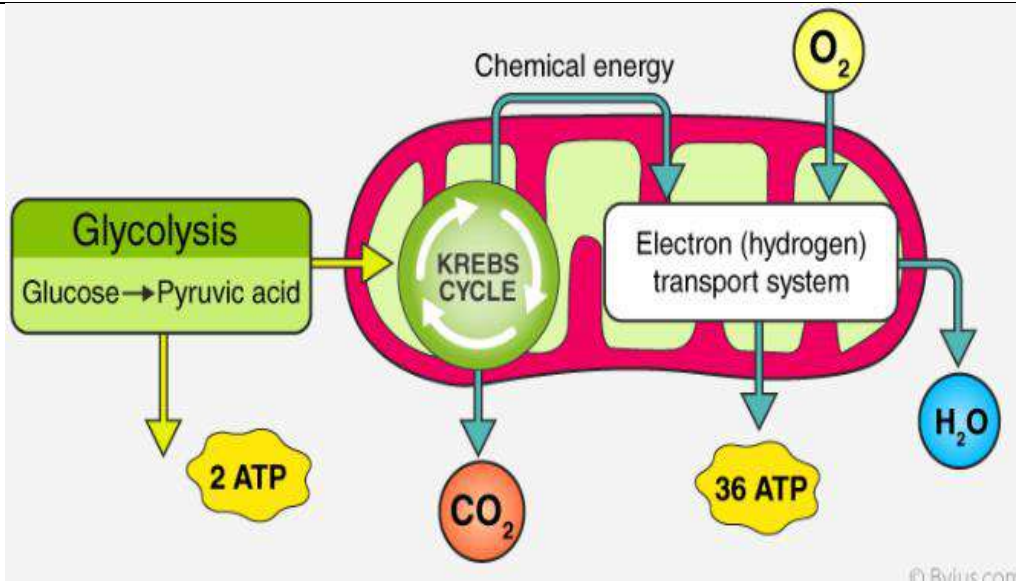


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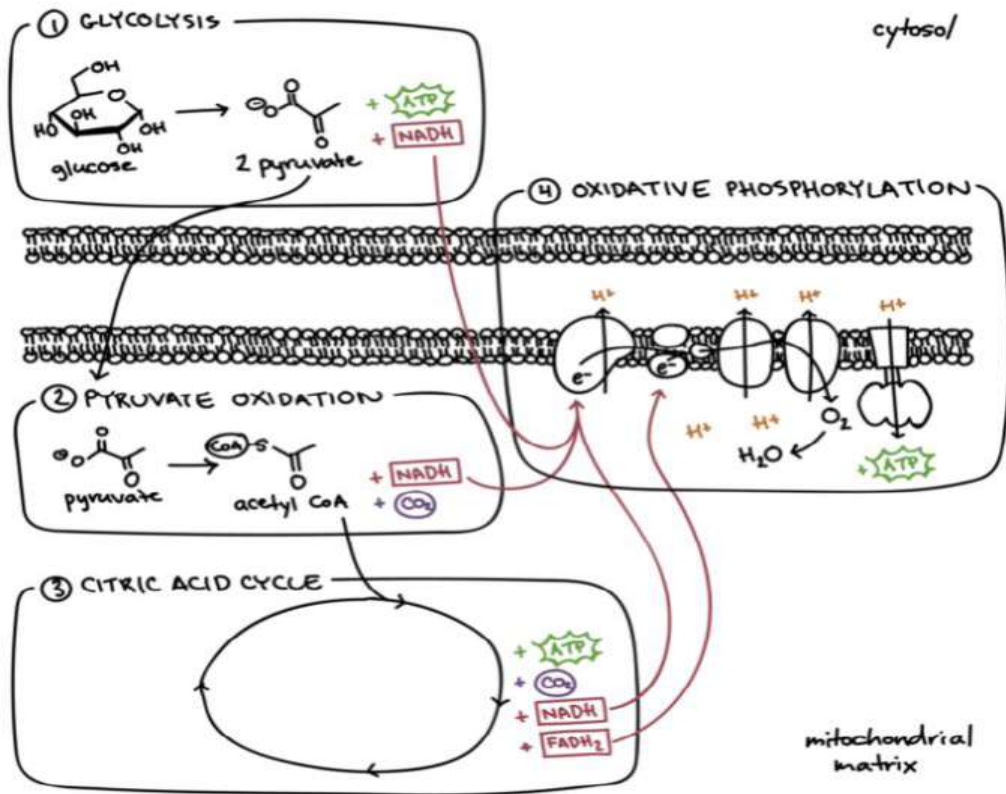


Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Respiration
Hours Required	8
Learning Objectives	<p>t students will be able to-</p> <ul style="list-style-type: none"> • Understand the significance and mechanism of respiration. • Learn the mechanism of aerobic and anaerobic respiration. • Understand Kreb's cycle and electron transport mechanism and fermentation mechanism.
Previous Knowledge to be reminded	Stomata lenticels functions
Examples/Illustrations	Different types of leaves stomata
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
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Any other activity	
Synopsis	
<p>Respiration is one of the many processes needed for survival. It is the process by which energy is released from food by oxidizing the organic molecules. Respiration may occur in the presence of oxygen, in which case it is called aerobic respiration or it may occur in the absence of oxygen and is called anaerobic respiration. The main organic molecules used in respiration are carbohydrates, such as the monosaccharide glucose and fructose, and fats. Proteins may also be oxidized however it is a secondary source as protein is needed for other things such as cell growth and repair.</p> <p>Respiration starts with glucose (usually). In aerobic and anaerobic respiration initial reactions are common as a result of which pyruvic acid is formed by breakdown of glucose. The process is called Glycolysis or EMP Pathway (Embden-Meyerhof-Parnas Pathway). This process does not require O₂ although this can take place in the presence of oxygen. After this stage, the fate of pyruvic acid is different depending upon the presence or absence of oxygen. (Fig.2). If oxygen is present there is complete oxidation of pyruvic acid into H₂O and CO₂ and chemical reactions through which this occurs is called Tri-Carboxylic Acid cycle (TCA Cycle) or Krebs Cycle. This cycle occurs in mitochondria. If oxygen is absent, pyruvic acid forms ethyl alcohol (C₂H₅OH) and CO₂ without the help of any cell organelle. This process is called anaerobic respiration</p> <p>AEROBIC RESPIRATION---</p> <ol style="list-style-type: none"> 1.Glycolysis 2.Oxidation and decarboxylation of Pyruvate 3.Krebs cycle 4.ETS 	



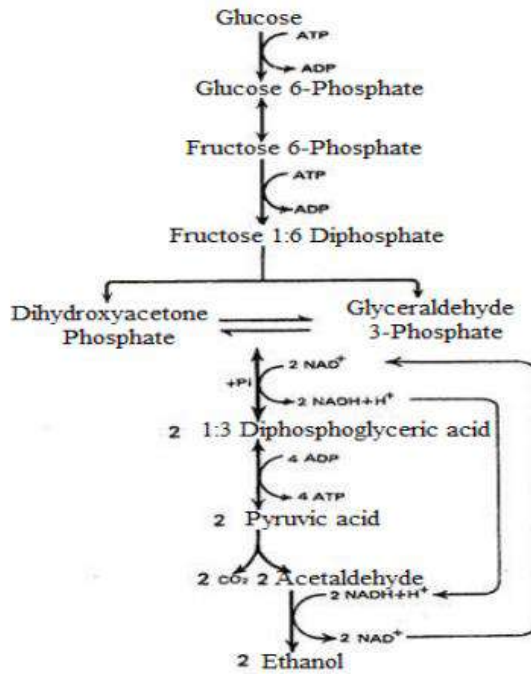
Steps of cellular respiration



ANAEROBIC RESPIRATION—

1. Glycolysis

2. Fermentation



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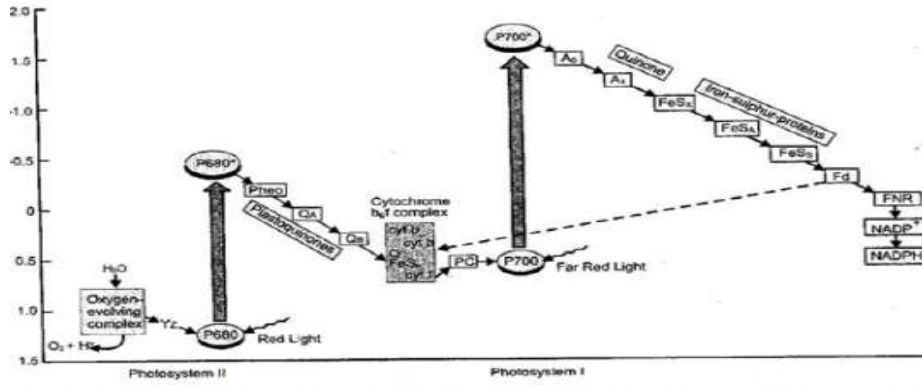
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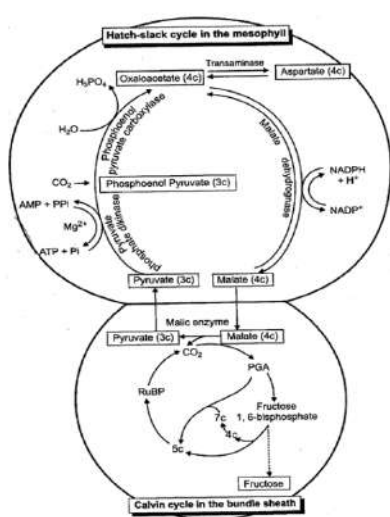
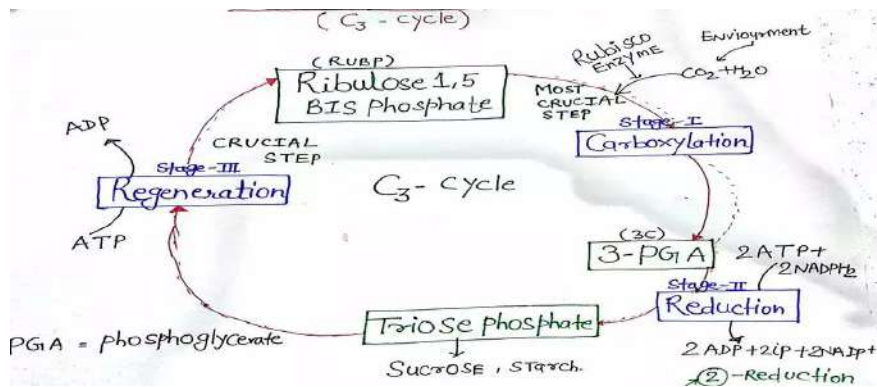
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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Photosynthesis and Photorespiration
Hours Required	12
Learning Objectives	students will be able to- • Understand the significance and mechanism of photosynthesis. • Learn about different photosynthetic pigments. • Understand the mechanism of photophosphorylation. • Photorespiration
Previous Knowledge to be reminded	Leaf structure and Chloroplast structure
Examples/Illustrations	Different types of leaves
Additional Inputs	Flash cards
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	Chart preparation
Synopsis	
<p>* Photosynthesis is the chemical change which happens in the leaves of green plants. It is the first step towards making food - not just for plants but ultimately every animal on the planet.</p> <p>*All green parts of a plant have chloroplasts.</p> <p>* However, the leaves are the major site of photosynthesis for most plants. There are about half a million chloroplasts per square millimeter of leaf surface.</p> <p>* The color of a leaf comes from chlorophyll, the green pigment in the chloroplasts. Chlorophyll plays an important role in the absorption of light energy during photosynthesis.</p> <p>* Powered by light, the green parts of plants produce organic compounds and O₂ from CO₂ and H₂O.</p> <p>*The equation describing the process of photosynthesis is: a. $6\text{CO}_2 + 12\text{H}_2\text{O} + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 + 6\text{H}_2\text{O}$ b. C₆H₁₂O₆ is glucose.</p> <p>*Water appears on both sides of the equation because 12 molecules of water are consumed, and 6 molecules are newly formed during photosynthesis.</p> <p>*We can simplify the equation by showing only the net consumption of water: a. $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light energy} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$</p> <p>* Photosynthesis is two processes, each with multiple stages.</p> <p>* The light reactions (photo) convert solar energy to chemical energy.</p> <p>* The Calvin cycle (synthesis) uses energy from the light reactions to incorporate CO₂ from the atmosphere into sugar.</p> <p>*In the light reactions, light energy absorbed by chlorophyll in the thylakoids drives the transfer of electrons and hydrogen from water to NADP⁺ (nicotinamide adenine dinucleotide phosphate), forming NADPH. a. NADPH, an electron acceptor, provides reducing power via energized electrons to the Calvin cycle. b. Water is split in the process, and O₂ is released as a by-product.</p>	

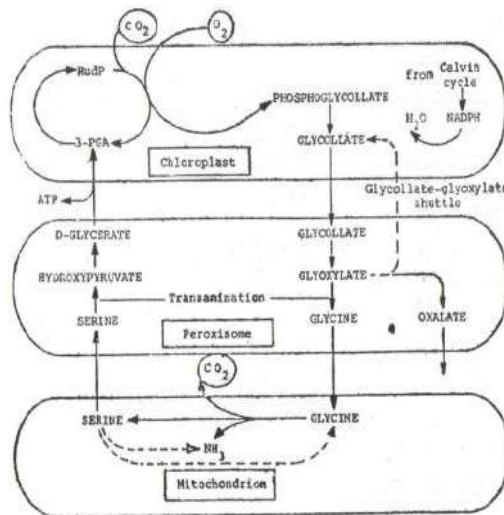
- * The light reaction also generates ATP using chemiosmosis, in a process called photophosphorylation.
- * Thus light energy is initially converted to chemical energy in the form of two compounds: NADPH and ATP.
- * The cycle begins with the incorporation of CO₂ into organic molecules, a process known as carbon fixation.
- * The fixed carbon is reduced with electrons provided by NADPH.
- * ATP from the light reactions also powers parts of the Calvin cycle.
- * Thus, it is the Calvin cycle that makes sugar, but only with the help of ATP and NADPH from the light reactions.
- * The metabolic steps of the Calvin cycle are sometimes referred to as the light-independent reactions, because none of the steps requires light directly.
- * Nevertheless, the Calvin cycle in most plants occurs during daylight, because that is when the light reactions can provide the NADPH and ATP the Calvin cycle requires.
- * While the light reactions occur at the thylakoids, the Calvin cycle occurs in the stroma.
- * There are two types of photosystems in the thylakoid membrane.
 - a. Photosystem I (PS I) has a reaction center chlorophyll a that has an absorption peak at 700 nm.
 - b. Photosystem II (PS II) has a reaction center chlorophyll a that has an absorption peak at 680 nm.
 - c. The differences between these reaction centers (and their absorption spectra) lie not in the chlorophyll molecules, but in the proteins associated with each reaction center.
 - d. These two photosystems work together to use light energy to generate ATP and NADPH.
- * During the light reactions, there are two possible routes for electron flow: cyclic and noncyclic.
- * Noncyclic electron flow, the predominant route, produces both ATP and NADPH.
- * Under certain conditions, photoexcited electrons from photosystem I, but not photosystem II, can take an alternative pathway, cyclic electron flow.
 - a. Excited electrons cycle from their reaction center to a primary acceptor, along an electron transport chain, and return to the oxidized P700 chlorophyll.
 - b. As electrons flow along the electron transport chain, they generate ATP by cyclic photophosphorylation.
 - c. There is no production of NADPH and no release of oxygen.
- * Certain plant species have evolved alternate modes of carbon fixation to minimize photorespiration.
 - * C₄ plants first fix CO₂ in a four-carbon compound.
 - a. Several thousand plants, including sugarcane and corn, use this pathway.
 - * A unique leaf anatomy is correlated with the mechanism of C₄ photosynthesis.
 - * In C₄ plants, there are two distinct types of photosynthetic cells: bundle-sheath cells and mesophyll cells.
 - a. Bundle-sheath cells are arranged into tightly packed sheaths around the veins of the leaf.
 - b. Mesophyll cells are more loosely arranged cells located between the bundle sheath and the leaf surface.
 - * C₄ photosynthesis minimizes photorespiration and enhances sugar production.
 - * A second strategy to minimize photorespiration is found in succulent plants, cacti, pineapples, and several other plant families.
 - a. These plants are known as CAM plants for crassulacean acid metabolism.
 - b. They open their stomata during the night and close them during the day. Temperatures are typically lower at night, and humidity is higher.
 - c. During the night, these plants fix CO₂ into a variety of organic acids in mesophyll cells.
 - d. During the day, the light reactions supply ATP and NADPH to the Calvin cycle, and CO₂ is released from the organic acids.
 - * Both C₄ and CAM plants add CO₂ into organic intermediates before it enters the Calvin cycle.



Current concept of the Z-scheme of light phase of photosynthesis. (After Blankenship)



C 4 CYCLE



C 2 CYCLE

P. J.

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B. S.

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Nitrogen and lipid metabolism
Hours Required	12
Learning Objectives	students will be able to- Explain and define the nitrogen metabolism, Describe various steps of atmospheric nitrogen fixation, Write an account of nitrogen cycle, Describe the process of Nitrogen assimilation.
Previous Knowledge to be reminded	Source of water and Importance of water
Examples/Illustrations	Root Nodules
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>Nitrogen Metabolism--</p> <ul style="list-style-type: none"> * Nitrogen is a very important constituent of cellular components. * N₂ plays a significant role in the formation of Alkaloids, amides, amino acids, proteins, DNA, RNA, enzymes, vitamins, hormones and many other cellular compounds which in turn control cellular activities. Without nitrogen, no living organism can survive. * The nitrogen cycle involves three major steps: nitrogen fixation, nitrification, and denitrification. * Nitrogen cycle is a cycle within the biosphere including the atmosphere, hydrosphere, and lithosphere. * Nitrogen is found in several locations, or reservoirs. It is most prevalent in sediments and rocks, second in the atmosphere (78%). * Nitrogen is considered to be an important for life because it is a major part of amino and nucleic acids. Also, it is well known as important part of Adenosine Tri Phosphate, which is the basic energy molecule for all living things. * Neither plants nor animals can obtain nitrogen directly from the atmosphere. * Therefore, they depend on a process which is known as nitrogen fixation. * Some free living bacteria, fungi and blue green algae (Cyanobacteria) are capable of fixing molecular nitrogen into utilizable form of N₂ i.e. NH₄. Azotobacterveinlandi, Clostridium pasteurianum, Rhodospirillum rubrum, Chromatium, Nostoc, Anabaena, Rivularia etc are the microbes having the ability to fix the molecular nitrogen (asymbioticNitrigen Fixation). * Another biological method of nitrogen fixation is known as symbiotic nitrogen fixation. *Key components in this process are legumes and the symbiotic bacteria which are associated 	

with the legume's root nodules. These bacteria are known as nitrogen-fixing bacteria.

* Leghemoglobin (also termed as leghaemoglobin or legoglobin), which is a nitrogen or oxygen carrier and hemoprotein found in the nitrogen fixing root nodules of leguminous plants.

* These organisms convert nitrogen in the soil to ammonia, which can then be taken up by plants.

* This process also occurs in aquatic ecosystems, where Cyanobacteria (Blue green algae i.e. Nostoc, Anabaena) participate.

* After nitrogen has been fixed, other bacteria convert it into nitrate, in a process known as nitrification.

* In the first step of this process, Nitrosomonas convert ammonia into nitrite, and in the second step, nitrite is converted into nitrate, by Nitrobacter. This nitrate is then consumed by plants.

* The final step of the nitrogen cycle is called denitrification. This process is performed by a variety of microscopic bacteria, fungi, and other organisms. Nitrates in the soil are broken down by these organisms, and nitrogen is released into the atmosphere. This step completes the cycle.

Lipid Metabolism--

Lipids- The lipids are a large and diverse group of naturally occurring organic compounds.

* They show differential solubility in nonpolar organic solvents (e.g. ether, chloroform, acetone & benzene) and are generally insoluble in water.

* Fatty acids are the hydrocarbon chain with one carboxylic acid (-COOH) group.

* Fatty acids are main components of many lipids, constitutes an even number of carbon atoms (generally 12 to 24).

* Lipids include fats, waxes, sterols, fat-soluble vitamins (such as vitamins A, D, E, and K), monoglycerides, diglycerides, triglycerides, phospholipids, and others. Lipids that contain a functional group ester are hydrolysable in water. These include neutral fats, waxes, phospholipids, and glycolipids.

* Nonhydrolyzable lipids include steroids and fat-soluble vitamins (e.g. A, D, E, and K).

* Fats and oils are made of triacylglycerols or triglycerides which are composed of glycerol (1, 2, 3-trihydroxypropane) and 3 fatty acids to form a triester.

* Complete hydrolysis of triacylglycerols yields three fatty acids and a glycerol molecule.

* The plasma membrane is made up of proteins and lipids.

* The main biological functions of lipids include storing energy, functioning as structural components of cell membranes and acting as signaling molecules.

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	IV
Name of the Topic	Plant growth - development and stress physiology
Hours Required	12
Learning Objectives	students will be able to- • meaning of growth and development • phases of growth and developmental patterns in plant. • concept of photoperiodism • Describe the physiology of flowering, biological clocks and physiology of senescence. • fruit ripening process • seed dormancy and describe various methods to break the dormancy in seeds .
Previous Knowledge to be reminded	Cell division
Examples/Illustrations	Coconut milk & yeast extract
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Botany – IV (Vrukshasastram-II) : Telugu Akademi, Hyderabad Pandey, B.P. (2013) College Botany, Volume-III, S. Chand Publishing, New Delhi
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>*Plant growth and development are controlled by several environmental and genetic factors. Growth is any irreversible increase in size of an organism or its parts.</p> <p>*Development and differentiation involve the progressive specialization of cells into tissues and then plant organs.</p> <p>* The growth involves an irreversible increase in size which is usually, but not necessarily, accompanied by an increase in dry weight.</p> <p>* The basic process of growth is to be considered as the production of new protoplasm, which is clearly evident in the regions of active cell division.</p> <p>* The next stage in growth is increase in plant size, which is the result of absorption of water and the consequent stretching of the tissues, a process which in the strict sense is not growth at all, since it involves little or no increase in the characteristic material of the plant itself.</p> <p>* The third and the last stage in growth constitute the entry of plenty of building materials, chiefly carbohydrates, into the expanded young tissues. This results in an increase in the dry weight but no visible increase in external size of the plant.</p> <p>* Growth is, however, more than just an increasing amount of the plant. Differential growth of plant parts results in a characteristic shape. Each plant species has a distinctive form,</p>	

development by growth patterns.

*The growth cycle of annual, monocarpic, flowering plants (angiosperms) begins with the fertilized egg, the zygote. The zygote develops into an embryo following cell divisions and differentiation (embryonal stage).

* The embryo is enclosed within a seed where it undergoes a period of inactivity (dormancy). The resting embryo resumes growth during the germination of seed and develops into a seedling (seedling stage).

*The growth is followed by the differentiation. Differentiation can be recognized at cell level, tissue level, organ level, and at the level of an organism.

*It becomes more obvious at the level of organ and organism. For example, if we consider flower as an organ of plant, it bears sepals for photosynthesis and protection of inner floral parts followed by beautiful, coloured petals to attract insects for cross-pollination and stamens for producing male gametes as well as the carpels for bearing the ovules which after fertilization produce seeds.

* Considering a flowering plant as an organism, we observe that its roots are used for absorption of water and minerals and fixation in the soil; the trunk and stem branches bear leaves for photosynthesis, flowers and fruits and the fruits for bearing the seeds which on germination form each a new plant.

* The seedling grows into a vegetative plant (vegetative phase). After some period of vegetative growth, the plant undergoes maturation and enters the reproductive phase.

* Flowering is an example of environmental responses during plant development. Phytochrome, a photo reversible protein pigment, is involved in light-sensing responses in plants and is associated with several responses including flowering, photoperiodism and vernalization.

*As result of flowering fruits are developed and latter containing the seeds. Finally senescence sets in (senescence stage) leading to the death of the plant.



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VIDAVALUR, SPSR NELLORE DT.

DEPARTMENT OF BOTANY



TEACHING NOTES (2021-22)

SEM-V Paper VI-

Plant Ecology, Phytogeography & Biodiversity

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Climatic Factors-Temperature
Hours Required	2
Learning Objectives	To know the Temperature effects on plants
Previous Knowledge to be reminded	Basics of plant physiology
Examples/Illustrations	Light spectrum
Additional Inputs	
Teaching Aids Used	B.B& PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>TEMPERATURE</p> <p>Plants require definite range of temperature to perform physiological activities. Generally temperature range of 26 to 32 C is suitable for many plants. Based on tolerance to heat plants are classified as follows: -</p> <p>a) Megatherms :- These plants require high range of temperature ie., 40 C . Ex: Xerophytes</p> <p>b) Mesotherms: These plants require neither high or low range of temperature ie., 20 C to 40 C .</p> <p>c) Microtherms:- These plants require very low temperature ie., 0 to 20 C .</p> <p>d) Hekisthotherms:- These plants require extreme low temp.. Ex: Alpine vegetation, bacteria. "Some plants require low temperature for flowering. Cold treatment of plants to induce early flowering is called 'Thermoperiodism'. It is also called 'Vernalisation'. Lysenko used the term Vernalization".</p> <p>Temperature influences most plant processes, including--</p> <ul style="list-style-type: none"> - Photosynthesis, - Transpiration - Respiration, - Germination, and - flowering. <p>As temperature increases (up to a point), photosynthesis, transpiration, and respiration increase. When combined with day-length, temperature also affects the change from vegetative (leafy) to reproductive (flowering) growth. Depending on the situation and the specific plant, the effect of temperature can either speed up or slow down this transition.</p>	

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Climatic Factors-Light
Hours Required	2
Learning Objectives	To know the Light effects on plants
Previous Knowledge to be reminded	Basics of plant physiology
Examples/Illustrations	Light spectrum
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>LIGHT : Based on quantity & intensity of light requirement, plants are ecologically classified into 2 types.</p> <p>I) Heliophytes: Plants growing best in full sun light.</p> <p>II) Sciophytes: Plants growing best in low light intensity. Length of the daily light period to which plants are exposed has effect on the vegetative growth as well as flowering of the plants. The influence of light on the flowering process in plants is called 'Photoperiodism'.</p> <p>---Based on their light requirement for flowering, plants are classified into 3 types:-</p> <p>1] Short day plants:- Plants which flower when day length is short(Between 12- 14 hours) are called ' Short day plants'. Ex: - Aster, Dahlia, Tobacco, Chrysanthimum, Datura, Salvia.</p> <p>2] Long day plants : Plants which flower when day length is length is long are called' Long day p lants'.Ex: Potato, Wheat, Spinach, Radish.</p> <p>3] Day neutral plants:- Plants in which flowering is not affected by length of the day are called 'Day neutral plants'. Ex: Pea, Tomato, Balsam, Sunflower, Cucumis, maize</p> <p>Light is an ecological factor that affects the- distribution of plants. Radiant energy released from sun on reaching earth surface constitute light. It is essential for</p> <p style="padding-left: 40px;">----Development of Chlorophyll, ---Photosynthesis, ---Opening and closing of stomata,</p> <p>---Growth,</p> <p style="padding-left: 100px;">-----Flowering etc</p>	

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Edaphic Factor
Hours Required	2
Learning Objectives	To know the soil effects on plants
Previous Knowledge to be reminded	Basics of plant physiology
Examples/Illustrations	Different types of soils
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Collection of different types of soils
Any other activity	
Synopsis	

Part of earth's crust that supports living organisms, particularly plants is called 'Soil'. It is formed by weathering of rock. It is composed of Mineral matter, Soil water, Soil air, Soil organisms, Horizons etc.

1. MINERAL MATTER

weathering of rock results in mineral particles, which varies in size. depending on their size, mineral particles are of following types:

NAME OF PARTICLE	DIAMETER (mm)
Clay	Less than 0.002
Silt	0.002 to 0.020
Fine sand	0.020 to 0.200
Coarse sand	0.200 to 2.000
Fine gravel	2.000 to 5.000
Coarse gravel	Above 5000

Soil texture is determined by relative proportion of mineral particles of different sizes present in the soil. Based on this soil is classified into following types:-

a) Sandy soil b) Loam soil. c) Clay soil d) Silt soil

ORGANIC MATTER [SOIL HUMUS]

1) Mull humus 2) Mor humus

SOIL SOLUTION

Based on the PH value of soil solution soil can be grouped into 3 types:-

a) **Acidic soil** b) **Alkaline soil** c) **Neutral soil**

SOIL AIR

Spaces between soil particles are known as Pore spaces. These are occupied by soil solution and gases. Space between the soil particles consists of air. it constitutes soil air. gases present are similar to those present in the atmosphere.

SOIL MOISTURE [SOIL WATER]

1. Hygroscopic water 2) Capillary water 3) Gravitational water

Holard- Chresard- Echard.

Based on water content of the soil, ecologically plants are classified into 3 types. They are :-

- a) Hydrophytes b) Xerophytes C) Mesophytes

SOIL ORGANISMS

SOIL PROFILE

- 1) 'A' Horizon:
 - A00 region
 - A0 region
 - A1 layer
 - A2 Layer
- 2) 'B' Horizon.
- 3) 'C' Horizon
- 4) 'D' Horizon

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Biotic factor
Hours Required	2
Learning Objectives	To know the Biotic factors effects on plants
Previous Knowledge to be reminded	Basics of Pollination,Lianes,Seed dispersal
Examples/Illustrations	Different types of
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford &Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Collection of different types of soils
Any other activity	Collection of paper cuttings
Synopsis	
<p>Individuals in a population interact which may be beneficial to both interacting organisms or beneficial to only one partner and harmful to one or both the interacting organisms. Beneficial interactions are called 'Positive 'and harmful interactions are called 'negative 'interactions'.</p> <p>A]POSITIVE INTERACTIONS These include---</p> <p>1)Mutualism-----Ex: Lichens,Nitrogen fixers,Myorrhizae,Dispersal of fruits and seeds Pollination, Myrmecophily</p> <p>2) Commensalism-----Ex: Lianas, Epiphytes,</p> <p>NEGATIVE INTERACTIONS These include---</p> <p>1)Antibiosis- .Antibiosis is a type of negative interaction where one interacting organism is benefited & the other is neither benefited nor harmed. Ex: a) Many members of Actinomycetes fungi, number of lichens produce substances inhabits molds and bacteria. b) Algae Chlorella vulgaris in cultures inhibits growth of Diatom. c) Blue green algae Myrocystis produce toxins hydroxyl amine which causes death of microbes.</p> <p>2) Competition--Competition is a type of Negative interaction where both the interacting organisms are harmed. Ex: a)In ecosystem individuals of the same species or different species compete for space, light, food etc. for their survival. b)In soil Fung, high degree of competition saprophytic ability is shown.</p> <p>3)Parasitism-- a)Cuscuta is a total parasite on green plants. It sucks food, water from host plants through haustoria. b) Some Bacteria live parasites in plants, animals and human beings. Ex; Citrus canker, Mango leaf spot. They cause diseases to the host. C)Fungi such as Albugo, Puccinia, and Cercosporaetc.live as parasites on economically important crops, causing diseases.</p>	

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecosystem--Components
Hours Required	3
Learning Objectives	To know the Interaction between biotic and abiotic components
Previous Knowledge to be reminded	Living things and non living things
Examples/Illustrations	Different types of plants and animals
Additional Inputs	Chart
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Group discussion
Activities planned outside the class	Chart preparation
Any other activity	Collection of different organisms
Synopsis	

ECOSYSTEM:

Introduction A Biotic community lives in an environment which provides materials , energy requirements and forms an interacting system called “ Ecosystem”. The term Ecosystem was introduced by A.G. Tansley in 1935. An Ecosystem can be defined as “A Structural and Functional unit of Biosphere consisting of living organisms and their environment both interacting and exchanging materials between them”.

STRUCTURAL COMPONENTS OF AN ECOSYSTEM-----An Ecosystem consists of 2 components.

They are: -I] A Biotic component II] Biotic component.

I] **A Biotic components** :- The Non living elements of an Environment constitute Abiotic component.They are as follows:- a) Climatic factors b)Inorganic factors c) Organic substance

II] **Biotic components**:- The living organisms like Plants, Animals, Micro organisms of an environment constitutes Biotic components. These are classified into 3 groups Such as Producers, consumers, Decomposers.

1] PRODUCERS: - Producers are Autotrophs .Ex: Green plants. Chlorophyll present in green plants converts solar energy into chemical energy to prepare organic food using carbon dioxide and water during photosynthesis.

2] CONSUMERS:-Consumers are ‘Heterotrophs’. I.e., these depend on producers for their food. These are of 3 types. They are Primary, Secondary, tertiary. A) Primary consumers B) Secondary consumers C) Tertiary consumers

3]DECOMPOSERS: Decomposers are Saprophytes ,They obtain their food by decomposing dead bodies of producers, consumers. These occupy fifth trophic level [T] & often called ‘ Micro consumers’ as they are microscopic OR Reducers as they decompose and remove dead bodies.

Ex:- Saprophytic Bactria, Fungi.

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Food Chain & Food Web
Hours Required	2
Learning Objectives	To know the Food habits of different animals
Previous Knowledge to be reminded	Autotrophs and Heterotrophs
Examples/Illustrations	Different types of Animals
Additional Inputs	Chart
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

FOOD CHAIN--- Flow of food energy from producers through series of organisms with repeated eating and being eaten by others is called 'Food chain'.

I). Grazing food chain: - (predators food chain) In Grazing food chain there is flow of Energy in the form of food from green plants to primary, secondary and tertiary consumer.

Ex:-1] Food chain in Grassland Ecosystem

Producer-◇Primary consumer-◇Secondary consumer--◇ Tertiary consumer◇Quaternary con
Grass-----◇Grasshopper-----◇Frog-----◇Snake-----◇Hawk

2. Food chain in Forest Ecosystem:- Higher plants---◇Deer, Elephant-----◇Lion, Tiger

3. Food chain in Aquatic Ecosystem:-Phytoplanktons--◇Zooplanktons--◇Small fish---◇Large fish

II) Detritus food chain: - In Detritus food chain there is flow of Food Energy from plants to Detritus made up of dead organic matter to micro organisms, then to Detrivores(crabs) and their predators(fishes) Ex:- Mangroove leaves----◇ Detritus----◇ Microorganisms---◇Crabs-----◇Fishes

FOOD WEB--Net work of food chains which are interconnected at different trophic levels to form complex web is called "Food web". OR An interlocking of food chain is called as 'Food web'.



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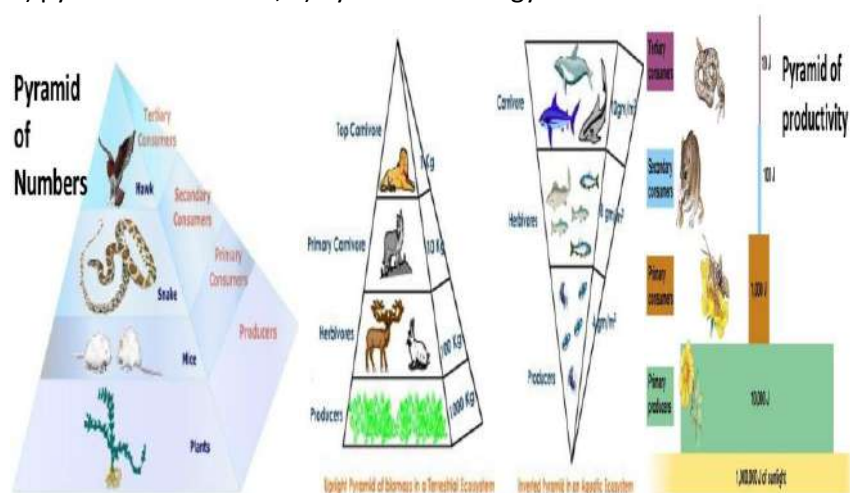
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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecological Pyramids
Hours Required	2
Learning Objectives	To know the relation ship between different animals
Previous Knowledge to be reminded	Autotrophs & Heterotrophs
Examples/Illustrations	Different types of living things
Additional Inputs	Charts
Teaching Aids Used	B.B& PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

ECOLOGICAL PYRAMID -The graphic representation of the structure and functions of various trophic levels of organisms is called "Ecological pyramid". producers forms the base , while successive trophic levels forms the steps one above the other and top carnivores form tip of the pyramid. It was devised by British ecologist charls Elton.

TYPES OF ECOLOGICAL PYRAMID Ecological pyramid is of 3 types .they are 1) Pyramid of Number, 2) pyramid of Biomass, 3) Pyramid of energy.



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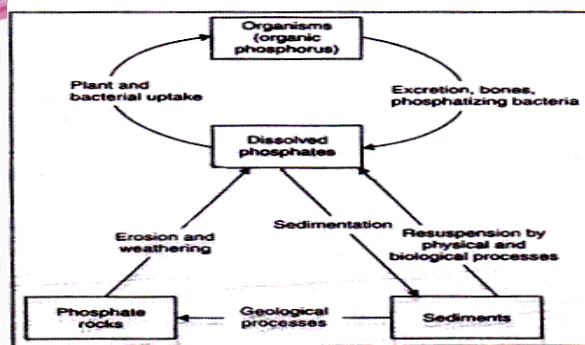
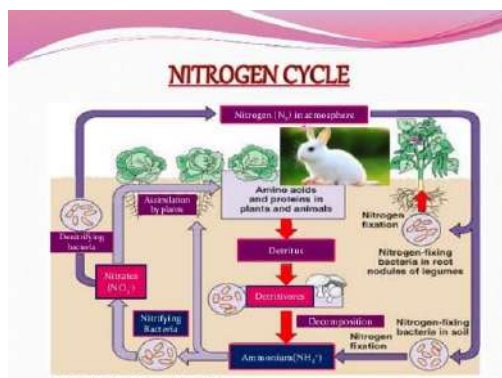
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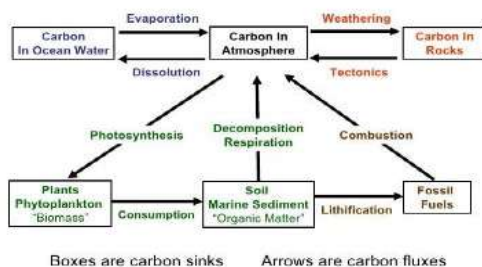
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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	BIO-GEO CHEMICAL CYCLES
Hours Required	4
Learning Objectives	To know the Recycling of different elements in atmosphere
Previous Knowledge to be reminded	Different Microbes
Examples/Illustrations	Different plants animals and Microbes
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	Paper collection Related ecology
Synopsis	

BIO-GEO CHEMICAL CYCLES –



The Carbon Cycle



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	population
Hours Required	2
Learning Objectives	To know the population increase and decrease in ecosystem
Previous Knowledge to be reminded	
Examples/Illustrations	Different animals and plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	assignment
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

POPULATION --- 'Population' is defined as a group of freely interbreeding individuals of the same species present in a specific area at a given time. For example, when we say that the population of a city is 50,000, we mean that there are 50,000 humans in that city. However, all populations of humans living in any part of the world constitute the species Homo sapiens. A population has traits of its own which are different from those of the individuals forming the population. An individual is born and dies but a population continues. It may change in size depending on birth and death rates of the population. An individual is either female or male, young or old but a population has a sex ratio and age structure, which means, the ratio of male to female in the population and the various age groups into which the population may be divided. The characteristics of any population depends on:

- i) density of the population,
- (ii) natality (birth rate),
- (iii) mortality (death rate),
- (iv) dispersal,
- (v) biotic potential
- (vi) age distribution
- (vii) dispersion and
- (viii) growth form

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Community characters
Hours Required	6
Learning Objectives	To know the different communities
Previous Knowledge to be reminded	Hydrophytes, mesophytes and xerophytes
Examples/Illustrations	Different types of aquatic plants and xerophytes
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

Analytical Characters

Analytical characters are further characterized as quantitative and qualitative. Qualitative characters are difficult to measure whereas quantitative characters can be measured easily.

Qualitative characters

These mainly include composition, physiognomy, phenology, stratification, abundance, sociability, vitality and vigor, life form (growth form), etc.

Floristic composition--This refers to the type of species occurring within a community. In every community some species are abundantly present and are referred as dominant species.

Stratification of vegetation--It is another very important feature of a vertical strata in a community. The growth form of the plant determines the vertical structure which includes their size, branching and leaves. The vertical structure is greatly influenced by physical features such as light

Periodicity (phenology, aspection)

It refers to the changes in characteristics of community with seasonal changes. Each species has a different requirement for light, temperature, moisture and other environmental factors. Accordingly, the period of growth events such seed germination, vegetative development, flowering and fruiting (reproductive phase), fruit and seed dispersal and seed dissemination varies for each species.

Daubenmire classified according to vitality into different groups:

- V1-plants whose seedlings die
- V2-seedlings grow but unable to reproduce
- V3-reproduce vegetatively
- V4-reproduce sexually but are uncommon
- V5 reproduce sexually and grow regularly

Life forms :

Raunkier (1903) gave a system in which plants were classified according to the relation of their height above ground to the perennating organ.

- i) Phanerophytes
- ii) Chamaephytes
- iii) Hemi cryptophytes
- iv) Cryptophytes
- v) Therophytes

Sociability--Sociability refers to the nature of grouping of individual plants grow singly, in patches, in colonies or evenly intermixed. This feature depends upon the life form, its vigor, habitat, competition and relations with the individuals. It represents degree of association of between species. The plants have been categorized into five groups depending upon their sociability.

S1- Plant found separately from each other i.e. grow singly

S2- Group of 4-6 plants growing at a place.

S3- Small group of plants growing at a place.

S4- Big group of plants growing at a place.

S5- A large number of plants occupying an area

Quantitative characters

These include parameters that can be measured or counted.

1. **Population density**---
2. **Cover (herbage cover)**--
3. **Plant height**--
4. **Weight of plants (biomass)**

Synthetic Characters:

These are determined after computing the data on the quantitative and quantitative characters of the community.

Presence and Constance:

Fidelity:

Dominance:

Relative frequency and Relative dominance (cover basis) are obtained as follows:

Relative density = $\text{Density of the species} \times 100 / \text{Total density of all the species}$

Relative Frequency = $\text{Frequency of the species} \times 100 / \text{Total frequency of all the species}$

Relative dominance (cover) = $\text{Dominance (cover) of the species} \times 100 / \text{Total dominance (cover) of all the species}$



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Vegetation in India
Hours Required	5
Learning Objectives	To understand about different types of forests, and their distribution
Previous Knowledge to be reminded	Geography of india
Examples/Illustrations	Different types of plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Good, R. (1997): The Geography of flowering Plants
Student Activity Planned after teaching	Quistioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

Vegetation in India

vegetation in India is controlled and regulated by the following factors:

1. Distribution of rainfall
2. Orography (altitude and slope of the region)

Based on these factors, the natural vegetation of India is broadly classified into the following categories:

1. Tropical Evergreen and Semi-Evergreen Forests
2. Tropical Deciduous Forests
3. Tropical Thorn Forests and Scrubs
4. Montane Forests
5. Mangrove Forests



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	ENDEMISM
Hours Required	4
Learning Objectives	To understand about endemic species
Previous Knowledge to be reminded	Ecological adaptations of plants
Examples/Illustrations	Different types of plants and their distribution
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Good, R. (1997): The Geography of flowering Plants
Student Activity Planned after teaching	Group discussion
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

ENDEMISM—

When a species is found only in a particular geographical region because of its isolation, soil and climatic conditions, it is said to be endemic. Endemic plants are special because they are found in only one location on the planet, and nowhere else.

CAUSES OF ENDEMISM-

- Narrow ecological amplitude
- Geographical barriers
- Poor adaptability
- Changing climatic conditions

TYPES OF ENDEMICS-

- Progressive endemics-
- Conservative endemics-
- Retrogressive endemics**
 - Neo-endemics-
 - Local endemics-
 - Pseudo endemics-
 - Micro-endemics-

Some endemic plants of India-

- Ranunculus→clematis
- Saracaasoca→Delphinium
- Impatiens→Crotalaria juncea
- Butea monosperma→Indigofera tinctoria
- Tephrosia→Aegle mermelos
- Aster→Ficus religiosa→Ficus benghalensis

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Vegetation in world
Hours Required	3
Learning Objectives	To understand about different types of forests, and their distribution
Previous Knowledge to be reminded	Geography of india
Examples/Illustrations	Different types of plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Good, R. (1997): The Geography of flowering Plants
Student Activity Planned after teaching	Quistioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

Phytogeography is the study of distribution of plant species and elucidation of origin of flora. The relative position of the 6 continental land masses and large number of islands play an important role in the distribution of various types of plants over the surface of the earth.

Factors responsible for phytogeographical distribution can be divided primarily into 2 broad categories:

1. Inherent factor and
2. Geographic factor.
 1. **Inherent factor:** Inherent factor is concerned mainly with the evolution of the individuals.
 2. **Geographic factor:** Geographic factors are subdivided into 2 groups;
 1. Climatic factors and
 2. Barrier factors

Good (1947) has divided the land surfaces of the world mainly into 6 kingdoms. These kingdoms are again subdivided into regions and ultimately into provinces. 1. **Boreal kingdom**

2. **Paleotropical kingdom** (Old world)
3. **Neotropical kingdom** (New world)
4. **South African Kingdom**
5. **Australian kingdom**
6. **Antarctic kingdom**

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Levels of biodiversity
Hours Required	2
Learning Objectives	To understand about Biodiversity and levels
Previous Knowledge to be reminded	Chromosome DNA and gene structure
Examples/Illustrations	Different types of ecosystems
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

Levels of biodiversity –

Biodiversity is commonly considered at three different levels:

1. Within species (intraspecific) diversity; usually measured in terms of genetic differences between individuals or populations.
2. Species (interspecific) diversity, measured as a combination of number and evenness of abundance of species.
3. Community or ecosystem diversity, measured as the number of different species assemblages. Biodiversity, therefore, is usually considered at three hierarchical levels i.e. Genetic, Species and Community and Ecosystem levels.

1. Genetic diversity--Genetic diversity refers to any variation in the nucleotides, genes, chromosomes, or whole genomes of organisms. This is the “fundamental currency of diversity” (Williams and Humphries, 1996) and the basis for all other organismal diversity.

2.Species diversity: • A group of organisms genetically so similar, that they can interbreed and fertile offsprings is called a species.
• The species diversity is usually measured in terms of the total number of species within discrete geographical boundaries. Species diversity - “species are groups of actually or potentially interbreeding natural populations that are reproductively isolated from other such groups” (Mayr 1963)

3.Community-level diversity: It is defined by the species that occupy a particular locality and the interactions between them. It represents the collective response of species to different environmental conditions.

Alpha, Beta, and Gamma Diversity Whittaker (1972) described three terms for measuring biodiversity over spatial scales: alpha, beta, and gamma diversity.

- **Alpha Diversity.**
- **Beta diversity**
- **Gamma diversity:**

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	VALUES OF BIOLOGICAL DIVERSITY
Hours Required	3
Learning Objectives	To understand about uses of plant
Previous Knowledge to be reminded	Plant parts and their uses
Examples/Illustrations	Different types of useful plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Quistioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

THE VALUES OF BIOLOGICAL DIVERSITY --

• Human society depend on biological diversity for almost all the food supply, half of its medicines, much of its clothing and in some region virtually all of its fuel and building material and as well as, of course, an important part of its mental and spiritual welfare.

- Ecological services

Biological diversity as a resource The three main approaches used for determining the value of biological resources.

- **Consumptive use value**
- **Productive use value**
- **Non-consumptive use value:**

Benefits of biodiversity

- **Economical benefits –**

- a) Food value –
- b) Commercial value –
- c) Medicinal value

Aesthetic value --

- **Ecological benefits/services (Indirect use value)**

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	THREATS TO BIODIVERSITY
Hours Required	2
Learning Objectives	To understand about harmful effects on plants
Previous Knowledge to be reminded	
Examples/Illustrations	Different types of activities which are harmful to plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Group discussion
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

THREATS TO BIODIVERSITY → Growing human population - specific types of human actions that threatened biodiversity and ecosystems and causes to extinction of many species are:

- ≡ **Over-hunting/over-exploitation**
- ≡ **Habitat loss/ degradation/fragmentation**
- ≡ **Deforestation** ≡ **Invasion of non-native species**
- ≡ **Pollution**
- ≡ **Climate change**
- ≡ **Cultural impacts**

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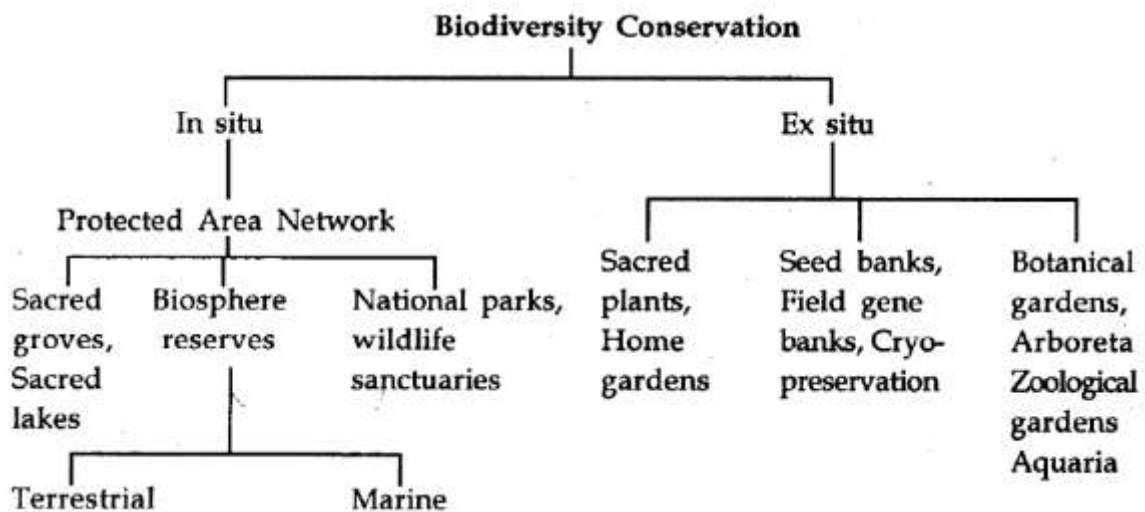
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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	BIODIVERSITY CONSERVATION
Hours Required	2
Learning Objectives	To understand about protection methods of plants
Previous Knowledge to be reminded	Uses of plants
Examples/Illustrations	Different types of parks ,sancturies
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Quistioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

BIODIVERSITY CONSERVATION—

In situ conservation-- In India, ecologically unique and biodiversity-rich regions are legally protected as biosphere reserves, national parks and sanctuaries. India has also a history of religious and cultural traditions that emphasized protection of nature eg. Sacred groves.

Exsitu Conservation---In this approach, threatened animals and plants are taken out from their natural habitat and placed in special setting where they can be protected and given special care and protective maintenance. Examples; zoological parks and botanical gardens, in vitro fertilisation, tissue culture propagation and cryopreservation of gametes



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PRR & VS GOVT.DEGREE COLLEGE,

VIDAVALUR, SPSR NELLORE DT.

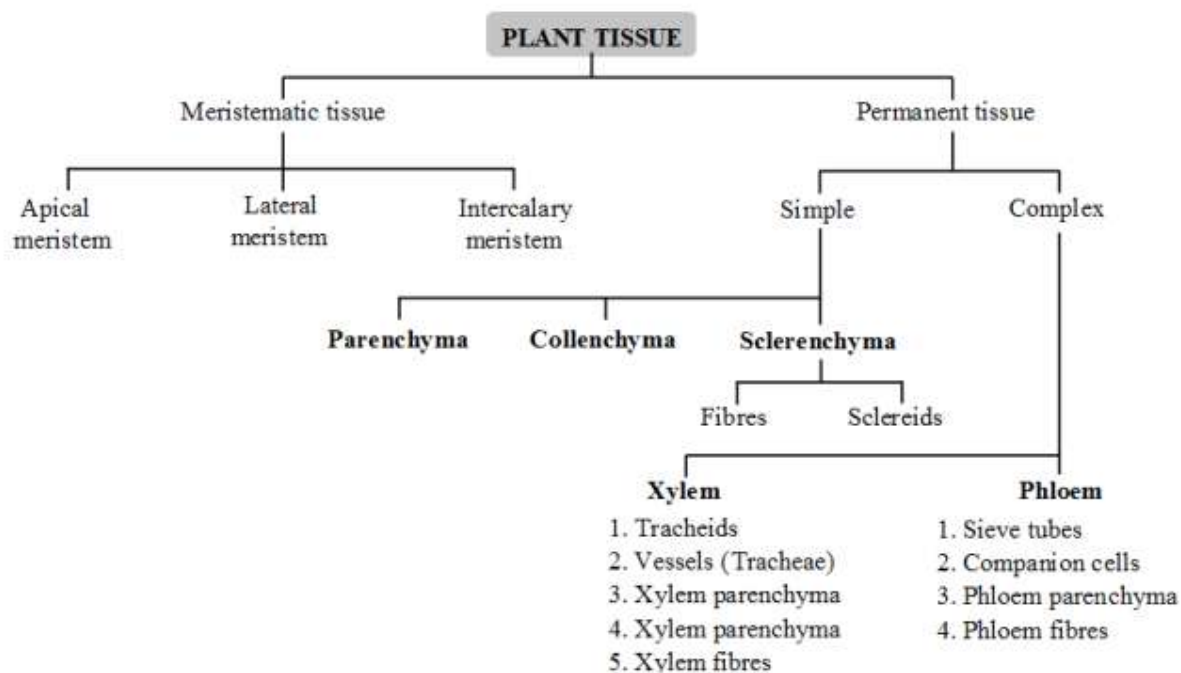
DEPARTMENT OF BOTANY



TEACHING NOTES (2021-22)

Paper III-**Anatomy and Embryology of
Angiosperms, Plant Ecology and Biodiversity**

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Plant Tissues--Meristem or Meristematic Tissue
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	



Meristem or Meristematic Tissue--

. Meristematic cells have some characteristics like:

- Meristematic cells may be rounded, oval or isodiametric in shape.
- Compactly arranged i.e. no intercellular space and with dense cytoplasm
- Large nucleus, and small vacuoles or without vacuoles
- Cell wall is thin and donot store reserve food material
- Always in active state of division and divide in a plane.

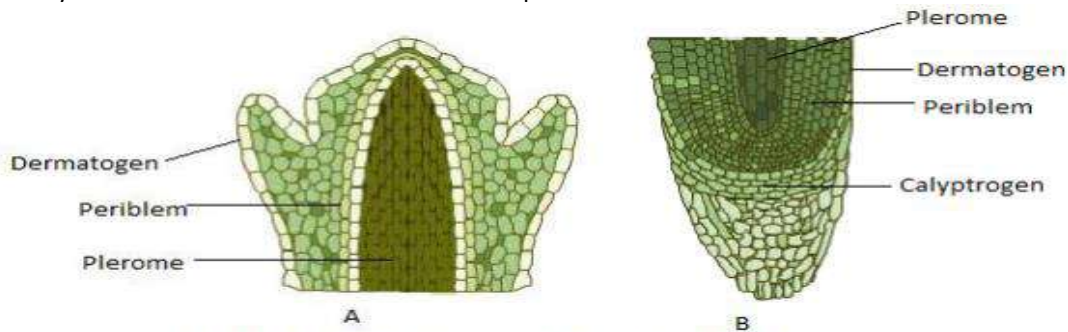


Fig.2.1: Meristematic tissue: A. Stem apex; B. Root apex

Types of Meristem:

- **Promeristem:**
- **Primary Meristem:**
- **Secondary Meristem:**

On the basis of position in plant body the meristem is of following type:

- **Apical Meristem:**
- **Intercalary Meristem:**
- **Lateral Meristem:**

Based on Division

- **Mass Meristem:**
- **Plate Meristem**
- **Rib or File Meristem:**

Based on Function

- **Protoderm**
- **Procambium-**
- **Pround meristem-**

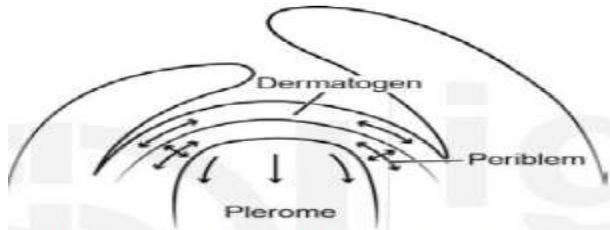
Structure and Organisation of Shoot Apex

- Apical theory
- Histogen Theory
- Tunica-Corpus theory

Apical Theory

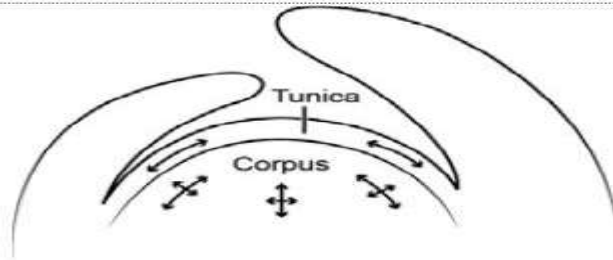
This theory was given by Karl Nageli and Hofmeister. According to this theory, a single apical cell is responsible for the development of all the aerial plant parts. This theory holds good for some cryptogams, such as bryophytes, some higher algae and some pteridoph

Histogen Theory



∴ Shoot apex organizations as proposed by Hanstein.

Tunica-Corpus Theory



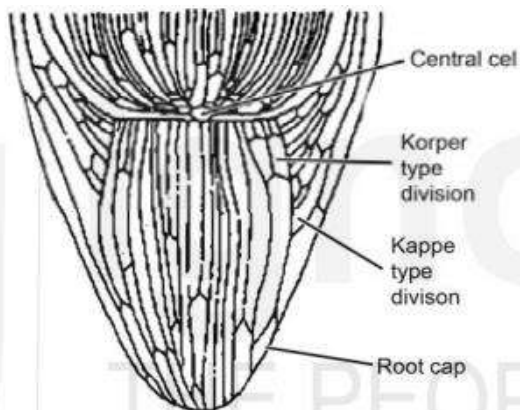
Representation of the shoot apex according to Tunica corpus concept.

THEORIES OF ROOT APICAL ORGANISATION—

-Apical Cell Theory

-Histogen Theory

-Korper-Kappe Theory



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Plant Tissues--Meristem or Meristematic Tissue
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

Epidermal tissue system--

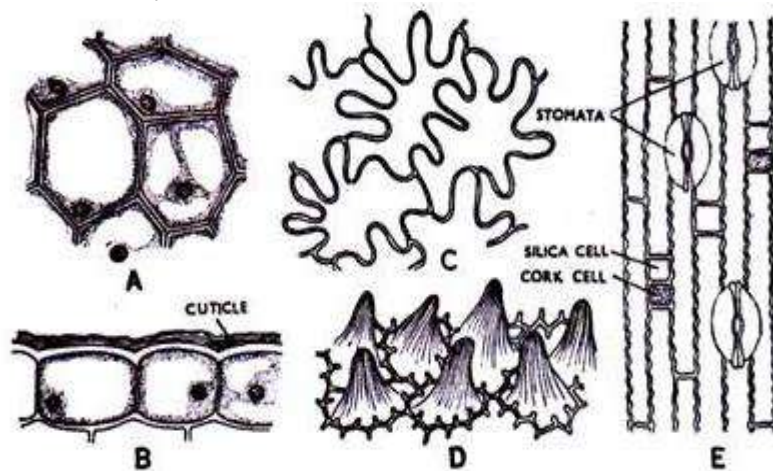


FIG. 555. Epidermal cells. A. Ordinary epidermal cells from a leaf in surface view. B. Same in sectional view. C. From leaf of *Solanum* (potato) in surface view. D. From the petal of *Viola* showing ridge-like infoldings of lateral walls and protruding papillae. (After Strasburger). E. Of *Saccharum* (sugar-cane) with silica cells and cork cells.

Cuticle-

Bulliform Cells-

Stomata-

Epidermal Outgrowths or Trichomes-

On the basis of morphological characters, trichomes are classified into several types. Important among them are hairs and scales.

1. Hairs

Hairs are the common type of trichomes. They may be unicellular or multicellular.

Unicellular hairs

Multicellular hairs

2. Scales

3. Root Hairs

Function of Epidermis Tissue System--

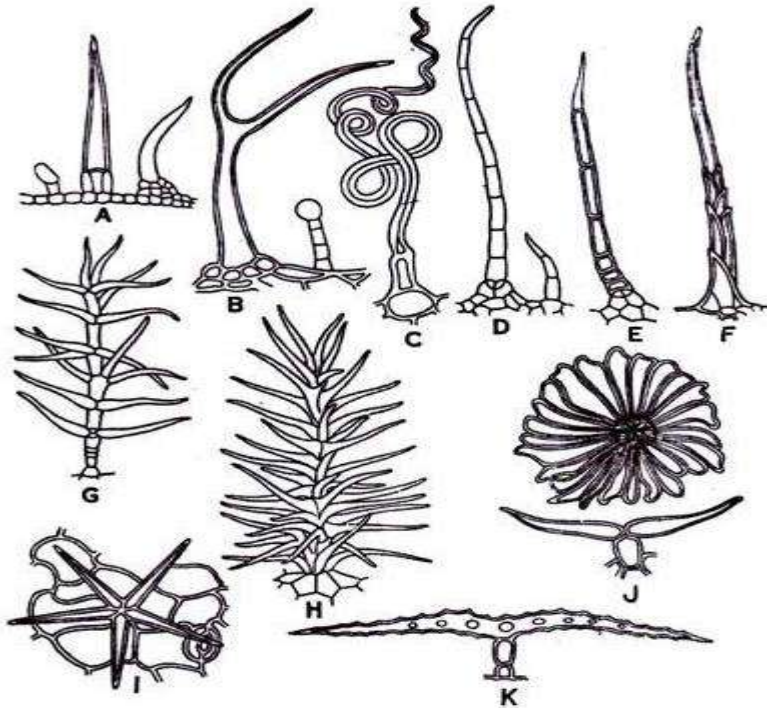


FIG. 564. Epidermal hairs—different types. A. Sharp hairs of *Lantana*. B. Lobed hair of *Amaranthus*. C. Woolly hair of *Banksia*. D. Of *Lycopersicum* (tomato). E. Of *Helianthus* (sunflower). F. Of *Mimosa*. G. Dendroid hair of *Platanus*. H. Same of *Mimosa* spp. I. Stellate hair of *Althaea* (Malvaceae). J. Peltate hair in surface and side view of *Olea*. K. T-shaped hair of *Diercasus*.

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Ground Tissue System
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

This tissue system includes all the tissues excepting the epidermis and vascular bundles. Therefore, it is the largest tissue system beginning from the layer next to epidermis and continuing up to the centre point of the organ. Ground tissue system is heterogeneous in nature including diverse types of cells specialised for different types of function. The ground tissue outside the stele is called the cortex or extrastellar ground tissue and that inside the stele is called intrastellar ground tissue or pith.

Cortex—Endodermis --Pericycle --Pith --Medullary Rays:

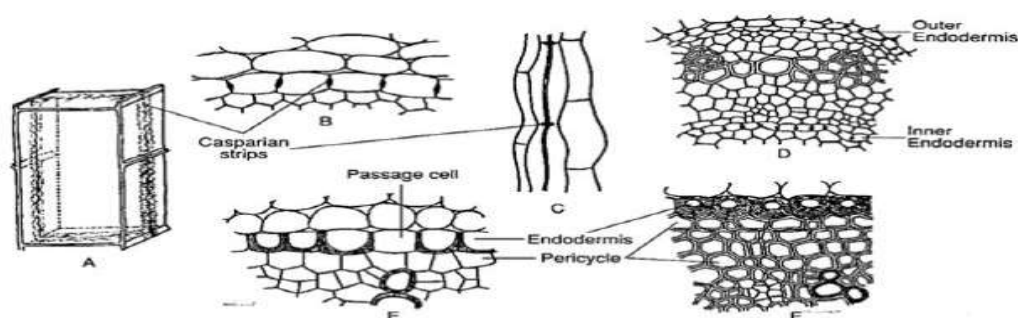


Fig. 5.83 : Endodermis : A. Diagram of a cell showing casparian strip. B. Endodermal cells in t.s. C. Same in L.S. D. Transverse section of the rhizome of *Marsilea* showing the outer and inner endodermis. E. Thick-walled endodermis in root of maize with passage cell. F. Same in the root of *Smilax*

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Vascular Tissue System
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

Vascular Tissue System

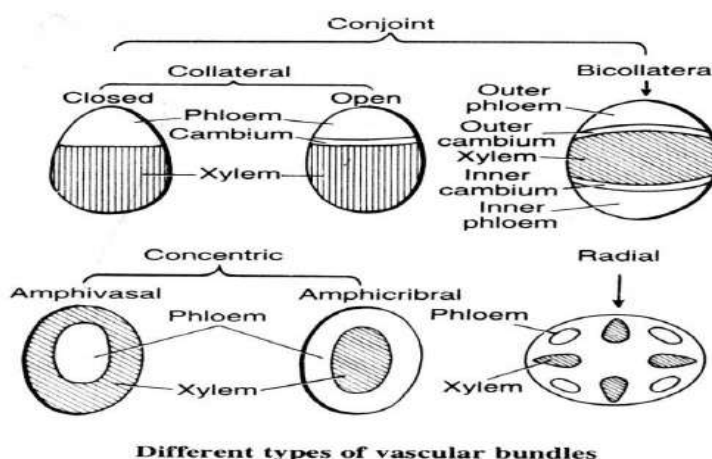
Type Of Vascular Bundles

1. Collateral vascular bundle
2. Bicollateral vascular bundle
3. Concentric vascular bundle

Amphicribal bundle

Amphivasal bundle

4. Radial vascular bundle



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Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Anomalous Secondary Growth InBoerhaavia
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

Anomalous Secondary Growth InBoerhaavia--

Boerhaavia is a member of family, Nyctaginaceae.

They are generally herbaceous plant.

Boerhaavia Stem - Transverse section through the young stem of Boerhaavia show following tissues :

- Epidermis –
- Cortex –
- Stele

Vascular System - Vascular bundles are collateral, conjoint and open with endarch xylem and are arranged in three rings –

- 1) Two large centrally placed medullary vascular bundles.
- 2) A middle ring of 6 to 14 loosely arranged and medium sized vascular bundles.
- 3) The outer ring of 15 to 20 small vascular bundles just beneath the pericycle.

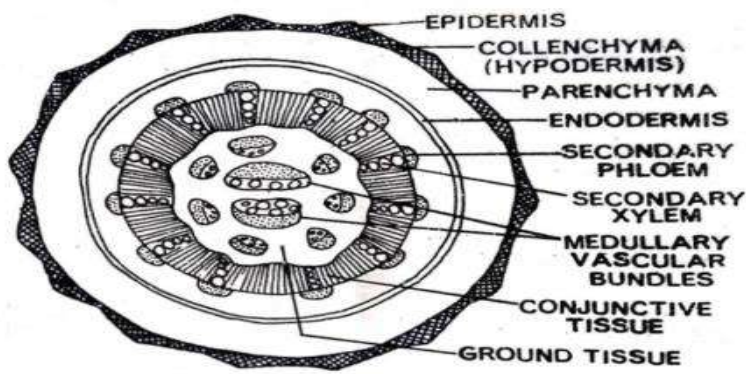
Anomalous Structure InBoerhaavia –

a) Primary Anomaly - Presence of two large central medullary vascular bundles encircled with a second ring of 6 to 14 loosely arranged vascular bundles lying in the ground tissue.

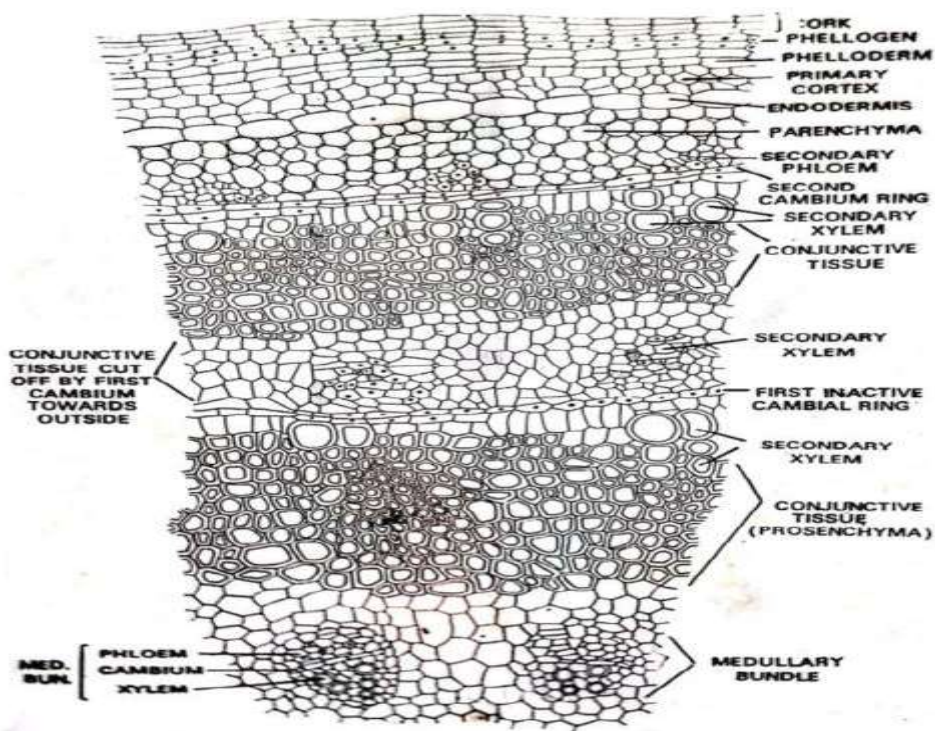
b) Non-adaptive type Anomaly - Normal indisposition of cambium with its unusual activity.

Anomalous Secondary Growth –

The stem of Boerhaavia contain well defined anomalous secondary growth which is characterized by the presence of successive rings of xylem and phloem (vascular bundles).



- *Boerhaavia* Stem - T.S. of Stem of *Boerhaavia* sp. (Diagrammatic)



- The Stem Anomalous Structure - T.S. of a sectore of stem of *Boerhaavia diffusa* showing anomolus secondary growth, thick-walled conjunctive

P-7.

B.S.

Signature of the Lecturer

Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Anomalous Secondary Growth in Dracaena
Hours Required	
Learning Objectives	To know the different types of Plant tissues and their functions
Previous Knowledge to be reminded	Cell structure and functions
Examples/Illustrations	Different plant parts
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Esau, K. (1971) Anatomy of Seed Plants. John Wiley and Son, USA. Fahn, A. (1990) Plant Anatomy
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

Anomalous Secondary Growth in Dracaena—

Dracaena is a typical example of anomalous secondary growth in monocots.

Typically, secondary thickening is absent in monocots. Therefore, secondary thickening itself is an anomaly as Dracaena is a monocot.

The following features of the stem-

- Epidermis single layered remains covered with thick cuticle.
- Hypodermis is sclerenchymatous.
- Numerous closed, collateral vascular bundles scattered in the parenchymatous ground tissue. → Xylem is endarch.

Anomalous structure:

Dracaena shows anomalous secondary growth.

The cambium appears in the parenchyma outside the outermost vascular bundles. This region in which the cambium appears in sometimes as cortex and sometimes as pericycle.

--The newly formed cambium cuts towards outside and inside both.

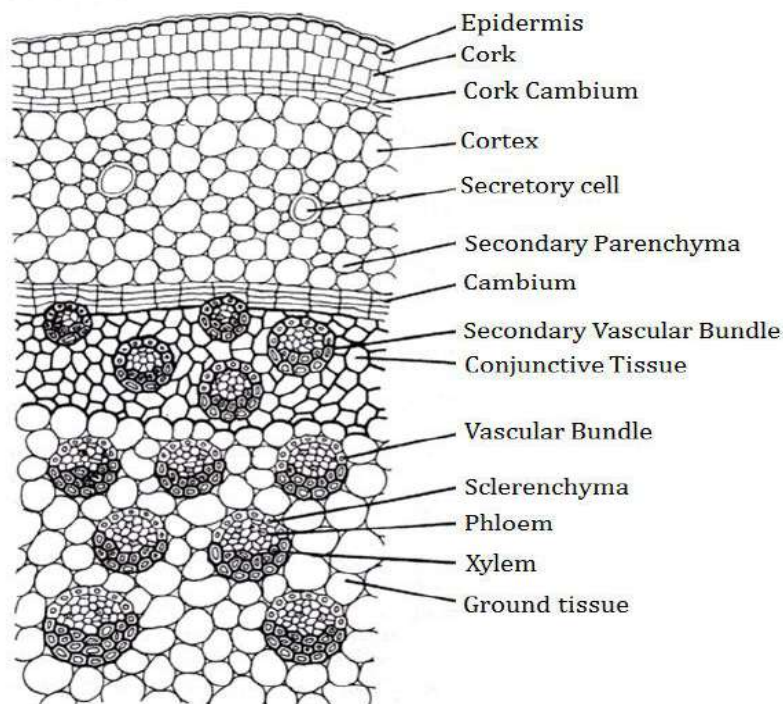
- The tissue developed on the inner side of the cambium is usually differentiated into vascular bundles remain separated from each other by lignified tissue, sometimes this tissue remain unlignified and thin walled.
- The cells formed on the outer side of the cambium make parenchyma
- The palm stem do not increase in girth because of any cambial activity but tis thickening is the result of gradual increase in size of the cells and of intercellular spaces and sometimes of the proliferation of fibre tissues.
- This is the type of long continuing primary growth.
- The activity of the primary thickening meristem resembles with secondary growth found in

certain monocotyledons such as *Dracaena*.

- A cambium ring is formed due to meristematic activity of some cells lying immediately outside the bundles.

The cambium cells are unusual in function, which go on producing secondary vascular tissues and conjunctive parenchyma internally and little simple parenchyma externally.

- The secondary vascular bundles formed are oval and amphivasal and are smaller than the primary bundles.
- They embedded in the conjunctive tissue whose cells are radially arranged.
- In the extrastelar region is formed because of the repeated periclinal divisions of the cortical cells.
- The cork cells, formed without the appearance of cork cambium are called storied cork.



**Anomalous Secondary Thickening in
Dracaena (Diagram)**

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Signature of the Principal

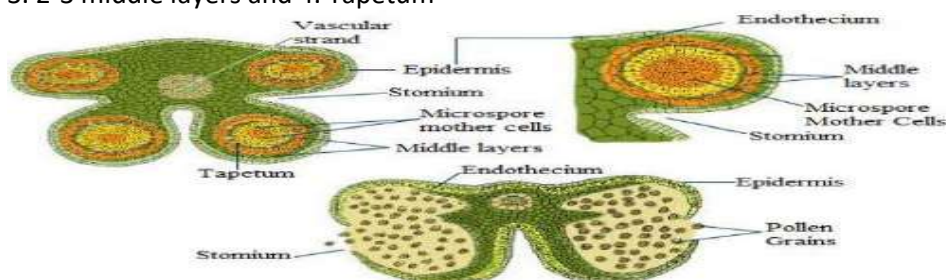
Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	STRUCTURE OF ANTHER
Hours Required	
Learning Objectives	To understand---- • What is male gametophyte? • Name the first cell of male gametophyte • difference between the terms sporogenesis and microsporogenesis? •development of male gametophyte in Angiosperms?
Previous Knowledge to be reminded	Flower structure
Examples/Illustrations	Different types of Flowers
Additional Inputs	Flash cards
Teaching Aids Used	B.B&PPT
References Cited	Pandey, A. K. (2000) Introduction to Embryology of Angiosperms.
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Diagrams practice
Any other activity	
Synopsis	

STRUCTURE OF ANTHER—

It consists of two parts, outer wall and central homogeneous mass of sporogenous tissue.

Microsporangial wall has four types of layers:

1. Epidermis (common anther covering)
2. Endothecium
3. 2-3 middle layers and
4. Tapetum



MICROSPOROGENESIS---

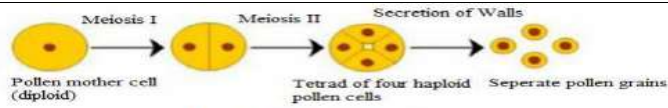


Fig. 5.7: Microsporogenesis

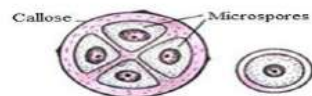
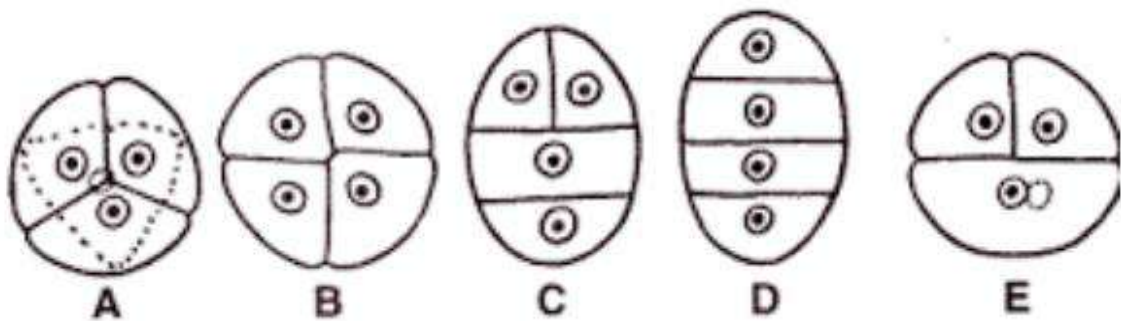


Fig. 5.8: Microspores showing callose wall

Microspore tetrads--

- decussate,
- linear and
- T-shaped tetrads are also found.



DEVELOPMENT OF MALE GAMETOPHYTE IN ANGIOSPERM

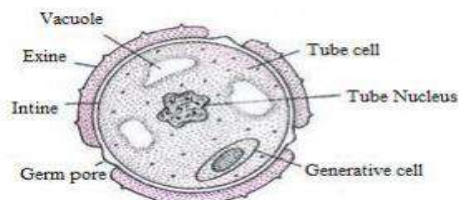
Microspore/Pollen grain:

Pollen grains are contained in the microsporangia (pollen chamber). They are very minute in size (approximately 0.025 to 0.125 mm) and are like particles of dust. A freshly formed pollen grain is richly cytoplasmic with a prominent, centrally located nucleus. The wall of the mature pollen grain is stratified. It comprises of two layers. The outer layer is called exine and inner layer is termed as intine. The term exine and intine were proposed by Fritsch (1837).

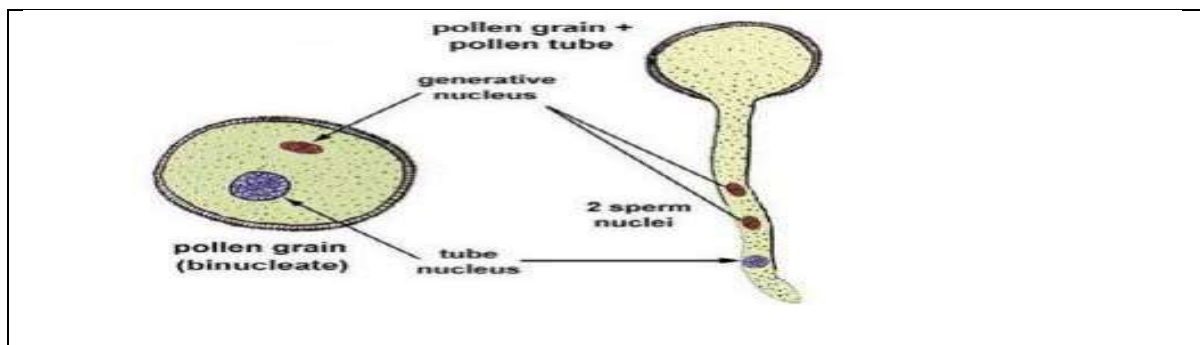
Exine: Thick, tough cutinized layer which is often provided with spinous outgrowths or sometimes smooth. The exine is composed of a complex substance, called sporopollenin.

Intine: It is thin, smooth, delicate pecto-cellulosic layer lying internal to the exin

Pre-pollination development ---



Post-Pollination development ---



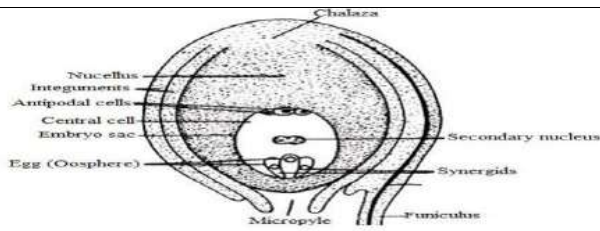
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Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	FEMALE GAMETOPHYTE
Hours Required	
Learning Objectives	To understand---- What is ovule? • How many types of ovule are there and on what basis they are differentiated? • What is megasporogenesis? • difference between female gametophyte or embryo sac? • Why embryo sacs are classified as monosporic, bisporic or tetrasporic?
Previous Knowledge to be reminded	Flower structure
Examples/Illustrations	Different types of Flowers
Additional Inputs	Charts
Teaching Aids Used	B.B& PPT
References Cited	Pandey, A. K. (2000) Introduction to Embryology of Angiosperms.
Student Activity Planned after teaching	Group Discussion
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	
<p>FEMALE GAMETOPHYTE— STRUCTURE OF OVULE-- Parts of the ovule: 1. Funiculus or Funicle: A stalk by which ovule is attached to the placenta 2. Nucellus: the body of ovule 3. Integument: the protective covering of nucellus 4. Micropyle: small opening formed by two integuments over nucellus 5. Chalaza: basal part of the ovule 6. Hilum: region where ovule fuses with funiculus 7. Embryo sac: female gametophyte located in the nucellus, developed from megaspore</p>	



Types of ovule

On the basis of the position of the micropyle with respect to the funiculus, mature ovule can be classified into six main types. These are:

1. Orthotropous
2. Anatropous
3. Campylotropous
4. Amphitropous
5. Hemianatropous
6. Circinotropous

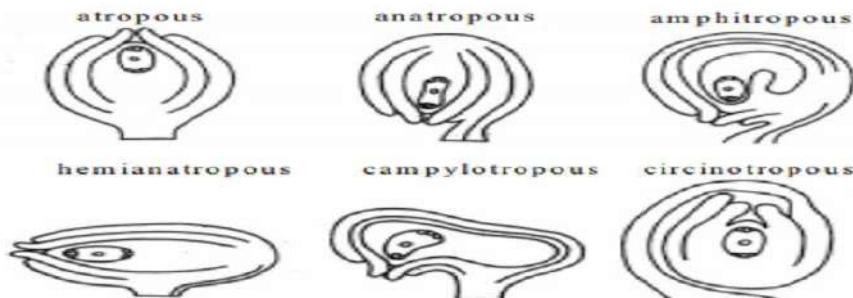
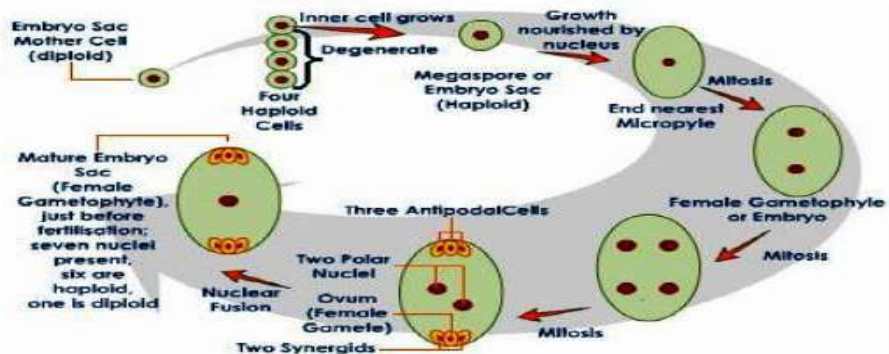


Fig. Types of ovules

DEVELOPMENT OF THE FEMALE GAMETOPHYTE OR EMBRYO SAC----



Types of embryo sac--

1. Monosporic -----Polygonum type
2. Bisporic-----Allium type
3. Tetrasporic-----Peperomea type



Fig. 6.14: Polygonum type embryo sac



Fig. 6.16: Allium type



Fig. 6.18: Peperomia type

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	FERTILIZATION
Hours Required	
Learning Objectives	To understand-What is fertilization? • About the different ways of entry of pollen tube into the ovule. • What is syngamy? • What do you understand by triple fusion? • understand about double fertilization
Previous Knowledge to be reminded	Flower structure ,Male and female gamets
Examples/Illustrations	Different types of flowers
Additional Inputs	Flash cards
Teaching Aids Used	B.B & PPT
References Cited	Pandey, A. K. (2000) Introduction to Embryology of Angiosperms.
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Collection of flowers
Any other activity	
Synopsis	

FERTILIZATION----

In Angiosperms, the fertilization is being completed as follows:

Entry of pollen tube into ovule---

After arriving in the ovary, the pollen tube finds its way into the ovule. The pollen tube may enter into the ovule via three routes.

1. Through the micropyle 2. Through the chalazal end 3. Through the integument

Entry of pollen tube into the embryo sac. It may be: (i) between the egg cell and one of the synergids e.g. Fagopyrum

(ii) between the wall of the embryo sac and one or other synergids.er. Cardiospermum

(iii) directly penetrates one of the synergids e.g. Oxalis

Discharge of male gametes from pollen tube----

Syngamy-

fusion of gametes As the one of the male gametes reached the egg, it fuses with it. As a result of this fusion diploid zygote/oospore ($2n$) forms (because you know the egg and the male gamete, both are haploid). The fusion of male and female gametes is known as fertilization. This is also known as syngamy

Triple fusion—

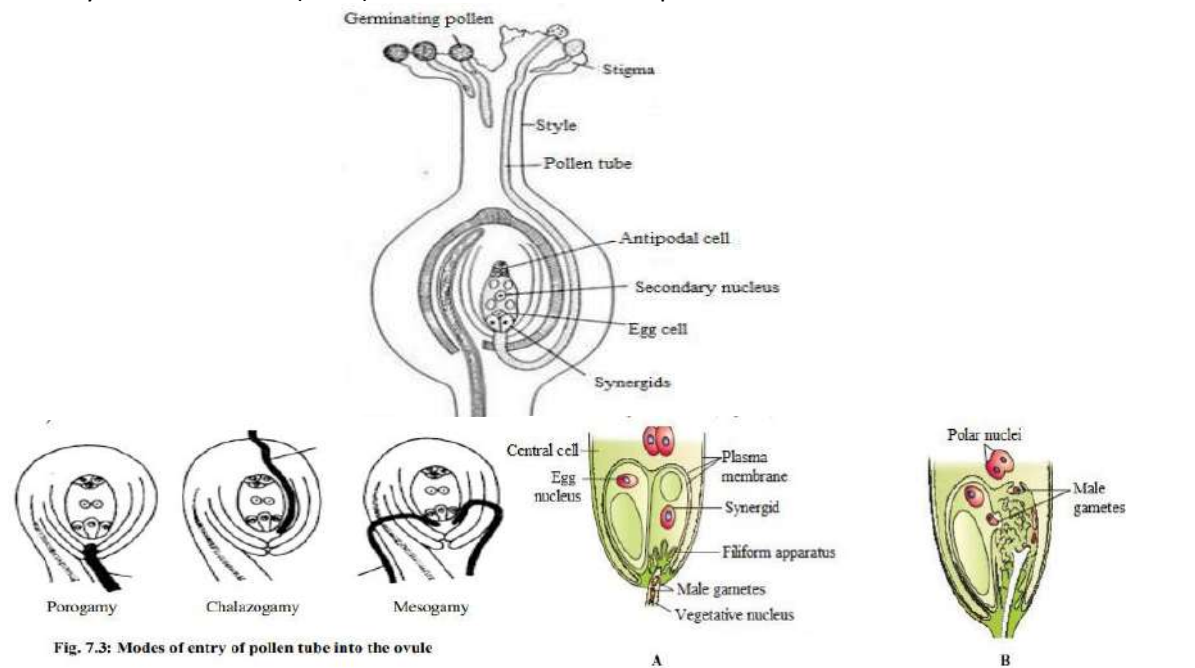
The other male gamete fuses with the two polar nuclei (or secondary nucleus, if the two have already fused) and so forms triple fusion nucleus ($3n$), called primary endosperm nucleus

Double fertilization ---

Thus in an embryo sac two sexual fusions occur; one is syngamy (i.e. fusion of one male gamete with the egg) and another is triple fusion (i.e. fusion of other male gamete with the polar nuclei or secondary nucleus), and therefore, the phenomenon is known as double fertilization .

As a result of first fertilization the zygote or oospore cell is formed which is the mother cell of the embryo and is a diploid cell containing $2n$ complement of the chromosomes. The nucleus of the triple fusion product (primary endosperm nucleus) is triploid or $3n$. This is the first nucleus of the endosperm.

Double fertilization is a very unique phenomenon in Angiosperms and discovered for the first time by S.G. Nawaschin (1898) in Lilium and Fritillaria species as described above.



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Endosperm
Hours Required	
Learning Objectives	To understand--What is endosperm? How it forms and on what basis endosperm categorized into different types?
Previous Knowledge to be reminded	Flower structure
Examples/Illustrations	Different types of seeds
Additional Inputs	Charts
Teaching Aids Used	B.B&PPT
References Cited	Pandey, A. K. (2000) Introduction to Embryology of Angiosperms.
Student Activity Planned after teaching	Group Discussion
Activities planned outside the class	Diagrams practice
Any other activity	Seeds Collection
Synopsis	

Endosperm----

Development of the Endosperm—

Depending upon mode of development three types of endosperm has been recognized:

1. Nuclear endosperm
2. Cellular endosperm
3. Helobialendosp

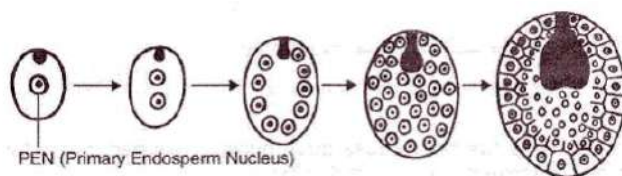


Fig.7.7: Nuclear endosperm formation

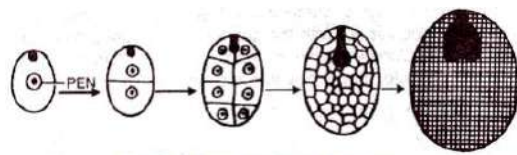


Fig.7.8: Cellular endosperm formation

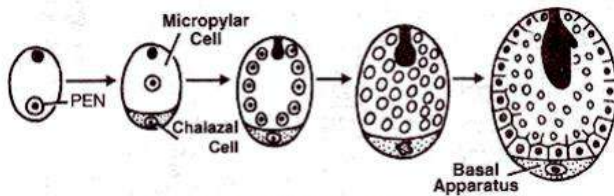


Fig.7.9: Helobial endosperm formation

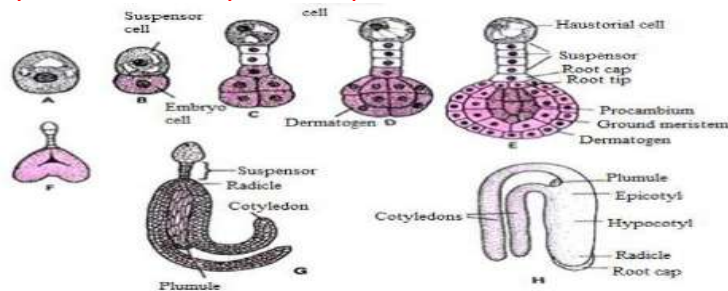
Signature of the Lecturer

Signature of the Principal

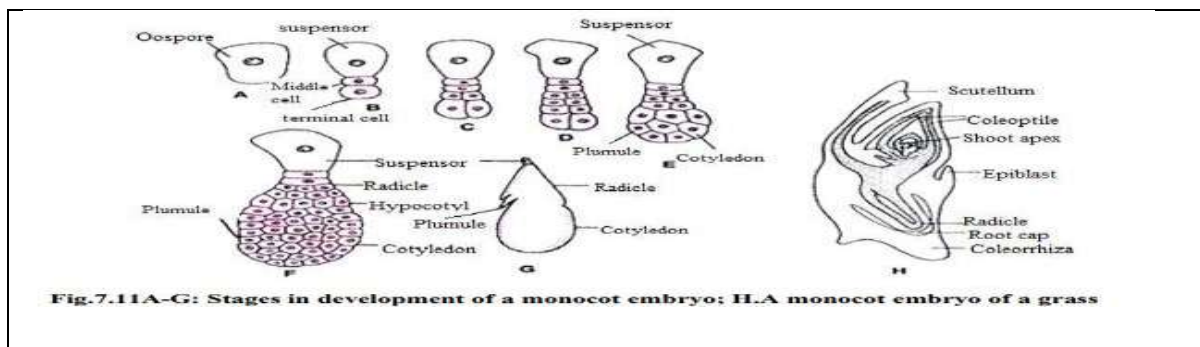
Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	II BZC
Paper	III
Name of the Topic	Development of the embryo
Hours Required	2
Learning Objectives	To understand -Definition of embryo • development of dicotyledonous and monocotyledonous embryo.
Previous Knowledge to be reminded	Cell Division
Examples/Illustrations	Different types of seeds
Additional Inputs	Charts
Teaching Aids Used	B.B&PPT
References Cited	Pandey, A. K. (2000) Introduction to Embryology of Angiosperms.
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

Development of the embryo-----

Dicotyledonous embryo development—



Development of monocotyledonous embryo---



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Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Climatic Factors-Temperature
Hours Required	2
Learning Objectives	To know the Temperature effects on plants
Previous Knowledge to be reminded	Basics of plant physiology
Examples/Illustrations	Light spectrum
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	<p>TEMPERATURE</p> <p>Plants require definite range of temperature to perform physiological activities. Generally temperature range of 26 to 32 C is suitable for many plants. Based on tolerance to heat plants are classified as follows: -</p> <p>b) Megatherms :- These plants require high range of temperature ie., 40 C . Ex: Xerophytes</p> <p>. b) Mesotherms: These plants require neither high or low range of temperature ie., 20 C to 40 C .</p> <p>c) Microtherms:- These plants require very low temperature ie., 0 to 20 C .</p> <p>d) Hekistotherms:- These plants require extreme low temp..Ex: Alpine vegetation, bacteria. "Some plants require low temperature for flowering. Cold treatment of plants to induce early flowering is called 'Thermoperiodism'. It is also called 'Vernalisation'. Lysenko used the term Vernalization".</p> <p>Temperature influences most plant processes, including--</p> <ul style="list-style-type: none"> - Photosynthesis, - Transpiration <p>- Respiration,</p> <ul style="list-style-type: none"> - Germination, and

-flowering.

As temperature increases (up to a point), photosynthesis, transpiration, and respiration increase. When combined with day-length, temperature also affects the change from vegetative (leafy) to reproductive (flowering) growth. Depending on the situation and the specific plant, the effect of temperature can either speed up or slow down this transition.



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Climatic Factors-Light
Hours Required	2
Learning Objectives	To know the Light effects on plants
Previous Knowledge to be reminded	Basics of plant physiology
Examples/Illustrations	Light spectrum
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
LIGHT : Based on quantity & intensity of light requirement, plants are ecologically classified into 2 types. III) Heliophytes: Plants growing best in full sun light. IV) II) Sciophytes: Plants growing best in low light intensity. Length of the daily light period to which plants are exposed has effect on the vegetative growth as well as flowering of the plants. The influence of light on the flowering process in plants is called 'Photoperiodism'. ---Based on their light requirement for flowering, plants are classified into 3 types:- 1] Short day plants:- Plants which flower when day length is short (Between 12- 14 hours) are called 'Short day plants'. Ex: - Aster, Dahlia, Tobacco, Chrysanthimum, Datura, Salvia. 2] Long day plants : Plants which flower when day length is long are called'	

Long day plants'. Ex: Potato, Wheat, Spinach, Radish.

3] Day neutral plants:- Plants in which flowering is not affected by length of the day are called 'Day neutral plants'. Ex: Pea, Tomato, Balsam, Sunflower, Cucumis, maize

Light is an ecological factor that affects the- distribution of plants. Radiant energy released from sun on reaching earth surface constitute light. It is essential for

- Development of Chlorophyll,
- Photosynthesis,
- Opening and closing of stomata,
- Growth,
- Flowering etc

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Name of the Department/Subject	BOTANY												
Name of the Lecturer	K.Ravichandra Reddy												
Course/Group	III BZC												
Paper	VI												
Name of the Topic	Ecology-Edaphic Factor												
Hours Required	2												
Learning Objectives	To know the soil effects on plants												
Previous Knowledge to be reminded	Basics of plant physiology												
Examples/Illustrations	Different types of soils												
Additional Inputs													
Teaching Aids Used	B.B & PPT												
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology												
Student Activity Planned after teaching	Assignment												
Activities planned outside the class	Collection of different types of soils												
Any other activity													
Synopsis													
<p>Part of earth's crust that supports living organisms, particularly plants is called 'Soil'. It is formed by weathering of rock. It is composed of Mineral matter, Soil water, Soil air, Soil organisms, Horizons etc.</p> <p>1.MINERAL MATTER</p> <p>weathering of rock results in mineral particles , which varies in size . depending on their size , mineral particles are of following types:</p> <table border="1"> <thead> <tr> <th>NAME OF PARTICLE</th> <th>DIAMETER (mm)</th> </tr> </thead> <tbody> <tr> <td>Clay</td> <td>Less than 0.002</td> </tr> <tr> <td>Silt</td> <td>0.002 to 0.020</td> </tr> <tr> <td>Fine sand</td> <td>0.020 to 0.200</td> </tr> <tr> <td>Coarse sand</td> <td>0.200 to 2.000</td> </tr> <tr> <td>Fine gravel</td> <td>2.000 to 5.000</td> </tr> </tbody> </table>		NAME OF PARTICLE	DIAMETER (mm)	Clay	Less than 0.002	Silt	0.002 to 0.020	Fine sand	0.020 to 0.200	Coarse sand	0.200 to 2.000	Fine gravel	2.000 to 5.000
NAME OF PARTICLE	DIAMETER (mm)												
Clay	Less than 0.002												
Silt	0.002 to 0.020												
Fine sand	0.020 to 0.200												
Coarse sand	0.200 to 2.000												
Fine gravel	2.000 to 5.000												

Coarse gravel

Above 5000

Soil texture is determined by relative proportion of mineral particles of different sizes present in the soil. Based on this soil is classified into following types:-

- a) Sandy soil b) Loam soil. c) Clay soil d) Silt soil

ORGANIC MATTER [SOIL HUMUS]

- 1) Mull humus 2) Mor humus

SOIL SOLUTION

Based on the PH value of soil solution soil can be grouped into 3 types:-

- a) **Acidic soil** b) **Alkaline soil** c) **Neutral soil**

SOIL AIR

Spaces between soil particles are known as Pore spaces. These are occupied by soil solution and gases. Space between the soil particles consists of air .it constitutes soil air. gases present are similar to those present in the atmosphere.

SOIL MOISTURE [SOIL WATER]

1. Hygroscopic water 2) Capillary water 3) Gravitational water

Holard- Chresard- Echard.

Based on water content of the soil, ecologically plants are classified into 3 types. They are :-

- a) Hydrophytes b) Xerophytes C) Mesophytes

SOIL ORGANISMS

SOIL PROFILE

- 3) 'A' Horizon:

A00 region

A0 region

A1 layer

A2 Layer

- 2)'B' Horizon.

- 3) 'C' Horizon

- 4) 'D' Horizon



Signature of the Lecturer




Signature of the Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecology-Biotic factor
Hours Required	2
Learning Objectives	To know the Biotic factors effects on plants
Previous Knowledge to be reminded	Basics of Pollination, Lianas, Seed dispersal
Examples/Illustrations	Different types of
Additional Inputs	
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Collection of different types of soils
Any other activity	Collection of paper cuttings
Synopsis	<p>Individuals in a population interact which may be beneficial to both interacting organisms or beneficial to only one partner and harmful to one or both the interacting organisms. Beneficial interactions are called 'Positive' and harmful interactions are called 'negative' interactions'.</p> <p>A] POSITIVE INTERACTIONS These include---</p> <p>1) Mutualism-----Ex: Lichens, Nitrogen fixers, Mycorrhizae, Dispersal of fruits and seeds Pollination, Myrmecophily</p> <p>4) Commensalism-----Ex: Lianas, Epiphytes,</p> <p>NEGATIVE INTERACTIONS These include---</p> <p>1) Antibiosis- .Antibiosis is a type of negative interaction where one interacting organism is</p>

benefited & the other is neither benefited nor harmed. Ex: a) Many members of Actinomycetes fungi, number of lichens produce substances inhabits molds and bacteria. b) Algae Chlorella vulgaris in cultures inhibits growth of Diatom. c) Blue green algae Myrocystis produce toxins hydroxyl amine which causes death of microbes.

2) Competition--Competition is a type of Negative interaction where both the interacting organisms are harmed. Ex: a)In ecosystem individuals of the same species or different species compete for space, light, food etc. for their survival. b)In soil Fung, high degree of competition saprophytic ability is shown.

3)Parasitism-- a)Cuscuta is a total parasite on green plants. It sucks food, water from host plants through haustoria. b) Some Bacteria live parasites in plants, animals and human beings. Ex; Citrus canker, Mango leaf spot. They cause diseases to the host. C)Fungi such as Albugo, Puccinia, and Cercosporaetc.live as parasites on economically important crops, causing diseases.



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecosystem--Components
Hours Required	3
Learning Objectives	To know the Interaction between biotic and abiotic components
Previous Knowledge to be reminded	Living things and non living things
Examples/Illustrations	Different types of plants and animals
Additional Inputs	Chart
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Group discussion
Activities planned outside the class	Chart preparation
Any other activity	Collection of different organisms
Synopsis	

ECOSYSTEM:

Introduction A Biotic community lives in an environment which provides materials , energy requirements and forms an interacting system called “ Ecosystem”. The term Ecosystem was introduced by A.G. Tansley in 1935. An Ecosystem can be defined as “A Structural and Functional unit of Biosphere consisting of living organisms and their environment both interacting and exchanging materials between them”.

STRUCTURAL COMPONENTS OF AN ECOSYSTEM -----An Ecosystem consists of 2 components.

They are: -I] A Biotic component II] Biotic component.

I] **A Biotic components** :- The Non living elements of an Environment constitute Abiotic

component.They are as follows:- a) Climatic factors b)Inorganic factors c) Organic substance

II] Biotic components:- The living organisms like Plants, Animals, Micro organisms of an environment constitutes Biotic components. These are classified into 3 groups Such as Producers, consumers, Decomposers.

1] PRODUCERS: - Producers are Autotrophs .Ex: Green plants. Chlorophyll present in green plants converts solar energy into chemical energy to prepare organic food using carbon dioxide and water during photosynthesis.

2] CONSUMERS:-Consumers are 'Heterotrophs'. I.e., these depend on producers for their food. These are of 3 types. They are Primary, Secondary, tertiary. A) Primary consumers B) Secondary consumers C) Tertiary consumers

3]DECOMPOSERS: Decomposers are Saprophytes ,They obtain their food by decomposing dead bodies of producers, consumers. These occupy fifth trophic level [T] & often called ' Micro consumers' as they are microscopic OR Reducers as they decompose and remove dead bodies.

Ex:- Saprophytic Bactria, Fungi.

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Food Chain & Food Web
Hours Required	2
Learning Objectives	To know the Food habits of different animals
Previous Knowledge to be reminded	Autotrophs and Heterotrophs
Examples/Illustrations	Different types of Animals
Additional Inputs	Chart
Teaching Aids Used	B.B & PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford&Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	Questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

FOOD CHAIN--- Flow of food energy from producers through series of organisms with repeated eating and being eaten by others is called 'Food chain'.

1). Grazing food chain: - (predators food chain) In Grazing food chain there is flow of Energy in the form of food from green plants to primary, secondary and tertiary consumer.

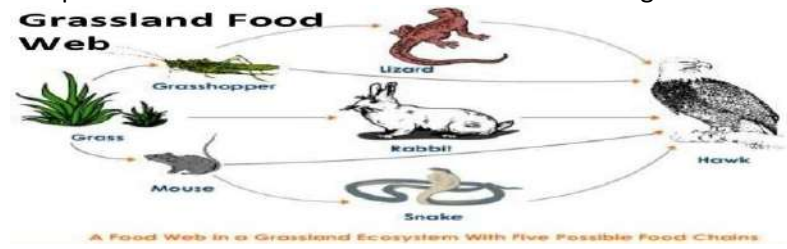
Ex:-1] Food chain in Grassland Ecosystem

Producer-◇Primary consumer-◇Secondary consumer--◇ Tertiary consumer◇Quaternary con
Grass-----◇Grasshopper-----◇Frog-----◇Snake-----◇Howk

2. Food chain in Forest Ecosystem:- Higher plants---◇Deer, Elephant-----◇Lion, Tiger

3. Food chain in Aquatic Ecosystem:-Phytoplanktons--◇Zooplanktons--◇Small fish---◇Large fish

II) Detritus food chain: - In Detritus food chain there is flow of Food Energy from plants to Detritus made up of dead organic matter to micro organisms, then to Detrivores(crabs) and their predators(fishes) Ex:- Mangroove leaves----◇ Detritus----◇ Microorganisms---◇Crabs-----◇Fishes
FOOD WEB--Net work of food chains which are interconnected at different trophic levels to form complex web is called "Food web". OR An interlocking of food chain is called as 'Food web'.



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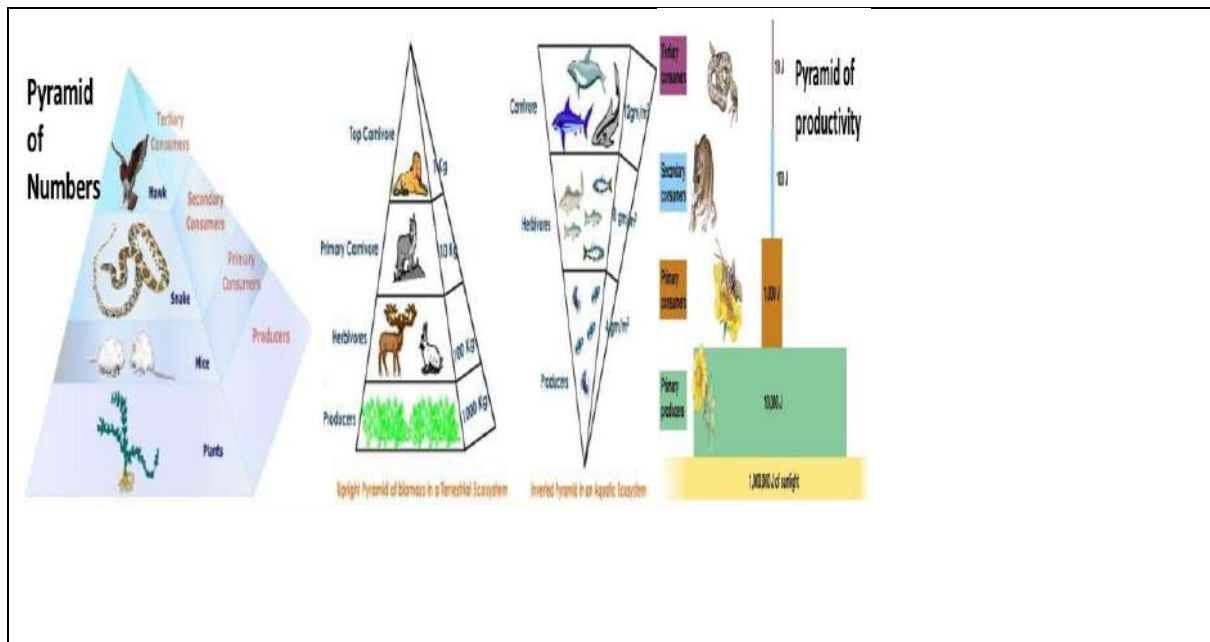
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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Ecological Pyramids
Hours Required	2
Learning Objectives	To know the relation ship between different animals
Previous Knowledge to be reminded	Autotrophs & Heterotrophs
Examples/Illustrations	Different types of living things
Additional Inputs	Charts
Teaching Aids Used	B.B& PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford
Student Activity Planned after teaching	Assignment
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

ECOLOGICAL PYRAMID -The graphic representation of the structure and functions of various trophic levels of organisms is called "Ecological pyramid". producers forms the base , while successive trophic levels forms the steps one above the other and top carnivores form tip of the pyramid. It was devised by British ecologist charls Elton.
 TYPES OF ECOLOGICAL PYRAMID Ecological pyramid is of 3 types .they are 1) Pyramid of Number, 2) pyramid of Biomass, 3) Pyramid of energy.



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	population
Hours Required	2
Learning Objectives	To know the population increase and decrease in ecosystem
Previous Knowledge to be reminded	
Examples/Illustrations	Different animals and plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	assignment
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	

POPULATION --- 'Population' is defined as a group of freely interbreeding individuals of the same species present in a specific area at a given time. For example, when we say that the population of a city is 50,000, we mean that there are 50,000 humans in that city. However, all populations of humans living in any part of the world constitute the species Homo sapiens. A population has traits of its own which are different from those of the individuals forming the population. An individual is born and dies but a population continues. It may change in size depending on birth and death rates of the population. An individual is either female or male, young or old but a population has a sex ratio and age structure, which means, the ratio of male to female in the population and the various age groups into which the population may be divided. The characteristics of any population depends on:

- i) density of the population,
- (ii) natality (birth rate),
- (iii) mortality (death rate),
- (iv) dispersal,
- (v) biotic potential
- (vi) age distribution
- (vii) dispersion and
- (viii) growth form



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Community characters
Hours Required	6
Learning Objectives	To know the different communities
Previous Knowledge to be reminded	Hydrophytes, mesophytes and xerophytes
Examples/Illustrations	Different types of aquatic plants and xerophytes
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Misra, R. (1968): The Ecology work Book Oxford & Odum E.P. (1971): Fundamentals of Ecology
Student Activity Planned after teaching	questioneer
Activities planned outside the class	Chart preparation
Any other activity	
Synopsis	
Analytical Characters	

Analytical characters are further characterized as quantitative and qualitative. Qualitative characters are difficult to measure whereas quantitative characters can be measured easily. **Qualitative characters**

These mainly include composition, physiognomy, phenology, stratification, abundance, sociability, vitality and vigor, life form (growth form), etc.

Floristic composition--This refers to the type of species occurring within a community. In every community some species are abundantly present and are referred as dominant species.

Stratification of vegetation--It is another very important feature of a vertical strata in a community. The growth form of the plant determines the vertical structure which includes their size, branching and leaves. The vertical structure is greatly influenced by physical features such as light

Periodicity (phenology, aspection)

It refers to the changes in characteristics of community with seasonal changes. Each species has a different requirement for light, temperature, moisture and other environmental factors. Accordingly, the period of growth events such seed germination, vegetative development, flowering and fruiting (reproductive phase), fruit and seed dispersal and seed dissemination varies for each species.

Daubenmire classified according to vitality into different groups:

V1-plants whose seedlings die

V2-seedlings grow but unable to reproduce

V3-reproduce vegetatively

V4-reproduce sexually but are uncommon

V5 reproduce sexually and grow regularly

Life forms :

Raunkier (1903) gave a system in which plants were classified according to the relation of their height above ground to the perennating organ.

i)Phanerophytes

ii) Chamaephytes

iii) Hemi cryptophytes

iv)Cryptophytes

v)Therophytes

SociabilityThe plants have been categorized into five groups depending upon their sociability.

S1- Plant found separately from each other i.e. grow singly

S2- Group of 4-6 plants growing at a place.

S3- Small group of plants growing at a place.

S4- Big group of plants growing at a place.

S5- A large number of plants occupying an area

Quantitative characters

These include parameters that can be measured or counted.

1. **Population density**---

2. **Cover (herbage cover)**--

3.**Plant height**--

4. **Weight of plants (biomass)**

Synthetic Characters

Presence and Constance:

Fidelity:

Dominance:

Relative frequency and Relative dominance (cover basis) are obtained as follows:

Relative density = Density of the species x 100/Total density of all the species

Relative Frequency = Frequency of the species x 100/Total frequency of all the species

Relative dominance (cover) = Dominance (cover) of the species x 100/Total dominance (cover) of all the species



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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	Levels of biodiversity
Hours Required	2
Learning Objectives	To understand about Biodiversity and levels
Previous Knowledge to be reminded	Chromosome DNA and gene structure
Examples/Illustrations	Different types of ecosystems
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Questioner
Activities planned outside the class	Assignment
Any other activity	
Synopsis	

Levels of biodiversity –

Biodiversity is commonly considered at three different levels:

1. Within species (intraspecific) diversity; usually measured in terms of genetic differences between individuals or populations.
 2. Species (interspecific) diversity, measured as a combination of number and evenness of abundance of species.
 3. Community or ecosystem diversity, measured as the number of different species assemblages.
- Biodiversity, therefore, is usually considered at three hierarchical levels i.e. Genetic, Species and Community and Ecosystem levels.

1. Genetic diversity--Genetic diversity refers to any variation in the nucleotides, genes, chromosomes, or whole genomes of organisms. This is the “fundamental currency of diversity” (Williams and Humphries, 1996) and the basis for all other organismal diversity.

2. Species diversity: • A group of organisms genetically so similar, that they can interbreed and fertile offsprings is called a species.

• The species diversity is usually measured in terms of the total number of species within discrete geographical boundaries. Species diversity - “species are groups of actually or potentially interbreeding natural populations that are reproductively isolated from other such groups” (Mayr 1963)

3. Community-level diversity: It is defined by the species that occupy a particular locality and the interactions between them. It represents the collective response of species to different environmental conditions.

Alpha, Beta, and Gamma Diversity Whittaker (1972) described three terms for measuring biodiversity over spatial scales: alpha, beta, and gamma diversity.

• **Alpha Diversity.**

• **Beta diversity**

• **Gamma diversity:**

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	VALUES OF BIOLOGICAL DIVERSITY
Hours Required	3
Learning Objectives	To understand about uses of plant
Previous Knowledge to be reminded	Plant parts and their uses
Examples/Illustrations	Different types of useful plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Quistioner
Activities planned outside the class	Assignment
Any other activity	

Synopsis
<p>THE VALUES OF BIOLOGICAL DIVERSITY --</p> <ul style="list-style-type: none"> • Human society depend on biological diversity for almost all the food supply, half of its medicines, much of its clothing and in some region virtually all of its fuel and building material and as well as, of course, an important part of its mental and spiritual welfare. • Ecological services <p>Biological diversity as a resource The three main approaches used for determining the value of biological resources.</p> <ul style="list-style-type: none"> • Consumptive use value • Productive use value • Non-consumptive use value: <p>Benefits of biodiversity</p> <ul style="list-style-type: none"> • Economical benefits – <p>a) Food value – b) Commercial value – c) Medicinal value</p> <p>Aesthetic value --</p> <ul style="list-style-type: none"> • Ecological benefits/services (Indirect use value)

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Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	THREATS TO BIODIVERSITY
Hours Required	2
Learning Objectives	To understand about harmful effects on plants
Previous Knowledge to be reminded	
Examples/Illustrations	Different types of activities which are harmful to plants
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology

Student Activity Planned after teaching	Group discussion
Activities planned outside the class	Assignment
Any other activity	
Synopsis	
<p>THREATS TO BIODIVERSITY → Growing human population - specific types of human actions that threatened biodiversity and ecosystems and causes to extinction of many species are:</p> <p style="text-align: center;"> ≡ Over-hunting/over-exploitation ≡ Habitat loss/ degradation/fragmentation ≡ Deforestation ≡ Invasion of non-native species ≡ Pollution ≡ Climate change ≡ Cultural impacts </p>	



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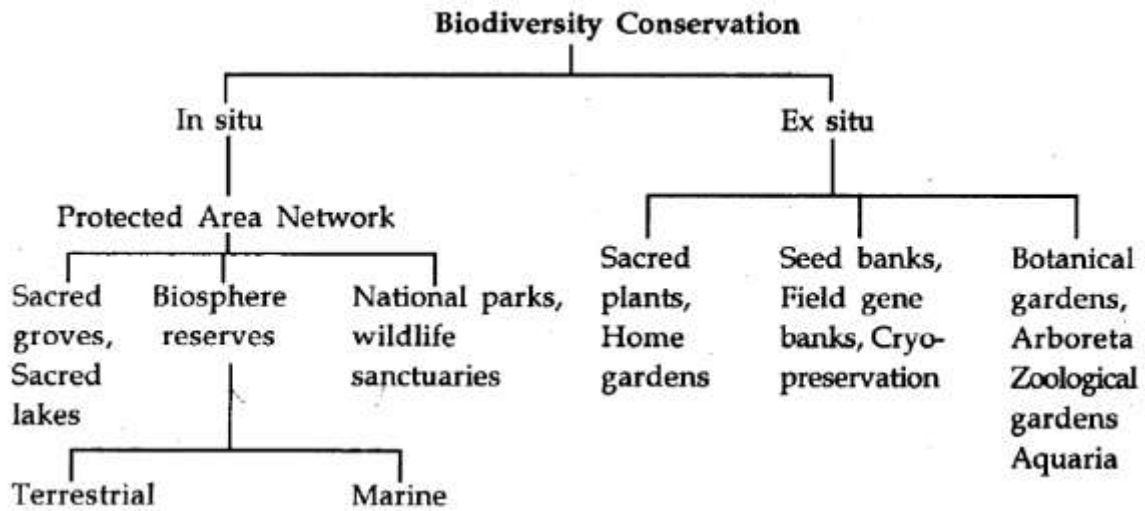
Name of the Department/Subject	BOTANY
Name of the Lecturer	K.Ravichandra Reddy
Course/Group	III BZC
Paper	VI
Name of the Topic	BIODIVERSITY CONSERVATION
Hours Required	2
Learning Objectives	To understand about protection methods of plants
Previous Knowledge to be reminded	Uses of plants
Examples/Illustrations	Different types of parks ,sancturies
Additional Inputs	
Teaching Aids Used	B.B&PPT
References Cited	Kumar, H.D. (1992): Modern Concepts of Ecology
Student Activity Planned after teaching	Quistioner
Activities planned outside the class	Assignment
Any other activity	

Synopsis

BIODIVERSITY CONSERVATION—

In situ conservation-- In India, ecologically unique and biodiversity-rich regions are legally protected as biosphere reserves, national parks and sanctuaries. India has also a history of religious and cultural traditions that emphasized protection of nature eg. Sacred groves.

Ex situ Conservation---In this approach, threatened animals and plants are taken out from their natural habitat and placed in special setting where they can be protected and given special care and protective maintenance. Examples; zoological parks and botanical gardens, in vitro fertilisation, tissue culture propagation and cryopreservation of gametes



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DEPARTMENT OF BOTANY



TEACHING NOTES (2021-22)

Paper-VII(SEM-VI) : *Nursery, Gardening & Floriculture*

PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Nursery
Hours required	2h
Learning objectives	to know about Nursery beds
Previous Knowledge to be reminded	Nursery beds
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Nursery bed It refers to a land, which is made free from weeds, stumps, stones, pebbles, etc., and is used for sowing of seeds to raise seedlings and multiplication of different species of plants through asexual means. Preparation of the nursery bed Nursery beds can be prepared in three different ways.
- Sunken bed • The soil of the seedbed needs to be sterilised by soil solarisation or with chemicals to avoid contamination by pests and diseases. • The soil of the nursery bed is thoroughly mixed with rotten farmyard manure. • This type of nursery bed is prepared in dry and windy areas. • In dry areas, the bed is kept 10–15 cm below the ground level, which helps in conserving water. • Sunken bed facilitates the deposition of irrigation water or rain water for a long time. • In case of water scarcity, this type of bed helps to conserve the moisture. Such a bed can be easily irrigated during dry season. • A sunken bed provides protection to these seedlings during high wind conditions as they are covered.
- Level bed • The soil of the seedbed must be sterilised by soil solarisation or with chemicals to avoid contamination by pests and diseases. • After soil preparation, the recommended dose of manure and fertiliser is mixed in the nursery bed. • For efficient management, the whole area is divided into uniform size of small beds. • Usually, a flat bed is 1-metre wide and has length according to the slope of the field. • Irrigation channels are prepared between the rows of the beds through which each bed is connected. These also act as drainage channels in case of heavy rain or excess irrigation. • Such a bed is prepared during non-rainy season (summer and winter) so that there is no waterlogging. • Adequate drainage provision is made and preference for sandy or sandy loam soil is given when preparing a flat bed.
- Raised bed • Such a nursery bed is prepared during the rainy season. • The land is levelled and made free of weeds, stumps, stones, pebbles, etc. • The soil of the nursery bed is thoroughly mixed with 5–10 kg per sqm rotten farmyard manure. • This type of bed is prepared about 15 cm high from the ground level. The width is kept at 1–1.5 m and length 3–5 m. This enables adequate drainage during rains and checks water stagnation. • A space of 3–4 cm is left between two beds in order to carry out cultural practices smoothly.
- Precautions to be taken during the preparation of nursery bed: A nursery bed needs to be prepared carefully so that uniform and healthy seedlings are obtained for planting. The following precautions must be taken while preparing a nursery bed. • The nursery bed is, generally, used to germinate sown seeds or for rooting of cuttings planted in the soil. Besides nutrition, sufficient moisture and aeration are important factors that affect seedling growth. • The nursery bed must be prepared in fertile soil rich in organic matter content, having adequate drainage and aeration. Soil having more water retention capacity does not need frequent irrigation. • Excess irrigation in sunken or flat bed may lead to rotting of seeds, seedlings and damping-off incidence. Watering of the bed depends on the type of soil. Sandy soil needs frequent watering. • Soil-borne infections caused by nematodes, insect-pests and pathogens may be avoided by treating the soil in different feasible ways.

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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Nursery
Hours required	2h
Learning objectives	to know about Routine Garden Operations
Previous Knowledge to be reminded	Routine Garden Operations
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Handling of plants Since plants grown in a nursery are tender, care must be taken in nourishing them in order to ensure their growth and development. Timely and effective preventive measures against pests and diseases must also be taken. The production of quality seedlings depends on how well the following activities have been executed in the nursery.
- Shading Newly grown saplings must be protected from adverse weather conditions. Shade can be provided by using shade-nets or polythene sheets.
- Thinning: It is important to maintain plant density in rows so as to ensure adequate light and air to the plants. During this process, weak, diseased or damaged plants are pulled out, allowing the growth of healthy seedlings. Watering Nursery beds must be watered carefully with the help of a fine rose can. After the establishment of plants, watering must be done as per the requirement of individual plants.
- Weeding: Weeding refers to the removal of all unwanted plants (weeds) from the nursery. Periodic removal of weeds is beneficial for the growth and development of seedlings as it prevents competition with the main plants for sunlight, water, air and nutrients. It also acts as secondary host for insect-pests and disease-carrying organisms. Thus, the nursery area must be kept free from weeds. Hand weeding and hoeing are the most common practices to remove weeds. To control a large number of weed species, pre-emergence herbicides can also be sprayed just after the sowing of seeds.
- Hardening of seedlings: Seedlings must be hardened-off (acclimatised) in partial shade before being planted in the main field so that they can survive the harsh open climatic conditions. Generally, hardening is done before transplanting in the open field by gradually exposing the seedlings from lower to higher temperature. Over-hardening of these seedlings must be avoided.
- Staking: Staking is a practice to support plants growing straight and saving them from bending or lodging. This is done at a time when the plants are not too tall. It saves the plants from being blown over due to wind and rain, and also because of the weight of its stems when in bloom. It is useful in potted plants, as well as grafted and budded plants. Bamboo is the most common plant where staking is used. Other than this, the branches of shrubs and trees, i.e., neem, subabool, phalsa, eucalyptus, etc., can also be used for this purpose.
- De-shooting: De-shooting refers to the removal of all side shoots (offshoots, offsets or keikis) emerging from the base of a plant. The main purpose of de-shooting is to divert the energy of the plant towards the development of its shoots or buds.
- Disbudding: Disbudding is the removal of floral buds when a large flower on a plant is desired, for example chrysanthemum and dahlia. The energy saved by disbudding is diverted towards the development of the retained bud so that the flowers become large and vigorous. Generally, it is followed in large flower varieties. In carnations, disbudding is practiced to obtain long stalks with larger blooms. Pinching: It refers to the removal of growing tips of vegetative buds to promote bushy growth for more lateral formation and precocious flowering as in case of chrysanthemum. It is the removal of 3–5 cm growing tips when the plants are 8–10 cm tall.



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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Nursery
Hours required	2h
Learning objectives	to know about Plantation & Transplantation
Previous Knowledge to be reminded	Plantation & Transplantation
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- The seeds must be healthy and free from infection. • Small seeds are sown after being mixed with sand for equal distribution. • The seeds must be sown at the right depth. • The seeds must be sown at adequate spacing to avoid overcrowding. It also ensures that the seedlings get sufficient nutrients, water, sunlight and air. Besides, the soil must neither be too dry nor too wet to avoid drying or rotting of these seeds or seedlings.
- Healthy and uniform seedlings must be selected and planted late in the afternoon at recommended spacing, followed by watering. These seedlings must be treated with fungicides to avoid soil-borne infections. • Transplanting must not be carried out in dry, hot, sunny, windy and humid conditions.
- Potting, de-potting and re-potting:
- Pots: Ornamental plants are grown in a variety of pots, depending on the choice of a person, including plastic, clay, cement, ceramic, etc. Pots are used for growing house plants (indoor and outdoor). Clay pots are the most popular, easily available, highly porous and cheaper than other type of pots. Size is an important factor while selecting pots. For specimen plant display, the pot size needs to be at least 30 cm in diameter. The size of the plant and its growth habit are to be considered before selecting a pot. Potting refers to transferring of plants from seedbed or poly-bag to pots, containing the potting mixture.
- Potting mixture: The potting mixture must be light in weight and have adequate water-holding capacity. It must allow drainage and supply adequate nutrients to plants. The mixture needs to be free from insect-pests and soil-borne pathogens. For ferns and bulbous plants, the mixture needs to be highly porous in nature, comprising coarse sand, light garden soil and leaf mould. Neem cake and bone meal may also be used in small quantities as nutrients. Potting of rooted cutting and young seedlings: 1- or 2-part sand + 1 part loamy soil + 1 part peat moss or leaf mould
Potting general container grown nursery stock: 2 parts sand + 4 part loamy soil + 2 part peat moss or leaf mould + 1 part rotten FYM
- Potting: Potting is the process of planting new plants in pots containing suitable mixture for their growth and establishment. It is a simple operation but requires a certain degree of skill and practice. The following points must be taken care of while potting a plant.
- De-potting: De-potting is the removal of a plant from a pot for planting in soil, bed or another pot. As roots are sensitive and prone to injuries, care needs to be taken while de-potting the plant. It is better to de-pot the plant along with the soil attached to its root system. This soil, if needed, can be removed carefully after de-potting.
- Re-potting: The first step in re-potting is de-potting. A de-potted plant needs to be re-potted in a fresh pot. For better growth of house plants, re-potting and transplanting of the established plants are done once in a year or two, depending on the type of plants and their growth habit. Re-potting is done when the plants have become pot-bound or overgrown, and also the potting mixture has become devoid of essential nutrients, resulting in poor growth of the plants. Depending on the plant type, it is done in February–March or September–October. During re-potting, the old potting mixture is replaced and the overgrown roots are pruned.
- The plant is placed in a new pot at the same depth in soil at which it was in the old pot. The pot is filled with fresh potting mixture, and then watered



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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about objectives and scope of gardening
Previous Knowledge to be reminded	objectives and scope of gardening
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- objectives of gardening: To create awareness about kitchen gardening. To improve skills for growing fresh and safe vegetables without use of any pesticide. To provide complete set of production technology including quality seedlings and potted plants of summer and winter vegetables.
- objectives of community gardening: To improve nutritional awareness and promote healthy eating habits by encouraging home gardening, providing fresh, organic produce to local food banks and meals programs, and offering educational programs on topics such as nutrition and cooking.
- objectives and scope of gardening: To increase production and productivity of fruit crops. To increase production and productivity of vegetable crops. To increase production and productivity of spices crops. To establish nurseries both at public & private sector for quality planting materials
- Ornamental gardening and landscaping has expanded as a multi-faceted industry encompassing activities such as propagating and rearing ornamental plants, landscaping, production of growing media, pots and other accessories, etc., generating huge employment opportunities and simultaneously promoting activities that would
- Kitchen gardening is something all of us can do to make our cities greener. It's a garden where you grow your own food—herbs, vegetables, fruits. What's more, it gives city dwellers a chance to produce their own food—fresher, healthier—and learn in the process about local varieties.
- It allows you to grow your own vegetables and fruits thus ensuring that you have healthy food on the table. When you harvest vegetables from your garden, you do so knowing that you're getting the freshest produce possible. Gardening for aesthetics appeals to the human need for beauty.
- Many people think of water and sunlight as the two main components of a successful garden. Keep the garden bed mulched at all times! Mulch helps keep the soil cool and moist. It makes for less work for the gardener because watering is not necessary as often since the soil is kept moist.
- School gardens are a great way to get children to learn about nutrition. FAO encourages and supports countries to promote school gardens with educational goals to help students, school staff and families make the connection between growing food and good diets, develop life skills and increase environmental awareness.
- vegetables are loaded with essential nutrients that promote better health, including antioxidants and vitamins. Adding fresh vegetables to your daily meals is the best way to boost your health, and your loved ones' health too. Children, in particular, will benefit from the health-giving nutrients of fresh vegetables.
- The most practical of all the advantages of vertical gardening is that it allows you to grow more in a space that is limited. If you have a small yard or garden but want to grow more flowers, herbs, or even vegetables, utilize vertical space
- Dirt may be natural, but it may also be home to some troubling bacteria and other pathogens. Among the scariest cons of gardening is the possibility that digging in the dirt could cause you to develop Legionnaires disease, tetanus, fungal infections that cause respiratory illness, or Weil's disease.
- Gardening can improve many aspects of mental health, focus, and concentration. Improves mood. Gardening can make you feel more peaceful and content. Focusing your attention on the immediate tasks and details of gardening can reduce negative thoughts and feelings and can make you feel better in the moment



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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Landscape & Home gardening
Previous Knowledge to be reminded	Landscape & Home gardening
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Landscape & Home gardening:
- There are many people who think that landscape gardening relates to only gardening in large public parks or palaces of the rich. Landscaping as it is done for larger estates or public parks can also be implemented in a tasteful and artistic way for a small home ground, though on a smaller scale. The term "small" is a misleading one so far as it relates to gardens. The simplest definitive or "small", as suggested by some authors quite appropriately, is an area which can be effectively managed and maintained physically as well as financially by the owner and his family with occasional hired labour for such hard work as digging, mowing, and shearing of hedges. Here, ways will be suggested for landscaping only small residential houses. For larger estates, a combination of landscaping effects suggested for parks and home landscaping may be followed.
- Before any actual garden work is undertaken a master plan has to be prepared according to a scale (1: 15 or 1:20) in which all the features such as house wall, drive-way, paths, flower beds, shrubbery, etc., are plotted. The shaded areas due to large tree canopy or the building itself has to be marked on the plan. A plan prepared on a printed graph paper is of great help. The plan thus prepared should be studied again and again keeping in view what shape a plant will take in the long run. It is frequently observed that people attracted by the graceful form of a young Araucaria cookii, plant this in the centre of a lawn or near the house possess the gigantic form and height it will attain after some years.
- Approach or Public Area: This is the area from the street side extending to the entrance of the house. The area may be small or quite large depending upon where the building is situated. The aim is to harmonize or blend the surroundings with the house proper. The approach area should not be overcrowded with large trees. It is better to have doorway or "foundation" plantings with low rowing shrubs and evergreens. Floribunda and miniature roses are also suitable for foundation planting provided sufficient sun, at least during the morning hours, is available. It is important to note that planting in front of the house should neither obscure it nor cut off light and air nor block the windows thus obstructing view of the garden from indoors.
- Work or Service Area: The work or service area can be convenient, orderly and attractive. Wherever feasible this and the living area should be situated at the back of the house as these need seclusion or privacy. This area includes the kitchen garden, compost bin, nursery, tool shed, and garage. Some people like to include the children's swings and the slide in this portion as the children can be kept under surveillance from the kitchen. This should be separated from view by planting a thick hedge or a row of bushy shrubs, as this is considered as the shabbiest part in any garden.
- Private Garden Area or Living Area: This is generally termed as the outdoor living area, where people sit out in the winter to enjoy the sun or rest in the summer under an arbour or shade of tree. This area should be easily approachable and visible from the living (drawing-room) or dining-room, screened from unsightly objects and for privacy. In the western countries people prefer a terrace and this is the place where it should come. There should be some shaded sitting spots such as a tree or arbour with garden benches.

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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Computer applications in landscaping
Previous Knowledge to be reminded	Computer applications in landscaping
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Computer applications in landscaping:
- There are many assistance programs in landscape design which fall under the list of Computer Aided Design (CAD) – “Real time” software is one of them (fig. 1) – where those programs work particularly in the field of landscape design and do not interfere significantly in other fields. Classification was made for a range of CAD programs in the area of study based on scientific grounds in terms of quality and specifications, etc. Every program was selected to display its specifications, steps of design process and how it works at the level of landscape
- With long experience in landscape design using assistance programs in the final stages of graphics and presentation of large sized projects. The programs used in graphic “two- and three-dimensional drawings” and presentation: (AutoCAD; 3DMax; Maya; Sketch up).
- At the level of the house gardens and small public buildings’ gardens, users get back to commercial market to choose from several alternative programs according to the input dimensions of land. Thirteen programs were selected depending on the most commonly used and best-selling in this field.
- There are many criteria for comparison between different landscape programs, which will be used in the comparison table. The following is a review of the criteria and their definitions.
- Programs are compared in terms of their prices and the possibility to obtain them from the market and therefore the extent of their demand
- Whether they are available or not to assist users of these programs in dealing with the program and understanding the best uses of tools available. Moreover, if there is a possibility of saving the steps, used in the design, in a video to illustrate these steps later.
- Some programs create two-dimensional designs and have the possibility of modifying; inserting and saving these designs. Most programs feature the possibility of importing two-dimensional images, except Custom 3Dland software which can’t import pictures and the pre-set designs must be used
- Printing is one of the most important criteria that should be available in programs that assist in landscape design. Thus, the possibility of presenting the output to the customer or the owner is very important. This feature is found in most programs, except Custom 3Dland software.
- There are some programs that create three-dimensional designs and have the possibility of modifying, inserting, and saving designs. Not only that, there are also some programs that can draw three-dimensional plants and create animation
- Land CAD software can convert between *.cad and *.gis file extensions. There is a feature of Landscape deck patio designer 12, where the final design can be converted/ modified in the AutoCAD program and printed at any scale

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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Gardening operations
Previous Knowledge to be reminded	Gardening operations
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Gardening operations:
- Soil laying:
 - healthy garden soil that plays a pivotal role. The more you keep your soil healthy, the better your garden will grow. In this article, we will focus on Ways to Prepare Healthy Garden Soil that will help you to protect the soil structure, feed the soil with nutrients from both natural and commercial sources, and increase the diversity and number of the beneficial microbes and organisms that live in the soil.
 - Organic manures increase the humus content and water holding capacity of the soil. Plus it provides most important dose of macro nutrients (NPK) to plants. Cow dung manure is the most commonly available organic fertilizer in India. It is always a good idea to use well decomposed manure instead of any kind of fresh animal dung. Ideal organic manure is dark, moist, consistent, rich in texture & more importantly it doesn't have any unpleasant odour. Leaves of leguminous 'green manures' can be added to convert the otherwise balanced manure into nitrogen rich manure
 - Composting can be defined as a means of recycling almost any organic wastes. The best part about composting is that it reduces the bulk of organic materials, stabilises their soluble nutrients, and triggers the formation of soil humus. Application of one-quarter inch per season is recommended as it will provide slow-release nutrients, which will dramatically improve your soil's water retention and suppress disease
 - Manuring:
 - Adding manure to soil improves the soil's texture and water-holding capacity while providing nutrients needed by growing plants. Unfortunately, fresh manure can also contain bacteria that can contaminate vegetables and cause human disease.
 - One of the best ways to use manure as plant fertilizer is by mixing it in with compost. Composting manure eliminates the possibility of burning the plants. Another option is to till it into the soil prior to spring planting, such as during fall or winter. Generally, fall is the best time to use manure in the garden
 - Watering: Deep watering encourages deeper and stronger root growth. Therefore, watering gardens about 2 inches (5 cm.) or so once a week is preferable. Watering more often, but less deep, only leads to weaker root growth and evaporation.
 - Automatic watering timers are especially useful; just make sure to watch the weather, and reduce frequency when rain fall is abundant. Too much moisture can be just as damaging to plants as too little.
 - Lawns and annuals concentrate their roots in the top 6" of soil; for perennials, shrubs and trees, it's the top 12". In heavy soil, it may take hours for water to percolate down 6-12".
 - Mulch reduces surface runoff and slows evaporation from the soil.



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PROFORMA FOR TEACHING PLAN

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Landscaping highways
Previous Knowledge to be reminded	Landscaping highways
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- It aims at making development ecologically sensitive which in turn makes it sustainable. There is a wide variety in the scale at which landscape planning can be carried out. When it is done at the regional scale, the emphasis is on land utilization and locating human settlements with respect to natural resources. Landscape planning can be carried out till site planning level e.g. designing the landscape of group housing.
- Road landscaping forms an integral part of landscape planning from urban design viewpoint. It aims at making cities and towns more comfortable places to live in, aesthetically and visually more pleasant-looking. Landscape planning takes into account the existing landscape of an area, topography, vegetation, natural drainage patterns, wind directions, temperature, humidity etc. it aims at investing in nature for the benefit of humans.
- It also studies how strong natural settings are e.g. many more types of settlements can come up in plains as opposed to hilly areas as the former type of terrain offers greater flexibility in development. Mountainous terrain has less dense developments due to physical barriers. Landform dictates the built form to a large extent.
- It is important to landscape roads as they are the channels of movement and it is desirable to make the experience on them comfortable and pleasant. Road landscaping can play a very important role in this. A road should be landscaped suitably with respect to the hierarchy of the road.
- Roadside plantation acts as noise buffers. For this purpose, sunken roads can be created as when the noise source disappears, psychological impact of noise also decreases. Mounds with trees can be planted as foliage absorbs noise. For this purpose, trees with thick and dense foliage (evergreens) should be chosen. Dust and other particulate matter settles on leaves which decreases pollution in the air. The leaves through their pores absorb smoke and other gases which further helps in purifying the air.
- Trees have a cooling effect in hot climates. Plantation on the median helps in decreasing glare from the oncoming direction which decreases chances of accidents. When different kinds of trees are planted on different roads, they help in giving the roads an identity which helps people find their bearings. Roadside plantation provides shade for pedestrians.
- The landscape elements should be such that they complement the existing landscape and built structure. Landscaping should not be jarring. It should give the road users pleasant views. On highways, row plantation and trees in clusters can be used. Breaks in between the clumps provide road users with views of the surrounding landscapes.
- Road landscaping should enhance road safety. There should be adequate street lighting for illumination in the dark. Street lights of correct height should be used at suitable intervals. In squares and plazas, taller streetlights are used as they light up a larger area. Plantation should not obscure street lighting, as is seen in some parts of Lutyen's Delhi in India.
- Road landscaping should be such that approaching intersections are seen well in time. Landscaping should be readable and not chaotic. Signages should be adequately large and should not be placed unnecessarily.
- Conflict between pedestrian movement and vehicular movement can be decreased by road landscaping. On the same carriageway, by changing the material for cycle tracks and pedestrian paths, confusion can be decreased and unnecessary use of bollards and railings can be avoided. Intersections can be modified for the same purpose.


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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Landscaping-Educational Institutions
Previous Knowledge to be reminded	Landscaping-Educational Institutions
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Landscaping-Educational Institutions:
- The compounds around educational institutes are generally neglected. An ideal school ground plan could create a spacious and extensively planted park. Landscaping not only enhances beauty and appearance but also inculcates aesthetic sense to younger generations. Thus it becomes necessary to landscape the campuses of educational institutes. It is better to have a master plan of the whole area and to implement it in phases according to the resources available.
- Landscaped areas might provide adequate room for free play and supervised recreation, sport events and outdoor ceremonies.
- The main aim of the landscaping of educational institutions is to control noise, storm, and dust and to provide shade and screen some ugly places with the help of plants.
- Even in unplanned school buildings, it is possible to improve the landscape by careful planting.
- As school gardens should be planned with plant materials which need minimum maintenance.
- In the periphery of the school campus, along the rear and wings, a thick belt of large shady trees should be planted to bring down noise and cut down dust and storms.
- The plantation will help keep down severe heat and cold.
- For enhancing the scenic beauty, it is suggested to plant a row of flowering trees with different blooming seasons, in front of the large trees along the periphery.
- A thickly planted belt of eucalyptus, silver oak, and so on is also very suitable for peripheral planting.
- The front should be planted with medium sized flowering trees for beauty.
- The trees should not completely obstruct the view of the building from outside.
- The roads and paths are to be formally planted with medium tall flowering plants.
- The provision should be made of overhead wiring and sewerage before avenue planting so that these do not interfere with it.
- Shrubs play an important part in the school landscaping.
- Border planting of shrubbery on large grounds or at the back of the school campus serves a useful purpose of filling the gaps between the trees and lawns. Moreover small paths can be planted with shrubs arranged in formal beds, or rows, thus improving the beauty of the path.
- Shrub border around playgrounds require minimum maintenance and is effective than hedge.
- A hedge needs regular trimming. Shrubs, with suitable colourful flowers, are more colorful than hedges.
- The foundation planting can also be undertaken with evergreen dwarf and trailing shrubs.
- Flower beds, especially these seasonal ones should not be preferred.
- A lawn looks nice in an educational institute, but it is difficult to maintain.
- A bougainvillea creeper trained over the wall of the building can change the whole look.
- Garden ornaments like a bird bath provided amidst the trees will attract many birds which will be educative to the students.
- Different trees, shrubs, flowering annuals, etc. may also be properly labeled to enable students learn their names and develop knowledge



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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Gardening
Hours required	2h
Learning objectives	to know about Some Famous gardens of India
Previous Knowledge to be reminded	Some Famous gardens of India
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Some Famous gardens of India:
- 1) Shalimar Bagh and Nishat Bagh, Kashmir:
- Part of the famed Mughal Gardens, these two parks display exquisite Persian architecture. The intricately designed fountains and waterbodies can have a therapeutic effect on you
- 2) Hanging Gardens, Mumbai:
- These terraced gardens are incredibly famous across the length and breadth of India
- 3) Lal Bagh Garden, Bengaluru:
- Probably the most beautiful garden in the Garden City of India, they have an exceptional variety and volume of exotic and local flora that needs to be seen.
- 4) Rock Garden, Chandigarh:
- If you're looking for some diversity in ideas, then this is one to check out. The 'best out of waste' theme sets it apart as a sculpture garden
- 5) Company Bagan, Kolkata:
- Officially named the Indian Botanical Garden, the Company Bagan is a sophisticated, modern park with an adjacent lake that is home to pretty waterlilies
- 6) Yadavindra Gardens, Pinjore:
- Built during Aurangzeb's reign by his famed architect, Fidai Khan, these gardens display dazzling Persian architecture and are framed around a grand central fountain.
- 7) Chaubatia, Ranikhet:
- The legacy of this garden extends all the way to the British Empire. It has nearly 200 varieties of fruits and flowers that light up this luscious space
- 8) Tulip Garden, Srinagar:
- Also known as the Indira Gandhi Memorial Tulip Garden, it is found in the Zabarwan Hills and offers a beautiful view of Dal Lake.
- 9) Brindavan Garden, Mysore:
- Another Mughal style garden with very vibrant colours, a visit to the Brindavan is always a refreshing and invigorating experience.
- 10) Lodhi Garden, New Delhi:
- Love watching the sunrise? Then Lodhi Garden is the place for you to be. It is also the place to inspire ideas for gorgeous pathways and borders for your garden.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Propagation methods
Hours required	2h
Learning objectives	to know about Sowing/raising of seeds
Previous Knowledge to be reminded	Sowing/raising of seeds
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Methods of seed sowing:
- Broadcasting: In this method, seeds are broadcast on nursery beds, after which the beds are covered with sieved farmyard manure (FYM) or decomposed compost. However, this method has disadvantages too, such as the seeds cannot be placed at a desired place and comparatively more quantity of seeds is required.
- Line sowing: It is an appropriate method of sowing seeds in a nursery. Sowing in lines improves germination and quality of seedlings. In this method, each seed gets independent space, and grows healthy and vigorously. Here, the diseased seedlings and weeds can be easily managed.
- Procedure: On a leveled bed, shallow trenches of certain depths are made with the help of a stick width-wise at adequate spacing. This depends on the size of the seeds. Small seeds are sown at shallow depths and low spacing between rows and vice versa. The seeds are, generally, sown at a depth of 3–4 times of its diameter. They are placed singly in rows. Small seeds are mixed with sand for even distribution. The trenches are then covered with fine soil. The beds require light irrigation from sowing to transplanting by means of a fine rose can. Mulching of seed beds by polyethylene sheet, paddy straw, etc., helps in quick and uniform germination of seeds. Mulches must be immediately removed after germination.
- Seed sowing in plug-trays (pro-trays) High-value and hybrid seeds are preferred to be sown in plug-trays (pro-trays) instead of open field nursery beds. Pro-trays are made of soft plastic having shallow plugs. These plugs are filled with planting medium. Coco peat, a by-product of the coir industry having high water-holding capacity, is commonly used as a medium in pro-trays.
- Procedure: In this technique, plugs are filled with coco peat. Depressions of 0.5 to 1 cm are made at the centre of the plugs with the help of fingertips for sowing the seeds. One seed is sown in each plug. The seeds are placed in the depressions and covered with coco peat.
- Precautions to be taken during seed sowing and planting:
- During seed sowing • The seeds must be healthy and free from infection. • Small seeds are sown after being mixed with sand for equal distribution. • The seeds must be sown at the right depth. • The seeds must be sown at adequate spacing to avoid overcrowding. It also ensures that the seedlings get sufficient nutrients, water, sunlight and air. Besides, the soil must neither be too dry nor too wet to avoid drying or rotting of the seeds or seedlings.
- During planting • Healthy and uniform seedlings must be selected and planted late in the afternoon at recommended spacing, followed by watering. The seedlings must be treated with fungicides to avoid soil-borne infections. • Transplanting must not be carried out in dry, hot, sunny, windy and humid condition
- Traditional Method
- A funnel-shaped tool is used to sow the seeds traditionally. The funnel is filled with seeds and the seeds pass through two or three pipes with sharp ends. These seeds enter into the soil and these seeds are replaced there.
- Dibbling: Holes are made in the seedbeds and the seeds are placed in it. The seedbeds are then covered. The holes are made at definite depths. A dibbler is used for dibbling. It is a conical instrument that makes proper holes in the seedbed. This method is usually used to sow vegetables.
- Drilling: The seeds are dropped into furrow lines in a continuous flow and are then covered with soil. This is done either mechanically or manually. The proper amount of seeds are sown at proper depths and proper spaces. Drilling can be done in the following ways:

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Propagation methods
Hours required	2h
Learning objectives	to know about Propagation Methods
Previous Knowledge to be reminded	Propagation Methods
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Propagation Methods:
- The major methods of asexual propagation are cuttings, layering, division, budding and grafting. Cuttings involve rooting a severed piece of the parent plant; layering involves rooting a part of the parent and then severing it; and budding and grafting is joining two plant parts from different varieties.
- Many types of plants, both woody and herbaceous, are frequently propagated by cuttings. A cutting is a vegetative plant part which is severed from the parent plant in order to regenerate itself, thereby forming a whole new plant.
- Numerous plant species are propagated by stem cuttings. Some can be taken at any time of the year, but stem cuttings of many woody plants must be taken in the fall or in the dormant season.
- Leaf cuttings are used almost exclusively for a few indoor plants. Leaves of most plants will either produce a few roots but no plant, or just decay. Whole leaf with petiole: Detach the leaf and up to 1 ½ inches of petiole. Insert the lower end of the petiole into the medium. One or more new plants will form at the base of the petiole. The leaf may be severed from the new plants when they have their own roots, and the petiole reused.
illustrations showing whole leaf cutting with petiole
- Whole leaf without petiole: This is used for plants with sessile leaves. Insert the cutting vertically into the medium. A new plant will form from the axillary bud. The leaf may be removed when the new plant has its own roots.
- Root Cuttings: Root cuttings are usually taken from 2 to 3 year old plants during their dormant season when they have a large carbohydrate supply. Root cuttings of some species produce new shoots, which then form their own root systems, while root cuttings of other plants develop root systems before producing new shoots.
- illustration showing root cutting for plants with large roots
Plants with large roots: Make a straight top cut. Make a slanted cut 2 to 6 inches below the first cut. Store cutting about 3 weeks in moist sawdust, peat moss, or sand at 40 degrees F. Remove from storage. Insert the cutting vertically with the top approximately level with the surface of the rooting medium. This method is often used outdoors.
- Layering: Stems still attached to their parent plants may form roots where they touch a rooting medium. Severed from the parent plant, the rooted stem becomes a new plant. This method of vegetative propagation, called layering, promotes a high success rate because it prevents the water stress and carbohydrate shortage that plague cuttings. Tip layering: Dig a hole 3 to 4 inches deep. Insert the shoot tip and cover it with soil. The tip grows downward first, then bends sharply and grows upward. Roots form at the bend, and the recurved tip becomes a new plant. Remove the tip layer and plant it in the early spring or late fall. Examples: purple and black raspberries, trailing blackberries. illustration showing tip layering
- Compound layering: This method works for plants with flexible stems. Bend the stem to the rooting medium as for simple layering, but alternately cover and expose stem sections. Wound the lower side of the stem section to be covered. Examples: heart-leaf philodendron, pothos.
illustrations showing compound layering
- Mound (stool) layering: Cut the plant back to 1 inch above the ground in the dormant season. Mound soil over the emerging shoots in the spring to enhance their rooting. Examples: gooseberries, apple rootstocks.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Propagation methods
Hours required	2h
Learning objectives	to know about Propagation of ornamental plants by rhizomes, corms, tubers, bulbs and bulbils
Previous Knowledge to be reminded	Propagation of ornamental plants by rhizomes, corm, tubers, bulbs and bulbils
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Bose T.K. & Mukherjee, Gardening in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Propagation of ornamental plants by rhizomes, corm, tubers, bulbs and bulbils
- Specialised organs are modified stems or roots, developing above the ground surface or underground, which may be used for multiplication of plants. In horticulture, bulbous ornamentals include bulbs, corms, tubers, tuberous roots and rhizomes.
- Bulbs:
- Bulb is a specialised underground structure having a flat basal stem and surrounded by fleshy scales, e.g., onion, tuberose, amaryllis. Structurally, bulbs are tunicated and non-tunicated.
- Bulbs or bulb-like plants are usually perennials. They have a period of growth and flowering. This is followed by a period of dormancy where they die back to ground level at the end of each growing season. For spring bulbs, the end of the growing season is in late spring or early summer. Spring bulbs start to grow again in the fall and flower the following growing season.
- Good examples of tunicate bulbs include: tulips, daffodils, hyacinths, grape hyacinths (muscaria), and alliums. Many plants such as daffodils form new bulbs around the original bulb. These bulbs, called offsets, develop from buds within the base of the mother bulb and produce new plants.
- Corm:
- Corm is an underground modified solid or compressed stem oriented vertically in the side having nodes and buds, e.g., gladiolus, crocus
- A corm is a swollen stem base that is modified into a mass of storage tissue. A corm does not have visible storage rings when cut in half. This distinguishes it from a true bulb. The corm contains a basal plate (bottom of bulb from which roots develop), thin tunic and a growing point. Examples of plants that develop from corms include gladiolus, crocus, and autumn crocus
- Tuber:
- A tuber differs from the true bulb and the corm by not having a basal plant from which roots develop and not having a protective tunic covering. The caladium tuber has buds scattered over the tuber surface from which shoots and roots develop. Examples of plants that develop from tubers include caladiums, oxalis and anemones, and the common vegetable, the potato
- The tuberous root differs from other root structures by the nutrient reserves being stored in an actual root instead of an enlarged stem. The dahlias reproduce from buds at the top end of the root or base of the stem.
- Rhizomes:
- Rhizomes differ from other storage structures by growing horizontally under the surface of the soil. On some plants, this type of rooting structure can be very invasive.
- The lily-of-the-valley rhizome spreads horizontally underground and produces pups which develop into new plants. This plant is increased in the landscape by digging in the fall and removing pups with developed roots for replanting.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Propagation methods
Hours required	2h
Learning objectives	to know about Greenhouse - mist chamber, shed root, shade house and glass house
Previous Knowledge to be reminded	Greenhouse - mist chamber, shed root, shade house and glass house
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Depending upon the cladding (covering) material used, the net houses may be classified as insect-proof net houses and shade net houses.
- It is primarily constructed to protect plants from highly intense solar radiation. The structure is made of wood, stone, bamboo or GI pipes. When wood or bamboo are used, the poles are treated with turpentine and tar on one side before inserting them in the ground. Cladding material used on the top and sides of the structure is generally a shade net. The shade nets are available in different colours with different percentages of shade factor. Suitability of colour and shade factor is location and season-specific. Generally, shade nets are used for hardening of fruit or orchard planting material raised under greenhouses.
- Advantages 1. They control high intensity solar radiation. 2. They protect plants from frost. 3. They also protect plants from large insects
- Greenhouse It is a framed or covered structure with a transparent or translucent material which permits ample sunlight for crop production and has provisions for at least partial control of plant environment. A greenhouse, depending upon the transparency of the glazing material, admits sunlight which is absorbed by the crop, equipment, structure and the floor. These objects in turn emit thermal radiation which is only partially transmitted out of the greenhouse.
- Advantages 1. Off-season cultivation of crops is possible round the year. 2. Crop cultivation is possible under harsh environmental conditions. They provide excellent opportunities to produce export-quality crops. 4. Early production of quality seedlings and planting materials is possible. 5. More production per unit area in comparison to open field cultivation. 6. Greenhouses can also be used for growing flower plants, strawberries and propagation of quality fruit plants. 7. Insect, pest and weed management is easier in greenhouses than in open fields. 8. Greenhouses can provide substantial income for cultivators having small land holdings.
- Mist Chamber: The main purpose of such a structure is to create high humidity and droplet-free presence of water for propagating delicate soft wood cuttings, vegetable crops, root plants and shrubs, etc. Cuttings are misted intermittently in place of continuous water application or drenching. The intermittent water misting is done using a high pressure pump, pipeline system and a timer switch. The mist nozzles are connected to the main pipelines for misting the plant material growing inside the growth chambers or structures. A mist chamber of 15-25 sqm is sufficient for a nursery. The frequency of misting depends upon ambient temperature and type of plant material being propagated.

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➤ **PROFORMA FOR TEACHING PLAN**

Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Floriculture
Hours required	2h
Learning objectives	to know about Flowering annuals; herbaceous, perennials;
Previous Knowledge to be reminded	Flowering annuals; herbaceous, perennials;
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- **Annuals:** Annuals are plants that complete their life cycle in one season or one year (eg.) Balsam and Cosmos. Annuals are a group of plants which attain their full growth from seed, flower and die in one year or one season. Mostly they complete their life history in 3 to 6 months. They comprise of several of the most beautiful and easily grown plants widely varying in form, habit of growth and colour.
- Annuals can be used for multiple purposes as hereunder.
- 1. Flower beds of simple design can be laid out on the outskirts of lawn, along the base of buildings, in the path leading to entrance of houses and on sides of foot steps 2. Certain annuals are useful as edging (e.g. Dwarf marigold, Alyssum and Candytuft) 3. Certain annuals are useful in hanging baskets (eg. Petunia, Verbena and Alyssum) 4. Certain climbing annuals are useful to cover trellis work (e.g. Tall Nasturtium and Cobaea scandens) 5. Some annuals are useful for massing in beds (e.g., Aster, Phlox, Salvia, Zinnia and Verbena) 6. Few other annuals are useful for planting in shrubberies in vacant spaces; they are Sunflower, Hollyhock, tall growing species of Amaranthus, Tithonia etc. 7. They serve as perennial sources of supply of cut flowers for indoor decorations. **Biennials:** Biennials are plants which grow in one season, flower, fruit and die in the next season. Generally, the period of growth is 6 to 9 months. Biennials are grown in the same way as annuals and can be used similarly. Examples of biennials are Canterbury bell, Gladiolus etc.
- **Herbaceous perennials:** Herbaceous perennials are those perennial plants with soft succulent stems (as compared to shrubs which have woody stems). They are propagated by seeds, cuttings, offset and slips. They are useful as herbaceous or mixed borders or for pot culture. The following are the examples for herbaceous perennials.
- **Chrysanthemum:** Flowers are single or double available in attractive colours. Perennial species include C. frutescens and C. maximum and its varieties. Propagated easily by suckers.
- **Solidago:** Popularly known as 'golden rods' producing erect feathery rod-like trusses crowded with pretty golden yellow flowers. They are suitable for mass planting in beds and borders in and adjoining lawn. They are raised by suckers. **Gerbera:** Stemless perennial herbs with radical stalked leaves, flower heads are solitary, large and sterile with varying colours. Propagation by division of clumps or from seed.
- **SHRUBS:** Shrubs are plants with woody stems which are smaller than trees but bigger than herbaceous plants. A typical shrub will have several stems arising from the main stem at ground level itself. They can be either evergreen or deciduous. Some are attractive in their foliage, some produce attractive flowers and some are grown for their attractive berries. A stretch of shrubs are established as borders on the sides of walks and paths. Shrubs are planted at the corners of lawn in a curving line. A shrubbery is an area planted with different kinds of shrubs and a shrub border is one where only one kind of shrub is used.
- **TREES:** Trees form the main framework of the garden. Some trees produce attractive and beautiful flowers including fragrant flowers, few trees are noted for their attractive foliage and few more trees are known for their peculiar shape or form which are used as specimen trees. Shady trees are planted in chosen spots of large public garden which provides place for picnic and relaxation. Such trees are also planted along the borders of roads as a venue for giving shade. In selecting ornamental trees, the purpose should be decided first and then the place of its culture should be finalized.



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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Floriculture
Hours required	2h
Learning objectives	to know about Cacti and succulents.
Previous Knowledge to be reminded	Cacti and succulents.
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	PowerPoints
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Cacti & succulents:
- The term succulent refers to a group of plant orders that store water in fleshy leaves and stems. The various types of cactus are one type of succulent, but not all succulents are cacti—the terms are not interchangeable. For a succulent plant to be considered a cactus, it must have areoles—small mounds of flesh where the spines, leaves, and flowers sprout. Cacti, therefore, are just one subdivision of the large group of plants known as succulents.
- Succulents tend to have leaves with a leathery texture, but not all plants with this feature can be considered succulents. Montauk daisy and bitterroot, for example, are not succulents.
- Moss roses (*Portulaca grandiflora*) are small annual succulents with small rose-like flowers that appear on mats of fine-textured fleshy leaves. *Portulacas* grow from 3 to 9 inches high and flower throughout the growing season and readily self-seed in the garden. The flowers are neon-bright shades of white, purple, yellow, orange and white; the blooms close up during cloudy, rainy weather.
- (*Sempervivum tectorum*) is a mat-forming perennial succulent that produces clusters of rosettes. The parent rosettes are the "hens," and the smaller rosettes that spring from them are the "chicks." This low-growing (4 inches tall) perennial will quickly spread to 2 feet or more in width. Although grown for its leaves, the hen and chicks plant does flower in June and July with reddish-purple blooms.
- Also known as stonecrops, *Sedums* represent a large group of perennial succulents that can be grown in many environments, not just arid conditions. This form, *Sedum spectabile* 'Autumn Joy,' is one of the larger types, growing to 24 inches. Unlike many succulents, Autumn Joy is very much grown for its flowers, which appear in clusters of tiny red or purple flowers that appear in September and October.
- The gold flowers that emerge in spring on Angelina sedum can be a nice bonus added to the appeal of its chartreuse foliage, as long as you don't mind the rather gangly stems they bloom on. But for many, the chartreuse foliage of these succulents is the main reason to grow them.
- *Yuccas* are a large genus of perennial plants, shrubs, and trees known for their spiky, sword-like leaves. Large forms can grow to 8 feet in height, but dwarf forms can make excellent landscape plants. *Yucca harrimaniae* x *nana* grows to only about 1 foot high and produces spikes of creamy white flowers. *Yucca filamentosa*, commonly known as "Adam's needle," grows to 2 to 3 feet and produces white flowers in early summer.
- *Opuntia compressa* is one of few cactuses that do well in cold climates. Prickly pear grows well in zones 4 to 9. It grows to about 1 foot in height with clumping pad-shaped stem segments that are sometimes mistaken for leaves. Sharp spines and tufts of hair cover the pads. Bright yellow flowers 2 to 3 inches in diameter appear in June and July. The plant also produces edible red fruit.
- Related to the prickly pine, the cholla cacti are a group of intimidating plants that are densely covered with very sharp spines. These are not plants for the faint of heart, or for families where there are children or inquisitive pets. They can make very interesting specimen plants in the right garden, however. There are species ranging from low clumping groundcovers to upright plants growing 6 feet or more. A few of these species can be quite cold hardy, surviving down to -25 degrees Fahrenheit.
- *Echinocactus* barrel cacti do contain a reasonably palatable fluid (or so we're told) that is potable in an emergency.


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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Floriculture
Hours required	2h
Learning objectives	to know about Ornamentals-palms.
Previous Knowledge to be reminded	Ornamentals-palms.
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Ornamentals-palms:
- Palms are admired for their ornamental, economic and ecological importance. This unique group of plants contains about 212 genera and 2779 species belonging to family Palmae or Arecaceae.
- Palms inhabit nearly every type of habitat within their range from rain forest to deserts. Contrary to their typical coconut tree like appearance, palms exhibit an enormous diversity in physical characteristics.
- Palms are of high ornamental value. There are several species suitable for decoration of verandahs, for avenue planting, for indoors and for the decoration of shade gardens.
- Though a majority of palms attain great heights when planted outside, they may be kept in pots as they look beautiful and have prolonged growth. Palms, in general, create a feeling of tropics in any landscape planting.
- Solitary Palms:
- The palm with unbranched, erect, tall, cylindrical and columnar stem called the trunk. *Cocos nucifera* (Coconut), *Phoenix*, *Elaeis*, *Roystonea*, *Hyphorbe*, *Aphianes* etc
- Clumping Palms:
- *Arecalutescens*, *Ptychosperma carthurii*, *Crostachyrenda*, *Chamaedorea seifrizii*, *Raphis humilis* etc.
- Branched Palms:
- *Hyphaene indica* (branches above ground), *Nypa fruticans* (branches below ground)
- Trunkless Palms:
- *Phoenix acaulis*, *Phoenix pusilla*, *Chamaedorea radicalis* & *Syagrus liliuputiana*.
- Feather Leaved Palms:
- *Arecalutescens*, *Caryotamitis*, *Cocos nucifera*, *Roystonea regia*, *Roystonea oleracea* etc.
- Fan Leaved Palms:
- *Borassus flabellifer*, *Chamaerops excelsa*, *Hyphaenethebaica*, *Licuala grandis* etc.
- Palms Which Can Tolerate Deep Shade:
- *Arecacatechu*, *Caryotamitis*, *Chamaedorea elegans*, *Licuala grandis*, *Livistona rotundifolia*, *Rhapis excelsa* etc.
- Palms Suitable for Avenue Planting:
- *Arengasaccharifera*, *Roystonea regia*, *Roystonea oleracea*, *Hyophorbe verschaffeltii*, *Livistona rotundifolia*, *Phoenix dactylifera*, *Washingtonia filifera*, *Washingtonia robusta*.
- *Chamaerops humilis*, *Cocos nucifera*, *Hyophorbe verschaffeltii*, *Livistona rotundifolia*, *Phoenix dactylifera*, *Roystonea regia*, and *Washingtonia filifera*.
- Palms for Tropical Climates:
- *Borassus flabellifer*, *Caryotaurens*, *Hyophorbe* species, *Roystonea*.
- Palms for Moist Boggy Wet Soils:
- *Cyrtostachys renda*, *Licuala spinosa*, *Livistona decipiens* and *Nypa fruticans*
- Palms for Indoors:
- *Caryotaurens*, *Chamaedorea elegans*, *Hyophorbe verschaffeltii*, *Licuala grandis*, *Livistona rotundifolia*, *Rhapis excelsa*, and *Washingtonia filifera*.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Floriculture
Hours required	2h
Learning objectives	to know about Indoorgardening
Previous Knowledge to be reminded	Indoorgardening
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	PowerPoints
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Indoorgardening:
- The idea of indoor gardening is essentially just growing plants indoors. There are, however, many different purposes for indoor gardening and multiple styles and techniques that can be used. The reasons for indoor gardening can be strictly practical, purely for enjoyment, or maybe for a little of both. Whatever your reasons for indoor gardening, there is a lot to know about what your specific garden will need. No doubt, the possibilities are endless when planning out your garden.
- Indoor gardens can be grown in any indoor space. Indoor gardening works in homes, offices, restaurants, and anywhere else people want a little bit of life and color. Plants create such a peaceful atmosphere that it makes sense we would try to bring a little bit of their beauty into our homes.
- Many of us don't have the yard space for an outdoor garden. Others live in a climate that would destroy the plants they're attempting to grow. Even in a mild climate, some plants are too delicate to be left in the fickle hands of Mother Nature. An indoor garden allows us to be in complete control of their environment.
- A popular reason for indoor gardening is the lovely, fresh, and crisp green leaves and flowers that can provide. Filling your home with living plants gives your decor a vibrancy that knickknacks and throw blankets just can't achieve. Many people just love gardening as a hobby but can't do it outside due to weather or yard space. Even in a small apartment, there are ways to squeeze some potted or hanging plants in.
- A more practical reason for indoor gardening is to reap the fruits of your labor. Many herbs will thrive in an indoor herb garden. Fruits and vegetables can be grown indoors as well. Although, some, like tomatoes and lettuce, will be a little easier than others. With the right care, nearly any environment can create the perfect conditions for whatever you're trying to grow.
- Indoor gardening might not even be your main goal. In areas with a harsher climate, bringing your delicate plants inside can prolong your growing season. You can also grow starter plants indoors in the cooler temperatures, moving them to your outdoor garden in the spring. Some plants may need a bit of acclimatization before being moved from their usual conditions of all-day direct sunlight to an indoor lighting situation.
- The most common technique for indoor gardening is container gardening using pots, terrariums, and upcycled vessels. These can include coffee cans, vases, or old paint cans. If you plan to use something other than a typical plant pot, be sure your container has drainage holes to allow excess water to escape. Alternately, place a few pebbles in its base to create some level of drainage. When using pots or any other container for your plants, be sure to repot your plants as they grow to give their roots the room they need.
- You can also grow plants indoors with hydroponics, which is growing your plants in sand, gravel, or water without soil but by using added nutrients. Hydroponics can allow plants to grow much faster as their nutrients are readily available to them and they do not need to expend their energy searching for them within the soil. Hydroponic gardens can be as simple as some glass jars with a little water and nutrients or as complex as a fully irrigated table set up to grow a vast garden of herbs and veggies.
- Some plants require very little natural light to thrive while others absolutely cannot go without it. Sunlight is an obvious choice to help your plants grow but for an indoor garden, you may not have much direct sunlight available or it likely won't be available for as many hours as your plants need.



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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Floriculture
Hours required	2h
Learning objectives	to know about Bonsai
Previous Knowledge to be reminded	Bonsai
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Bonsai:
- The word “Bon-sai” (often misspelled as bonzai or banzai) is a Japanese term which, literally translated, means “planted in a container”. This art form is derived from an ancient Chinese horticultural practice, part of which was then redeveloped under the influence of Japanese Zen Buddhism.
- It has been around for well over a thousand years. The ultimate goal of growing a Bonsai is to create a miniaturized but realistic representation of nature in the form of a tree. Bonsai are not genetically dwarfed plants, in fact, any tree species can be used to grow one.
- Techniques such as pinching buds, pruning and wiring branches, and carefully restricting but not abandoning fertilizers are used to limit and redirect healthy growth. Most commonly kept under four feet (or about a meter) in height, Bonsai are not genetically dwarfed plants. However, plants with smaller leaves do make these compositions easier to design. In fact, any plant species that has a woody stem or trunk, grows true branches, can be successfully grown in a container to restrict its roots/food storage capability, and has smaller or reducible-leaves can be used to create a Bonsai.
- The ultimate goal of Bonsai is to create a realistic depiction of nature. As a Bonsai gets smaller (even down to a few inches/centimeters) it increasingly becomes abstract, as opposed to resembling nature in a more precise way. Several classifications of Bonsai have been put forward, and although the exact size classifications are disputed, they help to gain understanding of the aesthetic and botanical aspects of Bonsai. The classifications are originally based on the number of men needed to lift the actual tree.
- Bonsai are a blend of horticultural knowledge and art. As one's experience with a given type of tree increases, concern about keeping the plant alive and healthy can take a backseat to concern about a particular design. The best, ideal, master piece compositions seem natural, without artifice or affectation. They don't call attention directly to the artist; they don't deliberately show off their features.
- The containers for these trees can be an interest in themselves. Traditionally made in China and then Japan, these shallow containers of mostly fired earthenware are increasingly crafted by both professional and amateur artisans around the world. The matching up of a pot to a designed tree can be a wonderful challenge, for the pot must support the tree as well as be an attractive but non-intrusive frame to the Bonsai's picture.
- There are different methods to propagate trees, some need a lot of patience and some offer immediate results. Growing a tree from seed means you have full control over the styling of your Bonsai plant, but it takes at least five years before you have anything that resembles a tree.
- A common misconception is that the plants used for Bonsai are genetically 'dwarfed' plants. Bonsai trees are normal plants, propagated like any other, but trained using sophisticated techniques to keep them miniature. The styling of these miniature trees involves important techniques like regular pruning and wiring.
- All sorts of trees and shrubs are used as bonsai. In essence, any plant that can be grown in a small container can be cultivated as a bonsai. The most popular varieties are pines; maples, whose leaves change their color in autumn; flowering trees, like the cherry and plum; and fruit-bearing trees, like the quince and persimmon. \

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Factors affecting flower production
Previous Knowledge to be reminded	Factors affecting flower production
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Factors affecting flower production:
- Temperature, light, moisture, nutrients, and genetic composition of a plant are among the factors that may affect flowering. When studying the effect of certain factors on flowering
- The timing of flowering is determined by endogenous genetic components as well as various environmental factors, such as day length, temperature, and stress. The genetic elements and molecular mechanisms that rule this process have been examined in the long-day-flowering plant *Arabidopsis thaliana* and short-day-flowering rice (*Oryza sativa*). However, reviews of research on the role of those factors are limited.
- Three principal characteristics of light affect plant growth: quantity, quality, and duration
- Plants are classified into three categories: short-day (long-night), long-day (short-night), or day-neutral, depending on their response to the duration of light or darkness. Short-day plants form flowers only when day length is less than about 12 hours. Many spring- and fall-flowering plants, such as chrysanthemum, poinsettia, and Christmas cactus, are in this category.
- In contrast, long-day plants form flowers only when day length exceeds 12 hours. Most summer flowering plants (e.g., rudbeckia, California poppy, and aster), as well as many vegetables (beet, radish, lettuce, spinach, and potato), are in this category.
- Day-neutral plants form flowers regardless of day length. Examples are tomato, corn, cucumber, and some strawberry cultivars. Some plants do not fit into any category, but may respond to combinations of day lengths. Petunias, for example, flower regardless of day length, but flower earlier and more profusely with long days.
- Sometimes horticulturists use temperature in combination with day length to manipulate flowering. For example, a Christmas cactus forms flowers as a result of short days and low temperatures (Figure 26). To encourage a Christmas cactus to bloom, place it in a room with more than 12 hours of darkness each day and a temperature of 50° to 55°F until flower buds form.
- If temperatures are high and days are long, cool-season crops such as spinach will flower (bolt). However, if temperatures are too cool, fruit will not set on warm-season crops such as tomato.
- Daffodils can be forced to flower by storing the bulbs at 35° to 40°F in October. The cold temperature allows the bulb to mature. When transferred to a greenhouse in midwinter, they begin to grow, and flowers are ready to cut in 3 to 4 weeks.
- Gibberellic acid (GA) plays a major role in promoting flowering under non-inductive photoperiod conditions (for review, Davis, 2009). Mutations in GA biosynthesis and signaling affect this timing in *Arabidopsis*
- Flower and seed development in crop plants is determined by the response of the plant to environmental factors. This chapter describes the general response of plants to environmental factors that influence flowering and shows how these factors may be manipulated to facilitate production of seed. The main environmental factors influencing flowering are day length, also referred to as photoperiod, and temperature. Temperature influences the rate of development and the number of flowers that produce mature seeds. Rate of development is also influenced by soil moisture, soil type, and fertility.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Production & packaging of cut flowers
Previous Knowledge to be reminded	Production & packaging of cut flowers
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Production & packaging of cut flowers:
- At present, the vast majority of cut flowers are imported from overseas. Leading producers include the Netherlands, Columbia, Kenya, and Israel. Flowers imported from overseas are largely roses, carnations, Gerbera daisies, garden mums, and orchids. These flowers ship reasonably well and make up the bulk of the flowers used in arrangements by most florists. Most of the flowers that local growers focus on are those that do not ship well or have shorter postharvest vase lives. These flowers have come to be termed "specialty cut flowers." Examples of specialty flowers include sunflowers, zinnia, lisianthus, dahlia, ageratum, and peoniesto name but a few on this long list. Local growers can readily develop a market niche with these flowers by using the advantage of longer vase life if produced locally, higher percentage of usable flowers, and a wider choice of colors and varieties
- Fresh-cut flowers are generally sold either by the bunch, in prearranged bouquets, or individually. Some growers will set up a display at markets along with pre-made bouquets. Six basic marketing alternatives are available to the cut-flower grower: wholesale markets, direct to florists, pick-your-own operations, roadside stands, farm markets, and subscription. Floral cooperatives, while standard in much of the rest of the world, have yet to take root here.
- When planning production, first consider your ability to market. You should conduct some market research because growers often overestimate their ability to sell in a given market. Production of less than one acre of many floriculture crops is typical for most growers.
- Fungal diseases can have a major impact on cut-flower plantings. While many diseases will not kill the flowers, they can drastically reduce their marketability. Powdery mildew can be a real problem in zinnias and many other flowers.
- While a wide variety of insects will inhabit any flower planting, only a few are recognized as causing economic damage, including aphids and thrips. There are wide differences in not only pests but also tolerance to specific pests.
- The basic equipment needed to start producing cut flowers is very similar to that needed by a small direct-market vegetable grower. Small equipment such as a rototiller, a low horsepower tractor, and irrigation equipment are typically the only major purchases outside of growing materials that you will need. As many annual, perennial, and woody plants are worthy of consideration for production, planning your planting takes some care.
- Flowers are best harvested in the morning after the dew has dried but before the heat of the day because the flowers are cooler and will suffer less heat stress and better retain their quality. Packing damp flowers close together for shipping will promote the development of Botrytis (gray mold), which will render the flowers unfit for sale. Rapidly cool the harvested flowers or at least remove them from direct sunlight.
- Many flowers benefit from the use of floral preservatives. Some flowers, such as yarrow, are best harvested as soon as pollen is evident, while sunflowers are best harvested as soon as the flower is almost completely open.

Signature of the Lecturer

Signature of the Principal

➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Arrangement of flowers
Previous Knowledge to be reminded	Arrangement of flowers
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Arrangement of flowers:
- In ikebana, the Japanese art of flower arranging, blossoms, branches, leaves, and stems find new life as materials for art making. In contrast to the western habits of casually placing flowers in a vase, ikebana aims to bring out the inner qualities of flowers and other live materials and express emotion.
- In Japanese culture, most native flowers, plants, and trees are embedded with symbolic meaning and are associated with certain seasons, so in traditional ikebana, both symbolism and seasonality have always been prioritized in developing arrangements. Some of the most common elements used are bamboo grass year-round; pine and Japanese plum branches around the new year; peach branches for Girls Days in March; narcissus and Japanese iris in the spring; cow lily in summer; and chrysanthemum in autumn. Modern ikebana practices call for the same sensitivity to seasons, as well as to the environment in which an arrangement is being made.
- To prepare a basic Moribana arrangement, for example, the ikebanaist adds water to a shallow container, then places a kenzan—a small, pin-covered object that keeps flowers in place—within it. Then, the maker selects two branches, one for shin and one for soe, and a flower, for hikae. Next, each stem is measured and cut to precise lengths (which are specified in the Moribana beginner's manual) and fixed, one at a time, on the kenzan, at different angles. To complete the arrangement, supplementary jushi stems are added to hide the kenzan and fill out the arrangement. These principles can be repeated over and over, shifting the placement and angles to achieve different shapes and effects.
- Rikka and Nageire represent two opposing viewpoints. Rikka, though technically a secular style, concerns itself with the cosmos, harking back to its Buddhist origins. In contrast, Nageire's more organic approach focuses more directly on connections with nature.
- The flexibility and variation that the Moribana style allows for has made it a favorite and a staple in almost every ikebana school today. At the core of Moribana is a three-stem system, whereby three flowers are almost always fixed to create a triangle. Compositions that do not follow this triangle system are known as freestyle. Freestyle is also used to describe more creative and original approaches to ikebana, where the maker uses their knowledge of form, color, and line from previous practice to develop new arrangements that don't necessarily adhere to traditions.
- Elliptical flower arrangement: In this type of flower arrangement, the flowers are placed and arranged in the form of an ellipse. The flowers, which are commonly used for this purpose are roses, sunflowers, dahlias, lotus, tuberose, lilies, and many more. Thus, only bright flowers are used for this purpose.
- Vertical flower arrangement: It is one of the mostly used flower arrangements in bouquets as well as flower baskets. A mixture and combination of different types of flowers with various colors and shapes are used for these arrangements.
- Horizontal flower arrangement: It is also a very common type of flower arrangement used by the flower designers of reputed florist companies around the globe.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Cultivation of Carnation
Previous Knowledge to be reminded	Cultivation of Carnation
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Cultivation of Carnation:
- Growing environment: Naturally ventilated aerodynamic steel frame structure.
- Climate: Cool climate with day temperature of 18-24°C and night temperature of 10-15°C; relative humidity of 70 - 75%.
- Soil: Well drained red loamy soil with pH of 5.5 - 6.5.
- Season
- It can be cultivated throughout the year as it is grown under controlled conditions.
- Propagation and Planting
- Plantlets/suckers can be used for planting. The terminal cuttings of 5-10 cm are treated with NAA at 500 ppm for 5 minutes to induce rooting. Cuttings are dipped in Carbendazim 2g/lit solution. Raised beds at 3 feet width and 45 cm height are formed at 45 cm interval and planting is done on top of the bed at 15 x 15 cm spacing. The cuttings normally develop good root system within 21 days.
- Fumigation - Dazomet @ 30g/m² or H₂O₂ @ 300 ml/m². Bed size: 100 cm width, 30 cm height, convenient length with 40 cm foot path. Spacing: 6 row planting - 15x15 cm (25 plants/m²). 4 row planting - 15x15cm (22 plants/m²). Irrigation: Drip system with drippers at 30 cm spacing (5-6 l/m²/day). Growing condition - Day temperature 20-25°C, Night temperature 10-15°C, Critical photoperiod 13 hours, RH 50-60%
- Support Material
- Carnation crop has the tendency to bend unless supported properly. Hence the crop needs support while growing. Good support material is metallic wire woven with nylon mesh. At every two meters the wire should be supported with poles. The poles at both the ends of bed should be strong. Metallic wire is tied around the bed along the length with the support from supporting poles. Across the bed, nylon wires are woven like net. For an optimum support, an increasing width of the meshes can be used. Bottom net can be of 10x10cm, then two nets of 12.5x12.5cm and the uppermost can be 15x15cm.
- Pinching
- Depending upon the need of crop spread, single, one and a half or double pinch method is adopted.
- Ideal time for pinching is early morning.
- When the plant attains 5 nodes, the first pinch is given. This is called 'single pinch'. This would give rise to six lateral shoots.
- With a 'one and half pinch', 2-3 of these lateral shoots are pinched again. For the 'double pinch', all the lateral shoots are pinched off
- Disbudding: In standard carnations, side buds should be removed whereas in spray carnations, the terminal bud has to be removed.
- Irrigation: Irrigation is provided with drip system once in 2-3 days according to soil moisture to maintain water holding capacity at 60% to 65%. The optimum water requirement of the crop is 4-5 lit/m²/day
- Manuring: Neem cake 2.5 ton/ha, Phosphorus 400g/100sq. feet and Magnesium sulphate 0.5kg/100sq. feet are applied as basal.
- Top dressing - Calcium Ammonium Nitrate and MOP at 5:3 ratio is mixed and applied @ 2.5g/plant/month as top dressing.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Cultivation of Aster
Previous Knowledge to be reminded	Cultivation of Aster
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Cultivation of Aster:
- Asters are daisy-like perennials with starry-shaped flower heads that range in color from white to blue to purple.
- There are quite a few species and varieties of asters out there! The two most commonly encountered asters in the home gardening world are the New England aster (*Symphyotrichum novae-angliae*) and the New York aster (*S. novi-belgii*), but you will see a range of hybrid varieties available in showy pinks, blues, and purples at garden centers.
- Asters attract great numbers of bees and butterflies, providing the pollinators with an important late-season supply of nectar. Thank to the aster's late bloom time, they are sometimes called "Michaelmas daisies".
- Asters prefer climates with cool, moist summers—especially cool night temperatures. In warmer climates, plant asters in areas that avoid the hot mid-days sun.
- Select a site with full to partial sun. Soil should be moist but well-drained, and loamy. Mix compost into the soil prior to planting.
- While asters can be grown from seed, germination can be uneven. You can start the seeds indoors during the winter by sowing seeds in pots or flats and keeping them in the refrigerator for 4 to 6 weeks to simulate winter dormancy. They need this period of colder weather to kickstart germination.
- Sow seeds one inch deep in soil, placing them in a sunny spot in your home. Plant young plants outside after the danger of frost has passed in the spring.
- The best time to plant young asters is in mid- to late spring. Fully-grown, potted asters may be planted as soon as they become available in your area (typically in the fall).
- Space asters 1 to 3 feet apart, depending on the type and how large it's expected to get.
- Give plants plenty of water at the time of planting.
- Add mulch after planting to keep soil cool and prevent weeds.
- Add a thin layer of compost (or a portion of balanced fertilizer) with a 2-inch layer of mulch around the plant every spring to encourage vigorous growth.
- If you receive less than 1 inch of rain a week, remember to water your plants regularly during the summer. However, many asters are moisture-sensitive; if your plants have too much moisture or too little moisture, they will often lose their lower foliage or not flower well. Keep an eye out for any stressed plants and try a different watering method if your plants are losing flowers.
- Stake the tall varieties in order to keep them from falling over.
- Pinch back asters once or twice in the early summer to promote bushier growth and more blooms. Don't worry, they can take it!
- Cut asters back in winter after the foliage has died, or leave them through the winter to add some off-season interest to your garden.
- Aster flowers that are allowed to mature fully may reseed themselves, but resulting asters may not bloom true.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Cultivation of Dahlia
Previous Knowledge to be reminded	Cultivation of Dahlia
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Cultivation of Dahlia:
- Dahlia is a genus of tuberous plants that are members of the Asteraceae family; related species include the sunflower, daisy, chrysanthemum, and zinnia.
- Picking a favorite dahlia is like going through a button box. As well as coming in a rainbow of colors, dahlia flowers can range in size from petite 2-inch lollipop-style pompoms to giant 15-inch “dinner plate” blooms. Most varieties grow 4 to 5 feet tall. Dahlias love moist, moderate climates. Though not well suited to extremely hot climates (such as southern Florida or Texas), dahlias brighten up any sunny garden with a growing season that’s at least 120 days long.
- The tubers are planted in the ground in late spring. They are considered a tender perennial in cold regions of North America. They are reliably winter hardy in hardiness zones 8 to 11, though gardeners in zones 6 and 7 may have luck keeping them in the ground as well. In more northern zones, dahlias can either be treated as annuals or dug up after the first frost and stored indoors for winter.
- Don’t be in a hurry to plant; dahlias will struggle in cold soil. Ground temperature should reach 60°F. Wait until all danger of spring frost is past before planting. (We plant them a little after the tomato plants go in.)
- Some gardeners start tubers indoors in containers a month ahead to get a jump on the season. Medium to dwarf-sized dahlias will do well in containers.
- Order dahlia tubers in early spring. This gives gardeners in colder zones time to get them growing in a sunny window. Or, skip the potting and simply plant the tubers in the ground after the spring weather has settled and the soil has warmed.
- Select a planting site with full sun. Dahlias grow more blooms with 6 to 8 hours of direct sunlight. They love the morning sunlight best. Choose a location with a bit of protection from the wind.
- Dahlias thrive in rich, well-drained soil. The pH level of your soil should be 6.5-7.0, slightly acidic.
- If you have a heavier (clay) soil, add in sand, peat moss, or aged manure to lighten and loosen the soil texture for better drainage.
- Large dahlias and those grown solely for cut flowers are best grown in a dedicated plot in rows on their own, free from competition from other plants. Dahlias of medium to low height mix well with other summer flowers. If you only have a vegetable garden, it’s the perfect place to put a row of dahlias for cutting.
- Avoid dahlia tubers that appear wrinkled or rotten. Pink “eyes” (buds) or a little bit of green growth are good signs. Don’t break or cut individual dahlia tubers as you would potatoes.
- Bedding dahlias can be planted 9 to 12 inches apart. The smaller flowering types, which are usually about 3 feet tall, should be spaced 2 feet apart. The taller, larger-flowered dahlias should be spaced 3 feet apart. If you plant dahlias about 1 foot apart, they make a nice flowering hedge and will support each other.
- The planting hole should be slightly larger than the root ball of the plant and incorporate some compost or sphagnum peat moss into the soil. It also helps to mix a handful of bone meal into the planting hole. Otherwise, do not fertilize at planting.

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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Cultivation of Gerbera
Previous Knowledge to be reminded	Cultivation of Gerbera
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Cultivation of Gerbera:
- Gerbera is an important commercial cut flower crop. Gerbera flowers have a wide range of colors, including yellow, orange, cream-white, pink, brick red, red color, terracotta, and various other intermediate colors. Sometimes in double varieties, bicolor flowers are beautiful; Gerbera flower stalks are long, thin, and leafy.
- In Greenhouse Gerbera cultivated in Soil or Soilless media (coco peat). Both have their own advantage & limitation.
- Gerbera cultivation cost increase in soilless media is around 30-30%.
- Production is higher in soilless media compared to soil media.
- Required very close monitoring.
- Soilless media is suitable for a large area of more than 2 Acre.
- In India, mostly soil media is preferred for gerbera cultivation due to electricity & irrigated water quality.
- The major Gerbera producing states in India are Maharashtra, Karnataka, Gujarat, Tamil Nadu, West Bengal, and Himachal Pradesh.
- w primary factors are considered while selecting soil –
 - The soil pH must be between 5.5 to 6.5.
 - The soil salinity level does not exceed 1 ms/cm; For better root growth and better penetration of roots, the soil should be highly porous and well-drained.
- Red lateritic soil is ideal soil for Gerbera cultivation.
- Soil sterilization is required before the gerbera plantation. Fungus Phytophthora is very dangerous for the Gerbera crop. There are three main soil sterilization methods available, Steam: Not practical for Indian conditions. Sun: in this method plastic sheet is cover in the soil for 6-8 weeks. The sun rise will heat the soil, and this will kill the most fungus. Chemical: this is the most advance & useful method. Hydrogen peroxide (H₂O₂) with silver is used for the sterilization of soil.
- Gerbera plants required well-drained soil, so they grow on raised beds; The dimension of the bed should be as follows: Bed height: 1.5 feet (45 cm) Bed width: 2 feet (60 cm) Between the beds: 1 foot (30 cm). Neem cake (@ 1 kg /m) is added in bed preparation because of the prevention of nematode disease.
- Before Gerbera Planting Selecting good gerbera variety is important also colour combinations affect gerbera profit. For marketing, purpose gerbera grower has the right colour combination in the box. We use this colour combination in our Greenhouse.
- In India there is 5- 10 gerbera plant supplier nursery available, Expert gerbera grower selects only a particular variety to form each nursery. Famous Gerbera variety: Dune, Pre Intenzz, Intense, Winter Queen, Inferno, Cacharelle, Jaffa, Dana Ellen, Sangria, Diana, Imperial, Thalsa, Sonsara, Balance, Paganini, Anneke, Nette, Rosaline, Rosetta, Gloria
- When transplanting Gerbera plants, the plant crown should be above 1 – 2 cm soil level without disturbing the root ball.
- After 30-45 days of gerbera, the plantation bud initially started, but the initial bud is of inferior quality. Hence this bud should be removed from the base of the flower stalk. This disbudding helps in making the plant strong and healthy. This operation was carried out upto 80-85 days.



Signature of the Lecturer



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➤ PROFORMA FOR TEACHING PLAN	
Name of the Department/Subject	Department of Botany
Name of the lecturer	K. Ravichandra Reddy
Course/Group	Sem - VI
Paper	Paper - VIIB
Name of the topic	Commercial Floriculture
Hours required	2h
Learning objectives	to know about Management of pests, diseases
Previous Knowledge to be reminded	Management of pests, diseases
Examples/Illustrations	plant examples
Additional Inputs	Photographs
Teaching aids used	Power Points
References Cited	Randhawa & Mukhopadhyay, A. Floriculture in India
Study activity planned after teaching	Group discussion/Classroom quiz
Activity planned outside the class	observation
Any other activity	Information collection

Topic Synopsis:

- Management of pests, diseases:
- Pest and Disease Management
- Growers want to control pests and diseases to get maximum production and prevent crop loss. Prevention of pests and diseases before any damage is done is most desirable.
- Four common methods of control of pests and diseases are biological, cultural, chemical, and integrated control.
- Even if you are willing to use pesticides, it is still important to know if pests are harming your crops, how much damage is being done, and whether creatures in the fields are already controlling the pest. Then you can decide if and when to use chemicals, and what kind to use.
- Biological control
- This uses useful living organisms, such as predators or parasites, to control pests.
- Predator insects feed on the pests and can control their numbers. There are some parasites that live part of their life inside plant pests and finally kill them.
- Biological control can occur naturally or growers can release predators and parasites deliberately.
- Build healthy soil. Healthy soil provides a home for friendly insects and helps prevent many plant diseases.
- Plant resistant varieties. Ask farmers or extension agents about seeds to make sure the ones you choose are resistant to common pests and diseases.
- Space plants correctly. Planting crops too close together limits the sunshine and air that reaches the leaves, and allows diseases to thrive. But planting crops farther apart leaves room for weeds, dries the soil, and may reduce the harvest. Experiment to see what spacing works best for each crop.
- Plant at the right times. Pests and diseases often respond to the weather, such as the first rains or the first warm day. Watching how each crop grows and talking with other farmers about these patterns can help you decide the best time to plant. Planting earlier than usual can make sure crops are big enough to resist pests or diseases that come at a certain time. Planting later can cause most of the pests or diseases to die out for lack of food.
- Large areas with only 1 kind of plant attract pests who like that plant.
- Water from below. Watering from above can cause diseases that live in soil to splash onto plants. And wet leaves and stems are good places for diseases to grow. Using drip

irrigation or flood irrigation can keep plantleavesand stems healthy.

- Natural pesticides prevent crop damage with much less harm to people and the environment than chemicalsprays.They are easyto make andcostlessthanchemicals.
- But even natural pesticides must be used with care. Never use more than you need. Always wash your handsafter handling them. Always wash food before eating or selling it. A natural pesticide may work well in someconditionsbutnotin others.If one kind does not work,try other kinds.
- There are many ways to control pests, or to encourage predators and parasites, based on their habits and lifecycles.Talkto other farmers tolearn aboutmethodsthey use
- Rotating crops (changing the crops you grow in a particular field) controls diseases and pests by deprivingthem of food. Destroy diseased plants. Infected plants can pass diseases or pests to future crops. For diseases that kill the entire plant or severely reduce production, the entire plant should be removed and burned at thefirstsign of disease.Do notcompositit, because someplantdiseases survive composting.



Signature of the Lecturer



Signature of the Principal

PRR & VS GOVT, COLLEGE, VIDAVALURU

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Best Practices



FOSTERING GREENERY



FOSTER
GREEN

FOLLOWED FROM

2017 TO 18...

ORGANIZED

BY

DEPARTMENT OF BOTANY

PRR & VS GOVT, COLLEGE, VIDAVALURU

(Accredited by NAAC with 'B' grade)

DEPARTMENT OF BOTANY

Best Practices

FOSTERING GREENERY

FROM 2017-18

Tree planting is recognized as one of the most engaging, environmentally-friendly activities that people can participate in to help the planet when done properly. Trees provide numerous long-term and short-term benefits. They not only look nice, but they also remove and store carbon from the atmosphere, slow heavy rain and thus reduce the risk of flooding, improve air quality, and reduce the urban heat island effect by reflecting sunlight and providing shade. Let us take a look at the long and short essay on tree plantation.



AIMS and OBJECTIVES:

- To reduce the carbon footprint of citizens by mobilizing them towards environmental conservation.
- Rural farmers are assisted in improving their livelihoods by planting fruit and fodder-bearing trees.
- Trees are planted in residential societies and schools to combat air pollution, and mobilize city residents to reduce their carbon footprints by increasing green cover.
- The vision of Clean and Green School program is to sensitize children about growing environmental degradation and its repercussions and help them grow into environmentally conscious citizens of the country.
- By planting trees on barren community lands, we create green pastures and develop an ecosystem which engages community members in growing and nurturing trees.

PRACTICE:

- Plantation in college campus
- Distribution of Plants to Rural People of surrounding villages.
- To create the awareness among students and villagers on fostering greenery.

GOAL : To contribute at college or individual level for reducing global warming

CONTEXT:

- Now a day it is become mandatory cut the trees of forests for widening of roads and to establish industries.
- Due to the use of plastic for all mankind activities the global warming is increasing dramatically.
- So it is very essential to enhance the awareness of fostering greenery.

PRACTICE:

The teacher guides students to pick up native plants from their villages. Students are asked to write the medicinal and religious importance of the plants collected and to plant the plants in the context of NSS day, World Forest Day , World Earth's Day.

EVIDENCES OF SUCCESS:

The success of this practice is evident in the students' writing essay competition, participating in elocution and plantation and distribution of plants.

PROBLEMS ENCOUNTERED:

It is difficult to identify the importance of plants without the help of old people and experts who known medicinal and religious importance of plants in villages.

RESOURCES REQUIRED:

Indian Red Cross Society Sponsored trees

Forest Department regularly distribute trees

NSS Unit regularly take up plantation in the campus

EVIDANCES:

2017-18



2018-19



2019-20




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SPSR NELLORE DT.

2020-21



2021-22



Press clippings

ప్రకృతి వ్యవసాయంపై రైతులు దృష్టి సారించాలి

విడవలూరు: ప్రకృతి వ్యవసాయంపై రైతులు దృష్టి సారించాలని సీఆర్‌డీ వెలుగొండయ్య అన్నారు. ఎన్‌ఎస్‌ఎస్ డి.నో.త్య.వాస్సు పులకర్‌గిరించుకుని విడవలూరులోని పీఆర్‌ఆర్ అండ్ ఏఎస్ ప్రభుత్వ డిగ్రీ కళాశాలలో ప్రకృతి వ్యవసాయంపై గురువారం అవగాహన సదస్సు నిర్వహించారు. ఈ సందర్భంగా ఆయన మాట్లాడుతూ పెట్టుబడి లేని వ్యవసాయమే ప్రకృతి వ్యవసాయమన్నారు. పంటలకు రసాయన ఎరువులు, మందులకు బదులుగా ప్రకృతి సిద్ధమైన పదార్థాలతో తయారు చేసిన కమ్యూనల్ తరి, వేరుశనగ పంటలను సాగు చేయవచ్చునని తెలిపారు. ఈ విధానంలో పెట్టుబడులు తగ్గించుకోవడంతో పాటు అధిక దిగుబడులు సాధించవచ్చన్నారు. ప్రకృతి వ్యవ



ప్రకృతి వ్యవసాయంపై అవగాహన కల్పిస్తున్న వెలుగొండయ్య
 సాయ విధానంలో పండించిన పంటలకు మార్కెట్లో మంచి డిమాండ్ ఉంటుందని వివరించారు. ఈ కార్యక్రమంలో ప్రెస్మితల్ రమణరావు, ఎన్‌ఎస్‌ఎస్ కోఆర్డినేటర్ ఏవీ ప్రసాద్, తదితరులు పాల్గొన్నారు.

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 VIDAVALUR - 524318.
 SPSR NELLORE DT.

మొక్కల పంపిణీ



విడవలూరు: ఎలగాలమ్మగుంట గిరిజన కాలనీలో విడవలూరు డిగ్రీ కళాశాల విద్యార్థులు శుక్రవారం మొక్కల పంపిణీ చేశారు. ఈ సందర్భంగా ఎన్‌ఎస్‌ఎస్ ప్రోగ్రాం అధికారి ఏవీ ప్రసాద్ మాట్లాడుతూ ఎన్‌ఎస్‌ఎస్ సేవా కార్యక్రమంలో భాగంగా ఇంటింటికి మొక్కలను పంపిణీ చేశామన్నారు. మొక్కల పెంపకంతో కలిగే లాభాలను వివరించారు. ఈ కార్యక్రమంలో అధ్యాపకులు శ్రీధర్ శర్మ, తదితరులు పాల్గొన్నారు.

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.Com/B.Sc
Paper	First Semester
Name of the Topic	గంగాశంతనులకథ,కవిపరిచయం,మహాభిషుని వృత్తాంతం
Hours Required	4
Learning Objectives	ప్రాచీన పద్య లక్షణాలు, నన్నయ్య కవితా లక్షణాలు, మహాభారతంలోని పర్వాలు, ఇతర విశేషాలు, భీష్ముని పుట్టుక
Previous Knowledge to be reminded	నన్నయ్య గురించి, భారతం గురించి తెలిసిన విశేషాలు
Topic Synopsis	నన్నయ్య 11వ శతాబ్దానికి చెందిన కవిచాళుక్య ప్రభువైన రాజరాజనరేంద్రుని ఆస్థాన కవి ఈయనకు ఆదికవి వాగ్దేశికమనుడు అనే బిరుదులున్నాయి నన్నయ మహాభారతంలో ఆదిపర్వం సభా పర్వము అరణ్య పర్వంలోని చతుర్థాశ్వాసం లో 142వ పద్యం వరకు అనువదించాడు ఈయన ఆంధ్రశబ్దచింతామణిచాముండికావిలాసంరాఘవ ఉదయము అనే కావ్యాల రచన చేశాడని అంటారు అయితే అవి అలా భయాలు భారత రచనకు తోడుగా నన్నయకు నారాయణ భట్టు నాడు ఆయన సంస్కృత వైశాచిక కర్ణాటక భాష అని పేరు పొందినాడు నన్నయ తన కవిత్య లక్షణాలు ప్రసన్నకథాకలితార్థయ్యుక్తిరంగమృతనారూచిరార్థసూక్తిని గా పేర్కొన్నాడు భారత అనువాదం సంపద్యం బట్టి కాలానుగుణమైన మార్పులతో స్వేచ్ఛామవదం గా కనిపిస్తుంది అయితే మూలకంగా లేకుండా నన్నయ్య విగ్రహం కావ్యరచన చేస్తున్నాం అని పేర్కొన్నాడు సంస్కృత మహాభారతాన్ని వ్యాసమహర్షి దానికి గమనించి నూతన తెచ్చాడు ఆంధ్ర మహాభారతంలోని ఆదిపర్వంలోనిది
Examples/Illustrations	పౌరాణిక పాత్రలకు సంబంధించిన కథలు
Additional Inputs	మహాభారతంలోని ఇతరప్రముఖుల పుట్టుక విశేషాలు
Teaching Aids used	పి.పి.టి,ఇంటర్నెట్ ,యాట్యూట్వీడియోస్
References cited	
Student activity planned after the teaching	పద్యపఠనం,నన్నయ్య కవితా లక్షణాల విశ్లేషణ
Activity planned outside the Class room, if any	భీష్ముని గొప్పతనాన్ని తెలియజేసే కథలు తెలుసుకోవడం
Any other activity	అసైన్మెంట్ , ఇంటర్నెట్ ఎగ్జామ్

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Signature of the Principal

P.R.R & V.S GOVT., COLLEGE, Vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	N.Sridevi
Course/Group	B.A/ B.Com/B.Sc
Paper	First Semester
Name of the Topic	అష్టవసువుల శాపవృత్తాంతం, దేవవ్రతుని జననం
Hours Required	5
Learning Objectives	ప్రాచీన పద్య లక్షణాలు, నన్నయ్య కవితా లక్షణాలు, మహాభారతంలోని పర్వాలు, ఇతర విశేషాలు, భీష్ముని పుట్టుక
Previous Knowledge to be reminded	నన్నయ్య గురించి, భారతం గురించి తెలిసిన విశేషాలు
Topic Synopsis	దేవతల నదియైన గంగకు, భూలోక రాజైన శంతనునకు భీష్ముడు ఎలా జన్మించాడని అడిగిన జనమేజయునకు వైశంపాయనుడు చెప్పిన వృత్తాంతమిది. ఇచ్ఛాకు వంశంలో జన్మించిన మహాభీష్ముడు స్వర్గంలో ఉండగా గంగను చూసి చలించడంవల్ల బ్రహ్మశాపంతో ప్రతీపుని కుమారుడిగా భూలోకంలో జన్మించాడు. గంగకూడా మహాభీష్ముని రూపసౌందర్యాలకు మోహితురాలై భూలోకానికి వస్తూ ఉండగా అష్టవసువులు ఎదురై తమ శాపవృత్తాంతాన్ని తెలిపి తమకు జన్మనిష్ఠమని కోరగా అంగీకరించింది. భూలోకానికి వచ్చిన గంగ ప్రతీపుని తొడపై కూర్చోగా తన కుమారుని కి భార్యకమ్మని కోరాడు. గంగానదీ తీరంలో కల్పించిన గంగను శంతనుడు తన పరతులకు అంగీకరించి భార్యగా స్వీకరించాడు. పుట్టిన ఏడుమంది కుమారులను గంగ నీళ్లలో వేయగా మౌనంగా భరించిన శంతనుడు ఎనిమిదవ కుమారుని మాత్రం అడ్డగించాడు. అప్పుడు గంగ తన రాకకు కారణాన్ని, వశిష్ఠుని శాపవృత్తాంతాన్ని వివరించి భవిష్యత్తులో భీష్ముడిని పేరొందిన ఎనిమిదవ కుమారుడైన దేవవ్రతుని తనతో తీసుకువెళ్ళింది. జరిగిన దానిని కలగా భావిస్తూ హస్తినకు వచ్చిన శంతనుడు చాలాకాలం తర్వాత మళ్ళీ గంగానదీ తీరానికి వెళ్ళినపుడు గంగ విద్యాభ్యాసం పూర్తిచేసిన దేవవ్రతుని శంతనునికి అప్పగించింది.
Examples/Illustrations	పాండవ కౌరవుల జననం
Additional Inputs	మహాభారతంలోని ఇతర ప్రముఖుల పుట్టుక విశేషాలు
Teaching Aids used	పి.పి.టి, ఇంటర్నెట్ , యూట్యూబ్ వీడియోస్
References cited	ఇంటర్నెట్ , యూట్యూబ్ వీడియోస్
Student activity planned after the teaching	పద్యపఠనం, నన్నయ్య కవితా లక్షణాల విశ్లేషణ
Activity planned outside the Class room, if any	భీష్ముని గొప్పతనాన్ని తెలియజేసే కథలు తెలుసుకోవడం
Any other activity	అసైన్మెంట్ , ఇంటర్నెట్ ఎగ్జామ్

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	సంస్కృత సంధులు
Hours Required	4
Learning Objectives	భౌషానిర్దేశపద్ధతి,పదనిర్దేశం.
Previous Knowledge to be reminded	సంధుల గురించి తెలిసిన విశేషాలు
Topic Synopsis	<p>సవర్ణ దీర్ఘసంధి -అ,ఇ,ఉ,ఋలకు అవే అచ్చులు పరమైనపుడు దీర్ఘమేకాదేశమగు.</p> <p>రొమ+ఆలయం = రొవాలయం</p> <p>మహి+ఈశుడు = మహీశుడు</p> <p>గుణసంధి - అకారానికి ఇ,ఉ,ఋ లు పరమైనపుడు క్రమంగా ఏ,ఓ,ఆర్ లు వచ్చును.</p> <p>లోక+ఈశ్వరుడు = లోకేశ్వరుడు</p> <p>హిత+ఉక్తి = హితోక్తి</p> <p>యణాదేశ సంధి - ఇ ,ఉ ,ఋ లకు అసవర్ణాచ్చులు పరమైనప్పుడు య,వ,ర,ల లు వచ్చును.</p> <p>అతి+అంత = అత్యంత</p> <p>ప్రతి+అక్షము = ప్రత్యక్షము</p> <p>వృద్ధి సంధి - ఆకారానికి ఏ,ఐ లు పరమైనప్పుడు వికారము,ఓ,ఔ లు పరమైనప్పుడు ఔ కారము వచ్చును.</p> <p>మహా+విశ్వర్యం = మహావిశ్వర్యం</p> <p>మహా +ఓషధి = మహాషధి</p>
Examples/Illustrations	నిత్యజీవితంలో ఉపయోగించే పదాలు
Additional Inputs	సంస్కృత భాష గురించి అవగాహన
Teaching Aids used	చార్ట్స్ , తరగతి వాచకం,బోర్డ్
References cited	సంస్కృత వ్యాకరణం
Student activity planned after the teaching	ఓక్కొక్క సంధికి పదిపదాలు రాయడం
Activity planned outside the Class room, if any	వ్యవహారంలోని పదాలలో సంధులను గుర్తించడం
Any other activity	అసైన్లెంట్ , ఇంటర్నల్ ఎగ్జామ్

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	తెలుగు సమాసాలు
Hours Required	04
Learning Objectives	తెలుగుపదనిర్మాణం తెలుగు భాష నిర్మాణం
Previous Knowledge to be reminded	నిత్యజీవితంలో ఉపయోగించే పదాలలో పదబంధాలు సమాసాలు వివిధంగా ఏర్పడతాయి పరిశీలించడం
Topic Synopsis	విడిగా ఉన్నప్పుడు కూడా అర్థం నివ్వగల పదాలు ఒకే పదంగా ఏర్పడినప్పుడు దానిని సమాసము అంటారు.బాలవ్యాకరణంలో చిన్నయసూరిసమాసాన్ని సమర్థములగు పదములు ఏకపదమగుట సమాసము అని నిర్వచించారు.సమాసం లోని మొదటి పదమును పూర్వపదమని అంటారు.సమాసం లోని రెండవ పదమును ఉత్తరపదము అంటారు. తత్పురుష సమాసము, కర్మధారయ సమాసము,ద్వంద్వసమాసము.బిగుసమాసము,బహువ్రీహి సమాసాలు పాఠ్యప్రణాళికలోనివి.ఉత్తర పదార్థ ప్రధానమైనది తత్పురుష.ఇది విభక్తులతో ఏర్పడుతుంది.విశేషణమునకు విశేష్యముతో అగు సమాసము కర్మధారయం.ఉభయ పద ప్రధానమైనది ద్వందం.సంఖ్యా వాచకం పుర్వంగాగలదిబిగు.అన్యపదార్థ ప్రధానమైనది బహువ్రీహి.
Example's/Illustrations	శ్రాఘ్నాణ వృద్ధుడు,విద్యాగంధం,గంగానది,రామకృష్ణులు,పద్మాక్షి పాఠ్య పుస్తకంలోని పద్య,గద్యల్లోని పదాలు
Additional Inputs	తెలుగు,సంస్కృత భాషల గురించి అవగాహన
Teaching Aids used	చార్ట్స్ , తరగతి వాచకం, పి.పి.టి
References cited	సంస్కృతవ్యాకరణం,తెలుగు వ్యాకరణం
Student activity planned after the teaching	ఒక్కొక్కసమాసానికిపదపదాలు రాయడం
Activity planned outside the Class room, if any	వ్యవహారంలోని పదాలలో సమాసాలను గుర్తించడం
Any other activity	అసైన్మెంట్ , ఇంటర్నల్ ఎగ్జామ్

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P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	పోతన
Hours Required	01
Learning Objectives	సద్గుణము యొక్క గొప్పతనము
Previous Knowledge to be reminded	దశావతారాల గురించి విద్యార్థులకు తెలిసిన వివరాలను సేకరించడం
Topic Synopsis	<p>బమ్మెర పోతన గొప్ప కవి, ప్రజా కవి, పండిత పామరులను ఇద్దరినీ మెప్పించే విధంగా రాసిన కవి. వీరు సంస్కృతములో ఉన్న శ్రీమద్భాగవతమును ఆంధ్రీకరించాడు. భాగవతములోని పద్యాలు విసరి తెలుగు వాడు రేడంబే అతిశయోక్తి కాదు. వీరు నేటివరంగల్ జిల్లా లోని బొమ్మెర గ్రామములో జన్మించారు. శ్రీ రాముని ఆజ్ఞపై శ్రీ కృష్ణుని కథ, విష్ణుభక్తుల కథలు ఉన్న భాగవతమును తెలుగించారు. ఈ భాగవతము మొత్తము తెలుగుదనం ఉట్టిపడుతుంది. ఆంధ్రభాగవతమును రచించిన మహాకవి. ఈయన ఆఱువేలనియోగి. తండ్రి కేసన. కుమారుడు మల్లన. నివస గ్రామము కడపకు సమీపమున ఉండెడు బంటిమిట్టి అనఁబరఁగనవికశలోనగరము. పోతన, శ్రీనాథ కవిసార్వభౌముడు సమకాలికులు, బంధువులు అనే సిద్ధాంతం ప్రాచుర్యంలో ఉంది కానీ ఈ సిద్ధాంతం నిజం కాదనే వారా ఉన్నారు. వీరిమధ్య జరిగిన సంఘటనలగురించి ఎన్నో గాథలు ప్రచారములో ఉన్నాయి. పోతన వ్యవసాయము చేసి జీవనము సాగించినవారు. "పట్టునదికలమొ, హలమొ - నేయునది పద్యమో, నేద్యమో" అని "కరుణాశ్రీ" జంధ్యాల పాపయ్య శాస్త్రి గారు చమత్కరించారు. కవిత్వమును రాజులకో, కలిగినవారికో అంకితమిచ్చి, వారిచ్చిన సొమ్ములు, సన్మానములు స్వీకరించుట అప్పటి సంప్రదాయము. కాసు కోసము ఆసపడి తన "బొల రసాల సాల నవపల్లవ కోమల కావ్యకన్యకను" క్రూరులైన రాజుల పరము జేయుటకు పోతన అంగీకరింపలేదు. ఆయన తన కవిత్వము శ్రీరామునకే అంకితము చేసిన పరమ భాగవతోత్తములు. పోతన కవిత్వములో భక్తి, మాధుర్యము, తెలుగుతనము, పాండిత్యము, వినయము కలగలిపి ఉంటాయి.</p>
Examples/Illustrations	పోతన మధుర భక్తికి చెందిన పద్యాలు
Additional Inputs	కవిత్వ లక్షణాలు
Teaching Aids used	శ్రీమద్భాగవతము, పి.పి.టి
References cited	శ్రీమద్భాగవతోపన్యాసములు, ఇంటర్నేట్ టీవీ డియోస్
Student activity planned after	పద్య పఠనం

the teaching	
Activity planned outside the Class room, if any	టీవీలోని భాగవత ప్రవచనాలను వివరం
Any other activity	ఇంటర్నల్ ఎగ్జామ్

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Signature of the Principall

P.R.R.&V.S Govt., Degree College ,vidavaluru Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	వొమనాపతారం
Hours Required	05
Learning Objectives	సద్గుణము యొక్క గొప్పతనము
Previous Knowledge to be reminded	దశావతారాల గురించి విద్యార్థులకు తెలిసిన వివరాలను నేకరించడం
Topic Synopsis	<p>వొమనుడు లేదా త్రివిక్రముడు, హిందూ పురాణాల ప్రకారం శ్రీ మహా విష్ణువు యొక్క దశావతారాలలో చిదవ అవతారం. వొమనుడు అదితి కి పుత్రునిగా జన్మించి, బలి చక్రవర్తి దగ్గరనుండి మాడు అడుగుల నేల అడిగి త్రివిక్రముడై మొత్తం జగత్తునంతా రెండు అడుగులతో, మిగిలిన ఒక అడుగుతో బలి చక్రవర్తిని పాతాళానికి పంపించాడు. తన దగ్గరకు వచ్చిన వొమనుని బలి గౌరవించి...వడుగా ! ఎవ్వరి వాడవు? నీకేమి కావలయును కోరుకొమ్మన్నాడు. "ఒంటి వాడను నేను. నాకు ఒకటి మరియు రెండడుగుల మేర యిమ్ము. అయినను అడుగుమంటివి కనుక అడిగితిని. దాత పెంపు సొంపు తలపవలెను గదా! కావున నాకు మాడడుగులనేలనిమ్ము, చాలు అని మాయావడుగు పలికెను. ఆ వొమనుడిని విష్ణువుగా గుర్తించిన శుక్రుడు బలి చక్రవర్తిని వారించెను. బలి గురువుకు విషయముగా నమ్మకంబింబి ఇచ్చెదనని పలికితిని. ఆడిన మాట తప్పను అన్నాడు. అప్పుడు శుక్రాచార్యుడు నీవిచ్చినవో అఖిలంబు పోవును. అంతేకాక...వారి జోక్షలండు, వైవాహికములండు, ప్రాణవిత్రవనాభంగమండు, జన్మరక్షణయండు బొంకవచ్చు..తప్పులేదు. అది పాపము కాదు. అని శుక్రాచార్యుడు వివరించెను. దానికి బలి చక్రవర్తి ..కారే రాజులు రాజ్యముల్ కలుగవే, గర్వోన్నతింబొందరేవారేలి? సిరి మాట గట్టుకొని పోవంబాలి? భూమిపై వేరైరంగలదే! శిబి లొంటి దాతల మేరు ఈనాటికి కిక్కిరములైనవి కదా! భార్గవా! అని పలుకగా తన మాటను తోసి పుచ్చిన రాజును పదభ్రష్టుని విగమ్మని శుక్రాచార్యుడు శపించాడు. అయినా బలిచక్రవర్తి హరిచరణములు కడిగి, త్రిపాదధరిణింబాస్వామి అనుచు నీటిధార విడిచాడు. ఆ కలశములో సూక్ష్మకీటకరూపమున చేరి శుక్రాచార్యుడు నీటిధారను ఆపనోయాడు. అప్పుడు హరి కుశాగ్రముతో కలశరంధ్రమును బొడువగా కన్ను పోగొట్టుకొని శుక్రాచార్యుడు ఏక నేత్రుడయ్యెను. ఈతని పొట్టనిండా అన్ని భూమెలులే.. అని నవ్వుతూ మాడడుగుల నేలను బలి పడుగుకు దానమిచ్చాడు.</p>
Examples/Illustrations	ఇతర అవతారాలకు చెందిన వివరాలు
Additional Inputs	దశావతారాలు
Teaching Aids used	శ్రీమద్భాగవతము, పి.పి.టి
References cited	శ్రీమద్భాగవతోపన్యాసములు, ఇంటర్నెట్ సైట్స్ యొక్క
Student activity	పద్య పఠనం

planned after the teaching	
Activity planned outside the Class room, if any	టీవీలోని భాగవత ప్రవచనాలను వినడం
Any other activity	ఇంటర్నెట్ ఎగ్జామ్



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	తిక్కన
Hours Required	01
Learning Objectives	తిక్కన నాటకీయత , మహాభారతంలోని రాయబారాలు, మహాభారత యుద్ధానికి కారణాలు, ద్రౌపది ఆవేదన
Previous Knowledge to be reminded	తిక్కన గురించి, తిక్కన కవిత్వం గురించి తెలిసిన విశేషాలు
Topic Synopsis	<p>తిక్కన (1205 - 1288) మహాభారతములో నన్నయ్య రచించిన పద్యాల కాకుండా మిగిలిన 15 పద్యాలను రచించాడు. ఆది కవి నన్నయ ఆది పద్యము, సభాపద్యము, అరణ్యపద్యములో కొంతభాగము రచించారు. అరణ్యపద్యములో మిగిలిన భాగమును ఎఱ్ఱన రచించాడు. తిక్కన అరణ్యపద్యమును వదలి, మిగిలిన పద్యములు రచించారు. ముందుగా యజ్ఞము చేసి, సోమయాజియై, పిదప ఈ బృహత్తర కార్యక్రమాన్ని చేపట్టాడు. ఈయనకు "కవి బ్రహ్మ", "ఉభయ కవిమిత్రుడు" అనే బిరుదులు ఉన్నాయి. క్రీస్తు శకం 1253 సంవత్సరంలో తిక్కన కోవూరు మండల పరిధిలోని పాటూరు గ్రామ సిద్ధేశ్వరాలయంలో యజ్ఞం చేసినట్లు చరిత్ర చెబుతోంది. ఆశయసిద్ధి కోసం ఈశ్వరాలయంలో యజ్ఞం చేసినందువల్ల ఆ ఆలయాన్ని సిద్ధేశ్వరాలయంగా పిలిచారు. యజ్ఞం పూర్తి చేసిన తరువాత తిక్కన సోమయాజిగా మారి మహాభారత రచనకు ఉపక్రమించారు. అప్పటి యజ్ఞానికి సంబంధించిన అనేక అవశేషాలు నేడు శిథిలస్థితిలో ఉన్నాయి. 'వింటే భారతం వినాలి తింటే గారెలు తినాలి' అనే నానుడికి జీవం పోసింది తిక్కన. మానవుడు పంజరంలోని చిలుకలాంటి వాడు' అనే లాంటి ఉపమానాలు, పద్యయాలు తిక్కన చాలా ఉపయోగించారు. తిక్కన</p>

	శిష్యుడు మారన. ఇతడు మార్కండేయ పురాణాన్ని రాశాడు.
Examples/Illustrations	తిక్కన గురించిన విశేషాలు
Additional Inputs	కవిత్రయం వివరాలు
Teaching Aids used	శ్రీమదాంధ్ర మహాభారతం, పి.పి.టి
References cited	శ్రీమదాంధ్ర మహాభారతం , ఇంటర్నెట్ వీడియోస్
Student activity planned after the teaching	పద్య పఠనం
Activity planned outside the Class room, if any	తిక్కన పద్యాలు చదివేటని నేర్పుకోవడం
Any other activity	పాటూరు సందర్శన (Field Trip)

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	ద్రౌపది పరిణేపనం
Hours Required	4
Learning Objectives	మహాభారతంలోని రాయబారాలు, మహాభారత యుద్ధానికి కారణాలు, ద్రౌపది ఆవేదన
Previous Knowledge to be reminded	ద్రౌపది గురించిన విశేషాలు, గ్రంథాలు
	<p>ద్రౌపది ఆవేదనతో మమ్మల్ని అడవులకు పంపినది చాలక సంజయుని పంపి ఊరడింపు మాటలు చెప్పించాడు. ఆ మాటలకు ధర్మరాజు పొంగి పోయి చిదు ఊళ్ళు ఇచ్చినా చాలు అనడమా? ఏమి వింత. ధర్మరాజు సుయోధనుని మీద వైమాతీకయంతో ఇన్ని అవమానాలను సహించి ఊర కున్నాడేమో కాని రాజ్యభాగం తీసుకోకుండా ఊరకుంటే పాండవులంతటి పిరికి చొళ్ళు, అసమర్థులు, అవివేకులు, సిగ్గులేని వారు లేరని లోకులు నిందించరా! పాండవుల ముందు కౌరవులు ఎంత. పాండవులు కౌరవుల ఆగడాలు సహించి ఊరు కోవడానికి వారు బ్రాహ్మణుల! క్షత్రియుల! అసలు వారి తక్కువ వారని ఎందుకు నిరూపించుకోవాలి. అసలు ఈ సంది కౌరవులకే మేలు చేసేలా ఉంది. సుయోధనుడు ఎవరికి భయపడడు. అతడు నీ మాటలు ఆకిస్తాడో లేదో సంది కుదరక పోతే పాండవులు యుద్ధం చేస్తారో తిరిగి అడవులకే పోతారో వారికే తెలియాలి. నాకు తోచింది చెప్పాను. మీకు తోచింది చెయ్యండి. నేను అన్నిలో పుట్టాను. భరత వంశానికి వచ్చాను. పాండు రాజుకు కోడలును అయ్యాను, నా మనస్సులో చెలరేగుతున్న అన్ని మామూలు మాటలకు చల్లారను. నేను ధర్మజునితో సుయోధనుని శవంబ్ని కనులారా చూడకుంటే అర్ధునిని గాండీవం తగులబెట్టినా! మహా వీరులైన భర్తలు నీ వంటి అన్న ఉండగా పరాభవస్థిని ఇంకా ఎన్నోళ్ళు ఒడిలో పెట్టుకోను!" అని ద్రౌపది నిట్టూర్పు విడిచింది. ఆ మాటలకు కృష్ణుడు ద్రౌపదితో " అవ్వా! అవ్వా కౌరవులు మనకు రాజ్య భాగం ఇవ్వరు. నీవు అనుకున్నట్లు</p>

T o p i c S y n o p s i s	<p>యుద్ధమా శత్రు సంహారం తప్పక జరుగుతుంది. నీ శోకంమరణాపో . ఇప్పటి వరకు నీవు అనుభవించిన దుఃఖం కంటే అభిక్తంగా కౌరవ కాంతలు అనుభవించే రోజు ఇక ఎంతో దూరంలో లేదు. యముని వాహనమైన దున్నపోతు మెడగంటలు వివలసిన కౌరవులకు నా హితవులు చెవి కెక్కవు. కనుక యుద్ధం అనివార్యం " అని ఊరడించాడు.</p>
Topic Synopsis	
Examples /Illustrations	ఇతర రాయబారాలలోని వివరాలు
Additional Inputs	రాయబారాలలో వాక్యానుసారం
Teaching Aids used	శ్రీమదాంధ్రమహాభారతం,పి.పి.టి
References cited	శ్రీమదాంధ్ర మహాభారతం లు,ఇంటర్నెట్,టివియోన్
Student activity planned after the teaching	పద్య పఠనం
Activity planned outside the Class room, if any	వివిధ కావ్యాల్లో రాయబారాలను పరిశీలించడం
Any other activity	రాయబారాలలోని వాగ్రూప వైపునాళ్లను అభ్యాసం చేయడం

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	గురజాడ
Hours Required	01
Learning Objectives	ముఖ్యాల సరాల ఛందస్సు , ఆధునిక యుగలక్షణాలు

Previous Knowledge to be reminded	గురజాడ గురించిన విశేషాలు
T O P I C S Y N O P S I S	<p>గురజాడ అప్పారావు (1862 సెప్టెంబర్ 21 - 1915 నవంబర్ 30) ప్రముఖ రచయిత. గురజాడ అప్పారావు తన రచనల ద్వారా సాంఘిక పరివర్తనకు ప్రయత్నించిన మహాకవి, తెలుగు సాహిత్యాన్ని సుసంపన్నం చేసిన గొప్ప సాహితీకారులలో ఒకరు, హేతువాది. 19 వ శతాబ్దంలోను, 20 వ శతాబ్ది మొదటి దశకంలోనూ ఆయన చేసిన రచనలు ఈనాటికి ప్రజల మన్ననలను పొందుతున్నాయి. వీరి కన్యాశుల్కం నాటకానికి సాహితీ లోకంలో ఒక ప్రత్యేకమైన స్థానం ఉంది. ఈ నాటకంలో ఆయన సృష్టించిన గిరిశం, మధురవాణి, రామప్ప పంతులు మొదలైన పాత్రలు ప్రఖ్యాతి పొందాయి. అభ్యుదయ కవితా పితామహుడు అని ఇరుడు పొందిన అప్పారావు, తెలుగు సాహిత్యంలో వాడుక భాష ఒరవడికి కృషి చేసిన వారిలో ముఖ్యుడు. ఆయనకు కవి శేఖర అనే ఇరుడు కూడా ఉంది. గిడుగు రామమూర్తితో కలిసి వాడుక భాషా వ్యాప్తికి ఉద్దేశించారు. ప్రపంచ ప్రఖ్యాతిగాంచిన కన్యాశుల్కం నాటకాన్ని 1890 ప్రాంతాల్లో పూర్తి వాడుక భాషలో రచించారు. ఆ రోజుల్లో ప్రబలంగా వున్న కన్యాశుల్కం, వేశ్యావృత్తి వంటి దురాచారాలపై విమర్శ ఈ నాటకానికి కథావస్తువు. 1892లో నాటకపు తొలి ప్రదర్శన జరిగింది. 1897లో కన్యాశుల్కము తొలి కూర్పును మహారాజా ఆనందగజపతికి అంకితమిచ్చారు. ఇప్పుడు మనకు దొరుకుతున్న కన్యాశుల్కము రెండవ కూర్పును 1909లో రచించారు. మొదటి ప్రదర్శనకే ఎంతో పేరు వచ్చింది. దీంతో సాహిత్యంలో వాడుక భాష ప్రయోగానికి ఒక రకంగా నాంది పలికింది అని చెప్పవచ్చు.</p>
Examples /Illustrations	ముత్యాల సరాల ఛందస్సు
Additional Inputs	పుత్రుడి బొమ్మ పూర్ణమ్మ, కన్యక
Teaching Aids used	ఇంటర్నెట్,
References cited	గురజాడ వికీపీడియా
Student activity planned after the teaching	ముత్యాల సరాలు సాధన చేయడం
Activity planned outside the Class room, if any	ముత్యాల సరాలు రాయడం
Any other activity	ముత్యాల సరాలు రాయడం



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	కన్యక
Hours Required	5

Learning Objectives	ముత్యాల సరాల ఛందస్సు , ఆధునిక యుగలక్షణాలు
Previous Knowledge to be reminded	కన్యక చరిత్ర
Topic Synopsis	<p>ఒక అందమైన పడుచు ప్రాయపు వైశ్య కన్యక దేవాలయానికి పూజ కోసం వెళుతుంది. ఆ దేశపు రాజ ఆమె మీద కన్నువేశాడు. నడిచిభినిదుష్టమంతుల సహాయంతో ఆమెను పట్టుకోదలచాడు. కాని కన్యక నన్ను ముట్టుకోవద్దు, దైవకార్యం తరువాత రాచకార్యం అన్నారు కదా, నేను ఎక్కడకి దొటిపోనని పరికించి. తరువాత వైశ్యులు రాజుతో "మీరు బలిమిని పట్టాలనుకుంటున్నారా లేకుంటే ఆమె మీది కాదా? ఇప్పుడు దేవాలయానికి వీరభద్రుని పూజకోసం వెళ్తూ ఉన్నాం, తరువాత ధర్మసమ్మతమైతే వివాహమాడుదురు" అన్నారు. "మేమూ దేవాలయానికొస్తాం, అక్కడ వివాహమాడతాం" అన్నాడు రాజు. అట్టే వెళ్ళారు. వైవాహికాగ్నియెదుటభక్తిభావభరితమైన కన్యక తమ కులము వారికాసువీసముతో తృప్తిబొందక బాహుబలమును, బుద్ధిబలమును సంపాదించి మీ యాలుబిడ్డలను కాపాడుకోండని ఉపదేశించింది. రాజును చూసి పట్టుకోవడానికి సమర్థుడవైతే పట్టుకొమ్మని ఒక్కమాటున అగ్నిగుండొనదూకింది. పదం, పద్యం పట్టి నిలచెను కిర్దులపకిర్దుల్.</p>
Examples /Illustrations	కన్యక చరిత్ర
Additional Inputs	ముత్యాలసరాలు ఛందస్సు
Teaching Aids used	ఇంటర్నెట్, పి.పి.టి
References cited	గురజాడ వికీపీడియా
Student activity planned after the teaching	ముత్యాలసరాల ఛందస్సు అభ్యాసం
Activity planned outside the Class room, if any	కన్యక లాంటి వారి చరిత్రలు దినపత్రికల్లో చదివి గురజాడ కాలానికి ఈనాటి కాలానికి చట్టాల్లో, సమాజంలో వచ్చిన మార్పులను తెలుసుకోవడం
Any other activity	స్త్రీలకు సంబంధించిన వార్తల అధ్యయనం

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.Com/B.Sc

Paper	First Semester
Name of the Topic	శ్రీశ్రీ
Hours Required	01
Learning Objectives	ఆధునిక కవుల గురించి తెలుసుకోవడం
Previous Knowledge to be reminded	శ్రీశ్రీ గురించి, ఆధునిక కవిత్వం గురించి తెలిసిన విషయాలు
T O P I C S Y N O P S I S	<p>ఇరవయ్యవ శతాబ్దపు తెలుగు సాహిత్యాన్ని శాసించిన మహాకవి శ్రీశ్రీ (ఏప్రిల్ 30, 1910 - జూన్ 15, 1983). శ్రీశ్రీగా ప్రసిద్ధుడయిన శ్రీరంగం శ్రీనివాసరావు విప్లవ కవిగా, సాంప్రదాయ, ఛందోబద్ధ కవిత్వాన్ని ఖిక్కరించినవాడిగా, అభ్యుదయ రచయితల సంఘం అధ్యక్షుడిగా, విప్లవ రచయితల సంఘం స్థాపక అధ్యక్షుడిగా, సినిమా పాటల రచయితగా ఆయన ప్రసిద్ధుడు. శ్రీశ్రీ హేతువాది మరియు నాస్తికుడు. మహాకవిగా శ్రీశ్రీ విస్తృతమోదంపొందాడు. మహాప్రస్థానం ఆయన రచించిన కావ్యంలో ప్రసిద్ధమైనది. శ్రీశ్రీ తన రచనా వ్యాసంగాన్ని తన ఏడవ యేటనే ప్రారంభించాడు. తన మొదటి గేయాల పుస్తకం ఎనిమిదవ యేట ప్రచురింపబడింది. అందుబాటులో ఏడుంటే అది - కాగితం గాని, తన సిగరెట్ ప్యాకెట్ వెనుక భాగంలో గాని వ్రాసి పారేశాడు. ఇతను తెలుగులో మొట్టమొదటి డబ్బింగ్ సినిమా ఆహుతికి మాటలు పాటలు వ్రాశాడు. ఇది హిందీ చిత్రం "నీరొబెర్నాం"కి తెలుగు అనువాదం. తనకేది తోస్తే అది నిర్భయంగానే కాక సందర్భశుద్ధి కూడా పట్టించుకోకుండా మాట్లాడడం అటుంచితే శ్రీశ్రీ మాటల్లో ఒకవిధమైన శబ్దాలంకారాలు, చమత్కారాలు దొర్లుతాయి. చమత్కార సంభాషణల లోను, శ్లేషల ప్రయోగం లోను శ్రీశ్రీ ప్రసిద్ధి చెందాడు. ఆయన చెణుకులు ఎన్నో లోకంలో వ్యాప్తిలో ఉన్నాయి.</p>
Examples/Illustrations	వ్యక్తికి బహువచనం శక్తి వంటి శ్రీశ్రీ కవిత్వపు ఉదాహరణలు
Additional Inputs	ఆధునిక కాలంలోని ఇతర కవుల వివరాలు
Teaching Aids used	పి.పి.టి, ఇంటర్నెట్
References cited	ఇంటర్నెట్ , యాట్యూవ్విడియోస్
Student activity planned after the teaching	శ్రీశ్రీ పాటల సేకరణ
Activity planned outside the Class room, if any	ఆధునిక కవితా లక్షణాలను పరిశీలించడం
Any other activity	శ్రీశ్రీ పాటల సేకరణ, ఇంటర్నెట్ ఎగ్జామ్

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P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi

Course/Group	B.Com/B.Sc
Paper	First Semester
Name of the Topic	దేశ చరిత్రలు
Hours Required	03
Learning Objectives	ఆధునిక కవిత్వం గురించి తెలుసుకోవడం
Previous Knowledge to be reminded	శ్రీశ్రీ గురించి, ఆధునిక కవిత్వం గురించి తెలిసిన విషయాలు
T o p i c S y n o p s i s	<p>శ్రీశ్రీ రచించిన సంచలన కవితా సంకలనం మహా ప్రస్థానం, ఇది వెలుబడిన తరువాత తెలుగు సాహిత్యపు ప్రస్థానానికి ఓ బిక్కాచిల్ వెలుగొందింది. ఆధునిక తెలుగు సాహిత్యాన్ని 'మహా ప్రస్థానానికి ముందు, మహా ప్రస్థానానికి తరువాత' అని విభజించవచ్చు అని చెప్పడం ఏ మాత్రం అతిశయోక్తి కాదు. ఇది ఒక అభ్యుదయ కవితా సంపుటి. దీనిలో మొత్తం నలభై కవితలు ఉన్నాయి. ఇందులో శ్రీశ్రీ కార్తిక కల్పక శ్రావణ వర్షాలను ఉత్తేజితులను చేస్తూ, నూతనోత్సాహం కలిగిస్తూ, ఉర్ధ్వతలకాగిస్తూ గీతాలు వ్రాశాడు. ఇది తెలుగు కవితకే ఓ మార్గదర్శి అయింది. మహా ప్రస్థానం కవితా సంపుటికి యోగ్యతాపత్రం శీర్షికన ఉన్న ముందుమాట ప్రముఖ తెలుగు రచయిత గుడిపాటి వెంకట చలం వ్రాశారు. మహా ప్రస్థానం గేయాల్లోని ఇతివృత్తాలు ప్రధానంగా ప్రపంచవ్యాప్తంగా మానవజాతి ఎదుర్కొంటున్న బాధలు, బీదకీ నేపథ్యంగా ఉన్న చారిత్రక పరిణామాలు, పీడితుల పక్షాన నిలవాలని కవికి అవసరమైన లక్షణాలు, నూతనమైన ఈ అంశాలపై రాసిన కవిత్వమా, తన కవిత్వానికి లక్షణాలు, పీడితులను ఇంకా పీడించేందుకు సహాయకారిగా ఉండే తాత్వికతలపై తిరుగుబాటు వంటివి ఉన్నాయి. మహా ప్రస్థానం పుస్తకానికి 1940 లో చలం రాసిన పీఠిక. తెలుగు సాహిత్యంలో వచ్చిన గొప్ప పీఠికలలో ఇది ఒకటి. ఆ పుస్తకం ఎవరు చదవాలి, ఎందుకు చదవాలి, ఎలా చదవాలి వివరించే పీఠిక అది. "రాబందుల రెక్కల చప్పుడు పయోధర ప్రపంచ ఘోషం రుండులపట్టణానం" విని తట్టుకోగల చావ ఉంటే ఈ పుస్తకం తెరవండి." అంటూ పుస్తకం చదవడానికి పాఠకుడిని సహాయత ప్రసాదించే పీఠిక అది. దేశ చరిత్రలను ఇంతకాలం బూర్జువ దృక్పథంతో చదివారు. ఇప్పుడైనా దేశ చరిత్రలను సరైన తీరులో అర్థం చేసుకోవాలి. ఏ దేశ చరిత్ర చూసినా ఏమున్నది గర్వకారణం, నరజాతి చరిత్ర సమస్తం పరపిడనపరాయణత్యమంటూ కవితను ప్రారంభించి ఏవెల్లలకి ప్రస్థానమంటూ చరిత్రను ఆధునిక కోణంలో చదవాలని ఆవేశ్యకతను శ్రీశ్రీ ఈ కవితలో గుర్తుచేసాడు.</p>
Examples/Illustrations	వ్యక్తికి బహువచనం శక్తి
Additional Inputs	మహా ప్రస్థానంలోని ఇతర కవితలు
Teaching Aids used	పి.పి.టి, ఇంటర్నెట్
References cited	ఇంటర్నెట్, యూట్యూబ్, డియోస్
Student activity planned after the teaching	మహా ప్రస్థానాన్ని చదవడం
Activity planned outside the Class room, if any	ఆధునిక కవితా లక్షణాలను పరిశీలించడం
Any other activity	శ్రీశ్రీ కవితల సేకరణ, ఇంటర్నెట్ ఎగ్జామ్



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
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Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	చింతలతోపు
Hours Required	4
Learning Objectives	భాషానిర్వహణపద్ధతి,పదనిర్వహణం.
Previous Knowledge to be reminded	రైతుల గురించి తెలిసిన విశేషాలు
Topic Synopsis	డా॥ పాపినేని శివశంకర్ సుప్రసిద్ధ కవి, కథకులు మరియు విమర్శకులు. సాహితీ త్రిముఖుడుగా ప్రసిద్ధి గాంచారు. 1953 నవంబర్ 6న విజయ దీపావళి నాడు గుంటూరు జిల్లా నెక్కల్లు గ్రామంలో జన్మించిన శివశంకర్ ఆధునిక తెలుగు కవిత్వ ప్రపంచములో అగ్రశ్రేణి కవులలో ఒకరు. ఆయన రాసిన రజనీగంధ అనే కవితా సంపుటికి గాను కేంద్ర ప్రభుత్వం 2016 డిసెంబరు 21 న కేంద్ర సాహిత్య అకాడెమీ పురస్కారం ప్రకటించింది. ఆలోచనల, అనుభూతుల మేళవింపు శివశంకర్ కవిత్వం. అందులోని తాత్వికమైన లోతులు చదువరులను ఆలోచింపజేస్తాయి.చింతలతోపు కథలో శివశంకర్ గుంటూరు జిల్లాలోని రైతుల పరిస్థితులను వారి కడగండ్లను వివరించాడు. వద్దాభావం,విపంబ వేసినా సరిగాపండకపోవడం,సరైన సంపాదన లేకపోవడంవల్ల దీపావళిలాంటి పండగలను కూడా రోలు,రోకలితో జరుపుకోవడం,ప్రభుత్వంనుంచి రైతులకు ఎలాంటి సాయం అందక పోవడం వంటి పరిస్థితులను విపులంగా వివరించారు.
Examples /Illustrations	వ్యవసాయంలో ఉపయోగించే పదాలు
Additional Inputs	రైతుల గురించి,పంటల గురించి అవగాహన
Teaching Aids used	చార్ట్స్ , తరగతి వాచకం,బోర్డ్
References cited	న్యూస్ పేపర్స్
Student activity planned after the teaching	పత్రికలలో రైతుల గురించి చదవడం
Activity planned outside the Class room, if any	కథలోని పదాలలో గుంటూరు మాండలికాలను గుర్తించడం
Any other activity	అసైన్మెంట్ , ఇంటర్నల్ ఎగ్జామ్

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	విముక్త
Hours Required	03
Learning Objectives	తెలుగుకథా నిర్మాణం
Previous Knowledge to be reminded	ఇంతకు ముందు చదివిన స్త్రీ వాద కథలు
	<p>విముక్త ప్రముఖ రచయిత్రి ఓల్గా రచించిన చిన్న కథల సంకలనం. ఓల్గా రచించిన 'విముక్త' కథల సంపుటికి కేంద్ర సాహిత్య అకాడమీ పురస్కారం లభించటం ప్రగతిశీల సాహిత్యాలకి ఒక గౌరవం. ఈ కథలు వర్తమాన సమాజంలో స్త్రీల వేదనలకు ప్రాతినిధ్యం వహించే కథలు కూడా. ఇవొన్ని సమాజంలో అనేక ఆంక్షలకూ అవమానాలకూ హింసలకూ గురై వాటిని భగమించలేస్తున్న స్త్రీలు కొందరైతే, వాటిలోనే కూరుకుపోయి వాటిని దొంగిలించి తెలియక, నానా యాతనలు పడుతున్న స్త్రీలెందరో - తమను హింసించే భర్తల నుండి విముక్తం కావాలనే స్వప్నం లేకుండా వారిని ద్వేషిస్తునే, అసహ్యించుకుంటునే వారిని గట్టిగా పట్టుకునే స్త్రీలు - ద్వేషంతో</p> <p>తమను తాము హింసించుకోవడం అలవాటైన స్త్రీలకోసం ఈ కథలని ఓల్గా ఈ కథల గురించి చెప్పారు. విముక్తకథలోని ఊర్మిళ పాత్ర జ్ఞాన సంపాదనకు, సత్య శోధనకు మార్గం తెలుసుకున్నానని సంతోషంతో గట్టిగా చెబుతుంది. "జ్ఞాన సంపాదనకు అనుభవం మించిన మార్గం మరొకటి లేదన్నా" అని అహల్య పలికితే, "ఎవరికైనా అనుభవం నుంచే సత్యం బోధపడుతుంది" అని రేణుక ఉద్ఘోషిస్తుంది. ఊర్మిళ ఏకంగా "పద్మాల గోళ్ళు సత్య శోధనలోనే జేసిన గొప్ప తపస్సును నిద్ర అనుకునే వాళ్ళకు నా మాటలు అర్థమవుతాయా?" అని ప్రశ్నిస్తుంది. రచయిత్రి ఉద్దేశ్యంలో సత్యాన్ని తెలుసుకోవడానికి, జ్ఞానాన్ని పొందడానికి వైయక్తిక అనుభవమే మార్గం. ఆ అనుభవం కూడా ఆ పాత్రలు తమను తాము తెలుసుకోవడం ద్వారా, తమలోపలున్న అసలైన దాన్ని అన్వేషించడం ద్వారా పొందినదే. రాముణ్ణి అనంతంగా ప్రేమించిన సీత ఏవిధంగా తననుభవాలవల్ల రాముణ్ణుంచి విముక్తమైందో విముక్త కథ వివరిస్తుంది.</p>
Example's/Illustrations	రేణుక, అహల్య, శూర్పనఖల పాత్రలు
Additional Inputs	రామాయణం
Teaching Aids used	పాఠ్య పుస్తకం, రామాయణం
References cited	ఇంటర్నెట్ , యూట్యూబ్, డిజిటల్
Student activity planned after the teaching	పురాణ పాత్రలను ఆధునిక దృక్పథంతో అర్థం చేసుకోవడం
Activity planned outside the Classroom, if any	రామాయణంలో స్త్రీ పాత్రలన్నింటినీ పరిశీలించడం
Any other activity	ఇంటర్నెట్ ఎగ్జామ్, ప్రాజెక్ట్ వర్క్

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	Second Semester
Name of the Topic	ధూర్జటి
Hours Required	01
Learning Objectives	భక్తి యొక్క గొప్పతనము
Previous Knowledge to be reminded	గొప్ప భక్తుల గురించి విద్యార్థులకు తెలిసిన వివరాలను సేకరించడం
Topic Synopsis	<p>ధూర్జటి శ్రీ కృష్ణదేవరాయల అష్టదిగ్గజాలలో ఒకడు. కాళహస్తిస్వర భక్తుడు. ఇతనిని పెద్ద ధూర్జటి అని అంటారు, ఎందుకంటే ఇదే పేరుతో ఇంకో నలుగురు ధూర్జటులు ఉన్నారు.ధూర్జటి 16వ శతాబ్దము ఉత్తర భాగములో 1480 నుండి 1545 వరకు జీవించి ఉండవచ్చని భావిస్తున్నారు. ఈయన ఆనాటి పొత్తిపి సిమ లోని, ప్రస్తుతం చిత్తూరు జిల్లా లో ఉన్న శ్రీకాళహస్తి పట్టణ వాస్తవ్యుడు. ఈయన తల్లితండ్రులు సింగమ, రామనారాయణ. ఈయన తాతపేరు జక్కయ నారాయణ. వీరిపేర్లను బట్టి ధూర్జటి జన్మత: వైష్ణవుడైనా ఆ తరువాత కాలములో గొప్పశివభక్తుడైనాడని భావిస్తున్నారు.ధూర్జటి అష్టదిగ్గజములలో ప్రధానమైనవాడు. భక్తి ప్రబంధమైన శ్రీకాళహస్తి మహాత్మ్యం మరియు శైవ శతకమైన శతకమైన శ్రీకాళహస్తిస్వర శతకం ఈయన యొక్క రెండు ప్రధాన రచనలు. ఆయా రీతులలో ఇవి మహోన్నత కావ్యాలు. ధూర్జటి చెప్పినవి మరియు ధూర్జటిపై చెప్పబడినవిగా అనేక చాటువులు ఆంధ్రదేశములో ప్రచారములో ఉన్నాయి.</p>
Examples/Illustrations	శ్రీకాళహస్తిస్వర శతకం, శ్రీకాళహస్తిస్వరమహాత్మ్యం
Additional Inputs	భక్తి కావ్యాలు
Teaching Aids used	ఇంటర్నెట్,పి.పి.టి
References cited	వికీపీడియా
Student activity planned after the teaching	అష్ట దిగ్గజాలకు సంబంధించిన వివరాలను తెలుసుకోవడం
Activity planned outside the Class room, if any	భక్తి సంబంధమైన కథలు చదవడం
Any other activity	శ్రీకాళహస్తిస్వరునికి సంబంధించిన సినిమాలు చూడడం

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	సాయుజ్యం
Hours Required	05
Learning Objectives	నవవిధ భక్తి మార్గాలు
Previous Knowledge to be reminded	భక్తి కవిత్వం గురించి తెలిసిన విశేషాలు
Topic Synopsis	<p>స్వర్ణముఖీ నదీ తీరంలో వెలసిన స్వామి శ్రీకాళహస్తిశ్వరుడు. స్వయంభువు లింగము, లింగమునకెదురుగా వున్న చీపము లింగము నుండి వచ్చు గాలికి రెపరెపలాడుతుంది. శ్రీకాళహస్తిని 'దక్షిణ కాశీ' అని అంటారు. ఇక్కడి అమ్మవారు జ్ఞానప్రసానాంబ, అంబోత్తయములలో ఒకరు. శివలింగము ఇక్కడ వర్షులొకారము వలె గాక చతురస్రముగవుంటుంది. స్థల పురోహిత ప్రకారం ఇది బ్రహ్మకుజ్ఞానమును ప్రసాదించినప్రదేశం.వశిష్ఠుడుసాలెపురుగు, పాము, ఏనుగు,బోయడు అయిన తిన్నడు (కన్నప్ప), వేశ్య కన్యలు, యాదవ రాజు, శ్రీ కాళహస్తిశ్వర మాహాత్మ్యం వ్రాసిన ధార్మణ్యవంటి వారి కథలు ఈ క్షేత్ర మహాత్మ్యంతో పెనవేసుకొని ఉన్నాయి.పాము,ఏనుగులుశ్రీకాళహస్తిశ్వరునికిఒకరికి తెలియకుండా మరొకరు పూజలు ఏవిధంగా ఎంత భక్తి ప్రపత్తులతోచేశాయో, చివరికి అవి రెండూ శివ సాయుజ్యున్ని ఎలా పొందాయోధార్మణ్యకథలలో వివరించాడు.</p>
Examples /Illustrations	భక్త కన్నప్ప,గుణనిధి కథలు
Additional Inputs	భక్త కన్నప్ప,సిరియాలుడు,గుణనిధి మొదలైన భక్తి కథలు
Teaching Aids used	పి.పి.టి,ఇంటర్నెట్ టీవీడియోస్
References cited	ఇంటర్నెట్ వీడియోస్,యాట్యూట్వీడియోస్
Student activity planned after the teaching	పద్య పఠనం
Activity planned outside the Class room, if any	శ్రీకాళహస్తిశ్వరుని సందర్శన
Any other activity	శ్రీకాళహస్తిశ్వరునికి సంబంధించిన సినిమాలు,వీడియోలు చూడడం

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	చేమకూర వేంకటకవి
Hours Required	01
Learning Objectives	17 వ శతాబ్దం నాటి రచనలు
Previous Knowledge to be reminded	చేమకూర వేంకటకవి రచనలు
Topic Synopsis	<p>చేమకూర వేంకటకవి నాయకరాజుల్లో ముఖ్యుడు. దక్షిణాంధ్ర సాహిత్య యుగంలో చేమకూర వెంకటకవి ముఖ్యస్థానం. చేమకూర వెంకట కవి కాలం క్రీ.శ.1630.ప్రాంతం. తంజావూరు నాయకరాజులలో ప్రసిద్ధుడగు రఘునాథరాజు ఆస్థానంలో ఈ సరసకవి ఉండేవాడు. ఈ కవి వృత్తి రిత్యా రఘునాథుని వద్ద, జ్ఞాత్ర ధర్మం నిర్వర్తిస్తూ రాజు సైనికులలోనో, సైనికాధికారులలోనో ఒకరిగా ఉండేవారు. చేమకూర వెంకటకవి సారంగధర చరిత్ర, విజయవిలాసం రచించారు. ఆయన రచనల్లో విశిష్టమైన విజయవిలాసాన్ని అర్జునుడి(విజయుని) తీర్థయాత్ర, మానవ, నాగ కన్యలను అయన వివాహం చేసుకోవడం ఇతివృత్తంగా రచించారు. చేమకూర వేంకటకవి వ్రాసిన ప్రబంధరాజులు విజయవిలాసం, సారంగధర చరిత్రలను నోరొర ప్రశంసించని కవులుగాని, పండితులుగాని, విమర్శకులుగాని ఈ మాడువందల యాభై సంవత్సరాల్లో ఆంధ్రదేశంలో ఎవ్వరూ లేరని నిరూపణం చెప్పవచ్చు. కొందరు చేమకూర పాకాన పండిండ్లన్నారు. ఇంటిపేరు నసగా ఉన్నా కవిత్వం పసగా ఉండన్నారు కొందరు. చక్కెరమళ్ళలో అమృతం పాలించి పండించిన చేమకూర అని ఒకరు అన్నారు. ఇంకొకరు కడుంగడుం గడుసువాడు అని మెచ్చారు. ప్రబంధయుగాన్ని దొటి దక్షిణాంధ్రయుగంలోకి సాహిత్యం అడుగుపెట్టాక ఆ శైలిలో అత్యున్నత స్థాయిని అందుకున్న కవి చేమకూర వేంకటకవి. ఆశ్చర్యకరమైన, అద్భుతమైన చమత్కారాలతో కట్ట మిరుమిట్లు గొలిపేలా చేస్తారంటూ ఆయన శైలిని ప్రముఖ సాహిత్యవేత్త షేతవోలు రామబ్రహ్మం ప్రశంసించారు.</p>
Examples /Illustrations	17 వ శతాబ్దం నాటి రచనలు
Additional Inputs	ప్రబంధ లక్షణాలు
Teaching Aids used	పి.పి.టి, యాట్యూట్వీడియోస్

References cited	ఇంటర్నెట్ పీడియాస్, యూట్యూబ్ వీడియోస్
Student activity planned after the teaching	ప్రబంధ లక్షణాల అన్వయం
Activity planned outside the Class room, if any	చేపకూర వేంకటకవి ఇతర రచనలు
Any other activity	ప్రబంధాలకు సంబంధించిన సినిమాలు, వీడియోలు చూడడం

AURamona .K

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	సుభద్రా పరిణయం
Hours Required	04
Learning Objectives	పురాణ పాత్రల గురించి చదవడం
Previous Knowledge to be reminded	అర్జునుని గురించిన విశేషాలు
Topic Synopsis	<p>విజయము అనగా అర్జునుడు. అతడి విజయగాధను తెలిపేది కనుక ఇది విజయవిలాసం అనబడినది. ఇందులో ముగ్గురు కావ్యనాయికలు, నాయకుడు అర్జునుడు. కావ్యనాయికలు, ఉలూచి, చిత్రాంగద, సుభద్ర లు.విజయ విలాసంలో కథ భారతంలోనిది. బ్రాహ్మణ గోసంరక్షణార్థం, విల్లంబుల కోసం అర్జునుడు ధర్మరాజు అంతఃపురం వైపు వెడతాడు. ఆ విధాన ద్రౌపదిదేవి ధర్మరాజు సన్నిధిని ఉంది. నియమం ప్రకారం అర్జునుడు అటు వెళ్ళకూడదు. కానీ పరాకున వెళ్ళాడు. దానికి ప్రాయశ్చిత్తంగా భూప్రదక్షిణకు బయలుదేరాడు. తోడుగా విశారదుడనే నర్మసచివుడు కూడా వెళ్ళాడు. గంగానది యొక్క పరివాహక ప్రాంత పుణ్యక్షేత్ర సంధర్షణలో ఉలూచి అనే నాగకన్య అతడిని మోహించి తన వెంటనాగలోకానికి తీసుకెళ్ళడం వారిలవరకూ ఇలావంతుడు జన్మించడం, తదనంతరం పాండ్యరాజ్య సంధర్షణలో మలయధ్యజ మహారాజు కూతురు అయిన చిత్రాంగధను వివాహమాడి బలువివాహుని కని అతడిని మామగారికి దత్తతీవ్వడం, తర్వాత ద్వారక సంధర్షణలో శ్రీకృష్ణుని చెల్లెలు సుభద్రనీ వివాహమాడడం ఇవీ కావ్యంలోని ఇతివృత్తం. ఈ గ్రంథమును తంజావూరు రాజయిన రఘునాథరాజు నాకు అంకితము ఇవ్వబడింది. ఈ గ్రంథమునకు తొలి ధర్మరావు గారు రచించిన హృదయోల్లాసవిలాసమును వ్యాఖ్యానము బహుళ ప్రాముఖ్యమైనది. సుభద్రా పరిణయంలో సుభద్రార్జునుల వివాహం ఏ విధంగా వైభవంగా జరిగిందో వర్ణించడం జరిగింది.</p>
Examples /Illustrations	అర్జునుని గురించిన కథలు
Additional Inputs	ప్రబంధ లక్షణాలు

Teaching Aids used	పి.పి.టి, యూట్యూబ్ వీడియోస్
References cited	ఇంటర్నెట్ వీడియోస్, యూట్యూబ్ వీడియోస్
Student activity planned after the teaching	పద్య పఠనం
Activity planned outside the Class room, if any	భారతంలో అద్భుతమైన గురించిన కథలు చదవడం
Any other activity	అద్భుతమైన సంబంధించిన సినిమాలు, వీడియోలు చూడడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	జాషువ
Hours Required	01
Learning Objectives	దశత సాహిత్యం
Previous Knowledge to be reminded	దశత సాహిత్యంపై అవగాహన
Topic Synopsis	<p>ఆధునిక తెలుగు కవుల్లో ప్రముఖ స్థానం పొందిన కవి గుర్రం జాషువ (సెప్టెంబర్ 28, 1895 - జూలై 24, 1971). సమకాలీన కవిత్వ ఘనవిజయాలను భావ కవిత్వ రీతి నుండి పక్కకు జరిగి, సామాజిక ప్రయోజనం ఆశించి రచనలు చేసాడు. తక్కువ కులంగా భావించబడ్డ కులంలో జన్మించి, ఆ కారణంగా అనేక అవమానాలు ఎదుర్కొన్నాడు. అయితే కవిత్వం ద్వారా ఆయుధంగా చేసుకుని ఈ మాణిచారాలపై తిరగబడ్డాడు జాషువ; భీష్మారాలు ఎదురైన చోటే సత్కారాలు పొందాడు. జాషువ వీరయ్య, లింగమ్మ దంపతులకు గుంటూరు జిల్లా వినుకొండ మండలం చొట్టగడ్డపాడులో జన్మించారు. తల్లిదండ్రులు వేరువేరు కులాలకు చెందిన వారు. తండ్రి యాదవ, తల్లి మాదిగ, ఈ ఒక్క విషయం చాలు, మాణిచారాలతో నిండిన సమాజంలో అవమానాలు, భీష్మారాలు ఎదుర్కొన్నాడు. బాల్యం వినుకొండ గ్రామంలో పచ్చని పొలాల మధ్య హాయిగానే సాగింది. చదువుకోడానికి బడిలో చేరిన తరువాత జాషువకు కష్టాలు మొదలయ్యాయి. ఉపాధ్యాయులు, తోటి పిల్లల నుండి ఎన్నో అవమానాలు ఎదుర్కొన్నాడు. అయితే జాషువ ఊరుకొనేవాడు కాదు, తిరగబడేవాడు. అగ్రవర్ణాల పిల్లలు కులం పేరుతో హేళన చేస్తే, తిరగబడి వాళ్ళను కొట్టే వాడు. 1910లో మేరీని పెళ్ళి చేసుకున్నాడు. మిషనరీ పాఠశాలలో నెలకు మాడు రూపాయల ఖాతంపై ఉద్యోగం చేశాడు. ఆ ఉద్యోగం పోవడంతో రాజమండ్రి వెళ్ళి 1915-16 లలో అక్కడ సినిమా వాచకుడిగా పనిచేసాడు. తరువాత గుంటూరులోని లాథరస్ చర్చి నడుపుతున్న ఉపాధ్యాయ శిక్షణాలయంలో ఉపాధ్యాయుడిగా 10 సంవత్సరాల పాటు పనిచేసాడు. 1957-59 మధ్యకాలంలో మద్రాసులోని కేంద్రంలో కార్యక్రమ నిర్వహణ పనిచేసాడు. ఒకసారి వినుకొండలో జరిగిన అవధాన సభలో ఆయన పద్యాలు చదివాడు. తక్కువ కులం వాడిని సభలోకి ఎందుకు</p>

	రొనిచ్చొరంటూ కొందరు ఆయనను అవమానించారు. ఆయనకు జరిగిన అవమానాలకు ఇది ఒక మచ్చు మాత్రమే. అంటరొని వాడని హిందువులు ఈసడస్తే, కైస్తవుడై ఉండి, హిందూ మత సంబంధ రచనలు చేస్తున్నాడని కైస్తవ మతాభిపతులు ఆయన్ను నిరసించారు. ఆయన కుటుంబాన్ని కైస్తవ సమాజం నుండి బహిష్కరించారు. క్రమంగా ఆయన నాస్తికత్వం వైపు జరిగాడు. శివనం కోసం ఎన్నో రకాల ఉద్యోగాలు చేసిన జాషువాకు 1964లో ఆంధ్ర ప్రదేశ్ శాసనమండలిలో సభ్యత్వం లభించింది.
Examples /Illustrations	19వ శతాబ్ది పూర్వార్థంలోని వర్ణవివక్ష
Additional Inputs	19వ శతాబ్ది సాహిత్యం
Teaching Aids used	ఇంటర్నెట్
References cited	జాషువా వికీపీడియా
Student activity planned after the teaching	దళిత సాహిత్యాన్ని చదవడం
Activity planned outside the Class room, if any	దళిత సాహిత్య నేపథ్యాన్ని అర్థం చేసుకోవడం
Any other activity	దళిత సాహిత్యాన్ని చదవడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	ఫిరదౌసి
Hours Required	04
Learning Objectives	ఇరాన్ జాతీయ ఇతిహాసం రాసిన ఫిరదౌసి దయనీయ స్థితి
Previous Knowledge to be reminded	రాజుల క్రౌర్యాలకి బలైపోయిన కవుల గాధలు
Topic Synopsis	ఫిరదౌసిగా పిలవబడే హాకీం అబుల్-ఖాసిం ఫిర్దౌసి తూసి (935-1020) గౌరవనీయమైన పల్లయన్ కవి. ఈయన పల్లయా (ఇరాన్) జాతీయ ఇతిహాసమైన షానామా అనే మహా గ్రంథాన్ని రచించాడు. ఫిరదౌసి తండ్రిపేరు ఇసాఖ్. ఇతను హిజరీ 940 ప్రాంతంలో తూసు అనే పట్టణంలో జన్మించాడు. అతడు జన్మించేటప్పుడు ఇసాఖ్ ఒకకలకన్నాడు. తన కుమారుడు ఒక వృక్షముమీద పాడుతూ ఉన్నట్లు, చుట్టూ చేరి ప్రజలు కరతాకధనులు చేస్తున్నట్లు అతడు కలలో చూశాడు. దీని ఫలితం అతడు పెద్ద కవి అవుతాడని జ్యోతిష్యులు చెప్పారట. ఫిరదౌసి చిన్నప్పటి నుండి చాలా గ్రంథాలు చదివి, మంచి జ్ఞానాన్ని ఆర్జించి చక్కని కవిత్రవటుత్వము, కత్తివంటి పనునుగల భాషాశైలి అలవడ్డ తరువాత అతడు షానామా లేదా షహానామా అనే గ్రంథం వ్రాయడం మొదలుపెట్టాడు. షానామా అనగా రాజుల చరిత్ర అని అర్థం. పారశీక రాజుల చరిత్ర అందులో కథావిషయం. ఫిరదౌసి కి పూర్వమే షానామనఖీఖీ అనే కవి 1000 పద్యాల వరకు వ్రాసి తాను ప్రేమించిన ఒక బాలికను చేతికత్తికి బలై మరణించాడు. ఆ తర్వాత ఫిరదౌసి పద్యాలను విని సుల్తాను ప్రతిపద్యాలకి ఒక సువర్ణ దీనారు ఇస్తానని వాగ్దానం చేసాడు. సుల్తాను కోరిక కాదనలేక ఫిరదౌసి సమ్మతించాడు. షానామా ఇరాన్ రాజుల మరియు

	<p>రాజ్యాల చరిత్రను వివరించే గ్రంథము. ఆయన జీవితాంతం శ్రమించి రాసిన గ్రంథానికి సుల్తాను మాట తప్పి బంగారు నాణెములకు బదులు వెండి నాణెములను ఇచ్చాడు. అతను వెండి నాణెములను స్వీకరించలేదు. సుల్తాను తప్పిదము తెలుసుకొని బంగారు నాణెములను పంపేటప్పటికి ఆ దిగులుతో మరణించిన ఫిరదౌసి శపథము వేరొక ద్వారము గుండ్ బయటికి వెళ్ళింది.. కానీ సుల్తాను అతని మరణాంతరము తన తప్పును తెలుసుకొని ఫిరదౌసి జ్ఞాపక చిహ్నముగా ఒక కట్టడాన్ని కట్టించాడు. ఈ కథను ఎంతో వ్యూహంగా గుర్తం జాషువ తెలుగు వారికి పరిచయం చేసాడు. ఇందులోని ప్రతి పద్యం ఒక ముత్యం. సుల్తాను మాటతప్పి వెండి నాణెములను పంపినపుడు ఫిరదౌసి సుల్తానుకు రాసిన లేఖే ఫిరదౌసి లేఖ.</p>
Examples /Illustrations	శ్రీనాథుడు మొదలైన వారు
Additional Inputs	సాహిత్య వస్తువులగురించిన అవగాహన
Teaching Aids used	ఇంటర్నెట్
References cited	షానామా వికీపీడియా
Student activity planned after the teaching	కవుల జీవిత చరిత్రలను చదవడం
Activity planned outside the Class room, if any	కవుల సాహిత్య నేపథ్యాన్ని అర్థం చేసుకోవడం
Any other activity	జాషువ ఇతర సాహిత్యాన్ని చదవడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	గెడ్డెపు సత్యం-చెట్టు
Hours Required	05
Learning Objectives	చెట్ల ఉపయోగాలు
Previous Knowledge to be reminded	మొక్కల గురించి పూర్వ పరిజ్ఞానం
	<p>గెడ్డెపు సత్యం ప్రముఖ పద్యకవి, సాహితీవేత్త. ఈయన శ్రీకాకుళం జిల్లా, సంతకవిటి మండలం, కాకరపల్లి గ్రామంలో జన్మించారు. శ్రీకాకుళంలోని డిగ్రీ కళాశాలలో ఆచార్యులుగా పనిచేశాడు..వీరు త్రిలింగపత్రిక, మిసిమి తదితర మాసపత్రికల్లో వ్యాసాలు రాశారు. ఆకాశవాణిలో కవితా ప్రవృత్తి కార్యక్రమంలో స్వీయ కవితలు వినిపించాడు. వర్ణనరత్నాకరం అనే పద్య సంకలనాలకు ఆయన వ్యాఖ్యానాలు రాశాడు. గెడ్డెపుసత్యం విశాఖపట్నంలోని ఒక ప్రైవేటు ఆసుపత్రిలో చికిత్సపొందుతూ శ్యామ్కోశ వ్యాధితో జనవరి 8, 2015న మరణించారు.ఇతని రచనలు మృత్యుంజయుడు,జైత్రయాత్ర,శవకే శవమ్,ప్రసన్నధర్మము,కవితా వైజయంతి</p>

Topic Synopsis	మొదలైనవి.చెట్టు కవితా ఖండిక కవితా వైజయంతి అనే ఖండ కావ్యం నుంచి గ్రహించబడింది.చెట్టు మనిషి మనుగడకు ఆధారభూతం.పరోపకారమే పరమావధిగా మనిషికి మేలుచేసే చెట్టు మనిషికి ఆదర్శ ప్రాయం.చెట్లను నరకడం వల్ల ఎన్నో నష్టాలున్నాయని తెలిసినా మానవుడు అడవులను నొకనం చేస్తున్నాడు. చెట్టు ఆహార సృష్టి వలన సాక్షాత్తు సృష్టి కర్త.పక్షులకు ఆశ్రయం ఇవ్వడం వలన విష్ణుమాల్గితో సమానం.వాయు కాలుష్యాన్ని భక్షించడం వల్ల పరమ శివునంతటిదైన చెట్టు నిజంగా ప్రత్యక్ష దైవం.కాబట్టి చెట్లను పూజించాలే కానీ నొకనం చేయకూడదని చెట్టు మహిమను,దాతృత్వాన్ని,ఖ్యాతిని, క్షాత్రగుణాన్ని,త్వగ గుణాన్ని ప్రశంసిస్తూ గెడ్డెపు సత్యం రచించిన చిన్న కవితా ఖండిక చెట్టు.
Examples /Illustrations	చెట్టు పాటలు
Additional Inputs	చెట్లకు సంబంధించిన
Teaching Aids used	పి.పి.టి
References cited	యాట్యూబ్
Student activity planned after the teaching	చెట్టు గురించి కవిత రాయడం
Activity planned outside the Class room, if any	చెట్టు నేపథ్యంలో వచ్చిన కవితలు చదవడం
Any other activity	వివిధ రకాల ఔషధ మొక్కలను పరిశీలించడం



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	నమ్మకున్న నేల
Hours Required	02
Learning Objectives	నేలను నమ్మిన రైతుల దుస్థితి
Previous Knowledge to be reminded	నేటి దినపత్రికలలోని రైతుల కడగండ్లు
	కేతు విశ్వనాథ రెడ్డి ప్రసిద్ధ సాహితీవేత్త మరియు విద్వాంశులు. ఈయన ప్రధానంగా కథారచయితగా ప్రసిద్ధుడు. కేతు విశ్వనాథ రెడ్డి కథలు అనే కథా సంపుటికి కేంద్ర సాహిత్య అకాడమీ అవార్డు పొందాడు.కడపజిల్లా గ్రామనామాలు అనే అంశంపై పరిశోధనకు గాను డాక్టరేట్ పొందాడు. పాత్రికేయుడుగా ఉద్యోగజీవితాన్ని ప్రారంభించి కడప, తిరుపతి, హైదరాబాద్ లోని చోట్ల అధ్యాపకుడుగా పనిచేసి డా. బి.ఆర్. అంబేద్కర్ సార్వత్రిక విశ్వవిద్యాలయంలో డైరెక్టరుగా పదవీవిరమణ చేశాడు. పాఠ్యపుస్తకాల రూపకల్పనలో SCERT సంపాదకుడుగా వ్యవహరించాడు.

Topic Synopsis	<p>పాఠశాల స్థాయి నుంచి విశ్వవిద్యాలయస్థాయి దాకా అనేక పాఠ్యపుస్తకాలకు సంపాదకత్వం వహించాడు. పాఠ్యపుస్తకాలను రూపొందించాడు. ఈయన తొలి కథ అనాదివాళ్ళు 1963లో సవ్యసాచిలో ప్రచురితమైంది. కొడవటిగంటి కుటుంబంపై సాహిత్య సంకలనాలకు సంపాదకత్వం వహించాడు. విశాలాంధ్ర తెలుగు కథ సంపాదక మండలికి అధ్యక్షుడుగా ఉన్నాడు. కొన్నేళ్ళు అరసం (అభ్యుదయ రచయితల సంఘం) అధ్యక్షుడుగా ఉన్నాడు. ఈయన రాసిన సాహితీవ్యాసాలు "దృష్టి" అనే పేరుతో పుస్తక రూపంలో వచ్చాయి. ఈయన కథలు అనేకం హిందీ, కన్నడం, మలయాళం, బెంగాలీ, మరాఠీ, ఆంగ్లం, రష్యన్ భాషల్లోకి అనువాదమయ్యాయి. రాయల సీమలోని కరవు పరిస్థితులు, ఈమధ్య కాలంలో జరిగిన ఆధునికీకరణవల్ల పల్లెల్లోని మార్పులు, కరవుపల్లెల్లోని రైతుల దయనీయ పరిస్థితులు, రైతులకు సాయంచేయలేని ప్రభుత్వ విధానాలు వెరసి నమ్మకున్న నేలలోని కథ వస్తువులు.</p>
Examples /Illustrations	వ్యవసాయదారుల పరిస్థితులు
Additional Inputs	రాయలసీమ కరవు పరిస్థితులు
Teaching Aids used	పాఠ్య పుస్తకం
References cited	ఇంటర్నెట్
Student activity planned after the teaching	రైతు సంబంధ సాహిత్యాన్ని అర్థం చేసుకోవడం, తెలుసుకోవడం
Activity planned outside the Class room, if any	దినపత్రికల్లో వచ్చే వ్యవసాయ ఆధారిత వార్తలను చదవడం
Any other activity	విద్యార్థులు వాళ్ళ ఊర్లలోని రైతుల పరిస్థితులను తెలుసుకోవడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	అమ్మకు ఆదివారం లేదా
Hours Required	05
Learning Objectives	స్త్రీవాద సాహిత్యం
Previous Knowledge to be reminded	స్త్రీవాద రచనలకు సంబంధించి
	<p>రంగనాయకమ్మ సుప్రసిద్ధ మాల్కాపూ, స్త్రీవాద రచయిత్రి. ఈమె రచనల్లో రోమ్యానోస్ ని మాల్కాపూ దృక్పథంతో విమర్శించి రాసిన రోమ్యానా విషవృక్షం ఒకటి. స్త్రీవాద రచయిత కావడం వల్ల 'పురుష వ్యతిరేకి'గానూ, రోమ్యానా విషవృక్షం రాయడం వల్ల 'బ్రాహ్మణ వ్యతిరేకి' గానూ ఈమెకి పేరు. పశ్చిమగోదావరి జిల్లా బొమ్మిడి గ్రామములో 1939లో జన్మించారు.</p>

Topic Synopsis	<p>ఈమె తొడెపల్లెగూడెంలో ఉన్నత పాఠశాలలో చదివి 1955లో ఎస్.ఎస్.ఎల్.సి ఉత్తీర్ణురాలయ్యారు. ఈమె తల్లితండ్రులు ఉన్నత చదువులకొరకు దూరప్రాంతములోని కళాశాలకు పంపించి చదివించలేని కారణముగా ఈమె విద్యాభ్యాసము అంతటితో ఆగిపోయింది. తన మొదటి రచనల్లో తండ్రి ఇంటి పేరుతో 'దద్దనాల' రంగనాయకమ్మగా పాఠకులకి పరిచయం. 1958 నుంచి 1970 మధ్య కాలంలో 'ముప్పాళ' రంగనాయకమ్మగా పరిచయం. మొదటి వివాహం నుంచి బయటపడిన తరువాత తన పేరు నుంచి 'ముప్పాళ' తీసి కేవలం 'రంగనాయకమ్మ'గా పరిచయం. అమ్మకు ఆదివారం లేదా కథలోని కథావస్తువు- రాజ్యసభలో కాంగ్రెస్ సభ్యురాలు సర్వోజ్యుషధే గృహిణులు ఇంటిపనులు, వంటపనులకు స్వస్తి చెప్పి ఒకరోజు విశ్రాంతికి వీలుగా ఒక బిల్లు ప్రతిపాదించారు. గృహిణులు విశ్రాంతి తీసుకునే రోజులో ఇంట్లో ఉన్న ఇతర వ్యక్తులు ఇంటిపనులను చేయాలనీ ఆ బిల్లులో సూచించారు. ఆ బిల్లుకు రాజ్యసభలోని మహిళలు మద్దతిచ్చారు. వేళా పాళా లేకుండా ఇంటిచాకిరికి అంకితమైపోయిన మహిళలకు ఈ ప్రతిపాదన ఊరట కలిగించేదైనా అది చట్టరూపాన్ని పొందడం, పొందినా అది అమలయ్యేటట్టు చూడడం సాధ్యమయ్యే విషయం కాదు. సమస్యలకు బాధ్యురాలి తప్పుడు పరిష్కారాలు ఎలా ఉంటాయో చూపడానికి ఈ బిల్లు ఒక మంచి ఉదాహరణ. సమస్యల్లో ఉన్నవారి మీద సానుభూతి చూపిస్తూ వారిని మధ్యపెట్టి దారి తప్పించే ప్రయత్నం ఈ బిల్లులో కనిపిస్తుంది. ఆ బిల్లు ఆధారంగా అన్నపూర్ణమ్మ ఇంట్లో జరిగిన ఒకరోజు రగడే 'అమ్మకు ఆదివారంలేదా' కథ.</p>
Examples /Illustrations	ఇళ్ళలోని స్త్రీల పరిస్థితులు
Additional Inputs	స్త్రీవాద సాహిత్యం
Teaching Aids used	పాఠ్య పుస్తకం
References cited	వికీపీడియా
Student activity planned after the teaching	అమ్మకు ఆదివారం లేదా కథలోని పాత్రల పేర్లను రాయడం
Activity planned outside the Class room, if any	రంగనాయకమ్మ రచనలను చదవడం
Any other activity	పల్లీక్ష

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Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	బతుకాట
Hours Required	05
Learning Objectives	రాయలసీమ జీవన చిత్రణ
Previous Knowledge to be reminded	రాయలసీమ సాహిత్య పరిచయం

	వి. ఆర్. రోసాని గా ప్రసిద్ధి కెక్కిన రోసాని వెంకట్రామయ్య , చిత్తూరు జిల్లా , పులిచర్ల మండలం, కురవ పల్లి గ్రామం లో 1957 , ఏప్రిల్ 4వ తేదీన జన్మించారు.
Topic Synopsis	<p>వి. ఆర్. రోసాని గా ప్రసిద్ధి కెక్కిన రోసాని వెంకట్రామయ్య , చిత్తూరు జిల్లా , పులిచర్ల మండలం, కురవ పల్లి గ్రామం లో 1957 , ఏప్రిల్ 4వ తేదీన జన్మించారు. పిఠాక నాటక కళాకారుల జీవితం గూర్చి రాయలసీమ మాండలికంలో రచించారు. నాటక ప్రదర్శన సమయంలో నాటకాలు ఆడుతారు. ప్రదర్శన లేని రోజుల్లో వ్యవసాయం చేసుకుంటారు.</p> <p>కళాకారుల జీవన విధానం విభిన్నంగా ఉంటుంది. కళాకారులు ఒక గురువును ఎన్నుకుంటారు. ఆ గురువు పర్యవేక్షణలో నాటకాన్ని నిర్ణయించుకుని తల్పిదు పొందుతారు. గుడిలో గజ్జే పూజ చేసి పాటలతో వినాయకుడిని స్మరించి సరస్వతి, నటరాజును స్తుతిస్తారు. కాళ్ళకు గజ్జలు కట్టుకుని దరువు, తొళంకు అనుకూలంగా అభ్యసం చేస్తారు. నాటకం నిష్టగా చేస్తారు. పాకాల, పుంగనూరు, తిరుమల ఉత్సవాల్లో వీరి ప్రదర్శనలు ఏర్పాటు చేస్తారు .</p>
Examples /Illustrations	అనేక కళా రూపాల పరిచయం
Additional Inputs	జానపద సాహిత్యం పరిచయం
Teaching Aids used	ఓతుకాట నవల PPTs
References cited	వికీపీడియా
Student activity planned after the teaching	విద్యార్థుల గ్రామాల్లో జరిగే జాతర్లలో ప్రదర్శించే కళారూపాలను సేకరించి రాయమనడం
Activity planned outside the Class room, if any	నవల పటనం
Any other activity	అంతర్గత పరీక్ష

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	వామనావతారం
Hours Required	05
Learning Objectives	దశావతారాలు
Previous Knowledge to be reminded	భాగవతం గురించిన అవగాహన
	వామనుడు లేదా త్రివిక్రముడు, హిందూ పురాణాల ప్రకారం శ్రీమహావిష్ణువు యొక్క దశ

Topic Synopsis	<p>అవతారాలలో చిదవ అవతారం. రూపాంతరంబున తన బివ్యరూపాన్ని ఉపసంహరించుకొని, కపట వటుని వలె, ఉపయయస్సుండై వామన బాలకుడై బలి దగ్గరికి రాగా అతనికి సముచితాదరమిచ్చి గౌరవించి...వడుగా ! ఎవ్వరి వాడవు? నీకేమికావలయును కోరుకొమ్మన్నాడు. "ఓంటి వాడను నేను. నాకు ఒకటి రెండడుగుల మేర యిమ్ము. అయినను అడుగమంటిని కనుక అడిగితిని. కావున నాకు మాడడుగులవేలనిమ్ము, చాలు అని మాయావడుగు పలికెను. ఆ వామనుడిని విష్ణువుగా గుర్తించిన శుక్రుడు బలి చక్రవర్తిని వారించెను. బలి గురువుకు వినయముగా నమస్కరించి ...ఇచ్చెదనని పలికితిని. ఆడిన మాట తప్పను అన్నాడు. అప్పుడు శుక్రాచార్యుడు నీవిచ్చినచో అఖిలంబు పోవును. అంతేకాక...వారి జంక్షలందు, వైవోహికములందు, ప్రాణ విత్త మాన భంగమందు బొంకవచ్చు..... తప్పి లేదు. అది పాపము కాదు. అని శుక్రాచార్యుడు వివరించాడు. దొనికి బలి చక్రవర్తి ..కారే రాజులు రాజ్యముల్ కలుగవే, గర్వోన్నతింబొందరేవారేలి? నిల మాట గట్టుకొని పోవంజాలిరే? భూమిపై వేదెనంగలదే! శిఖ లాంటి దాతల వేద్దు ఈనాటికి స్థిరములైనవి కదా! భాగ్యవా! అని పలుకగా తన మాటను తోసి పుచ్చిన రాజును పదభ్రష్టుని విగమ్మని శుక్రాచార్యుడు శపించాడు. అయినా బలిచక్రవర్తి హరిచరణలు కడిగి, త్రిపాదధరిణింబొస్సామి అనుచు నీటిధార విడిచాడు. ఆ కలశములో సూక్ష్మక్షీటకరూపమున చేరి శుక్రాచార్యుడు నీటిధారను ఆపగా హరి కుశాగ్రముతో కలశరంధ్రమును బొడువగా కన్ను పోగొట్టుకొని శుక్రాచార్యుడు ఏక నేత్రుడయ్యాడు. పుట్టి నేర్చుకున్నానో, పుట్టక నేర్చెనో.. ఈ పాట్ల వడుగునకీ చిట్టి ఋద్ధులెట్లయ్యెనో, ఈతని పాట్లనిండే అన్నీ భూమిలే.. అని నవ్వుతూ మాడడుగుల నేలను బలి వడుగుకు దొసమిచ్చెను. దొసాన్ని స్వీకరించిన వామనుడు త్రివిక్రముడై మొత్తం జగత్తునంతా రెండు అడుగులతో, ముగిసిన ఒక అడుగుతో బలి చక్రవర్తిని పాతొళికి పంపించి అక్కడ రాజుని చేసి తానే స్వయంగా వరాహ రూపంలో ఆ రాజ్యానికి కాపలాగా మారతాడు.</p>
Examples /Illustrations	దశావతారాలు
Additional Inputs	దశావతారాల గాథలు
Teaching Aids used	పి.పి.టి, భాగవతం
References cited	వికీపీడియా
Student activity planned after the teaching	భాగవతం
Activity planned outside the Class room, if any	భాగవతం చదవడం
Any other activity	పరిక్ష



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester

Name of the Topic	హనుమంతుని సందేశం-మొల్ల
Hours Required	05
Learning Objectives	రాయబార చైపుణ్యం
Previous Knowledge to be reminded	రమాయణం గురించిన అవగాహన
Topic Synopsis	<p>మొల్లరమాయణము, సంస్కృతములో శ్రీ వాల్మీకి విరచితమయిన శ్రీమద్రమాయణమును ఆధారముగా చేసుకొని, తేట తెలుగులో వ్రాయబడిన పద్యకావ్యము. మొల్ల రమాయణంలో కందపద్యములు ఎక్కువగా ఉండడం వల్ల, కంద రమాయణం అనికూడా అంటారు. 16వ శతాబ్దికి చెందిన మొల్ల అనే కవయిత్రి పూర్తి పేరు ఆతుకూరి మొల్ల. ఈమె ఆంధ్రదేశములోని కడప జిల్లాలోని గోపవరము అను గ్రామంలోనివసించినదని చరిత్రకారుల అభిప్రాయము. మొల్ల రమాయణంలోని మొదటి కొన్ని పద్యాలలో తాను ఒకకుమ్మరి యొక్క కుమార్తెనియూ, తన తండ్రి శివభక్తుడనియూపేర్కొనింది. మొల్ల ఏ విధమయిన సంప్రదాయ విద్యను అభ్యసించలేదు. తన సహజ పాండిత్యానికి ఆ భగవంతుడే కారణమని మొల్ల చెప్పుకొంది. తాను రచించిన రమాయణాన్ని ఏ రోజులకూ అంకితమివ్వలేదు. ఇది ఆమె యొక్క రమభక్తినిదర్శనం. మొల్ల రమాయణము ఆరు కాండములలో సుమారు 870 (పీఠికతో కలిపి) పద్యాలతో కూడుకొన్నది. ఈ కావ్యాన్ని మొల్ల కేవలము ఐదు రోజులలో రాసినదని ప్రతీతి. మొల్ల రచన పద్ధతి వాడుక భాషకు దగ్గరగా ఉంది. తనకు శాస్త్రీయమైన కవిత్వజ్ఞానంలేదని, భగవద్దత్తమైన వరప్రసాదం వల్లనే కవిత్వంచెలుతున్నానని ఆమె అంది. కాని ఆమె అనేక సంస్కృత, తెలుగు పూర్వకపులను స్తుతించిన విధం చూస్తే ఆమెకు వారి రచనలతో గణనీయమైన పరిచయం ఉండడంకానివిస్తుంది. తనకు పాండిత్యం లేదని మొల్ల వ్రాసినది సంస్కృతిలో భాగమైన అణకువ, విధేయత వంటి లక్షణాల కారణంగానే తప్ప వేరే కారణ విమర్శకులు భావించారు. ఈమెపై షోతన కవితా ప్రభావం ఎక్కువగా ఉంది. హనుమంతుని రాయబారంలో సంభాషణ చైపుణ్యం ప్రస్ఫుటంగా కనిపిస్తుంది.</p>
Examples /Illustrations	రమాయణంలో చిన్నకథలు
Additional Inputs	వాక్యాతుర్యం
Teaching Aids used	మొల్ల రమాయణం
References cited	ఇంటర్నెట్
Student activity planned after the teaching	హనుమంతుని కథ రాయడం
Activity planned outside the Class room, if any	ఇతర రమాయణాలు చదవడం
Any other activity	



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi

Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	హరిజన శతకం-కుసుమ ధర్మన్న
Hours Required	04
Learning Objectives	దశత సాహిత్యం
Previous Knowledge to be reminded	దశత సాహిత్యం గురించి తెలిసిన వివరాలు
Topic Synopsis	<p>ఆయుర్వేద వైద్యునిగా శీవప్రసాద, తన కులం వల్ల కలిగే సంఘర్షణలను గుర్తించి వాటిని పరిష్కరించడానికి తనవంతు కృషిచేసిన సామాజిక వేత్త, సాహితీవేత్తగా పేరుపొందిన కుసుమ ధర్మన్న 1900లో రాజమండ్రిలోని లక్ష్మీ వారపువేటలో వ్యవసాయ కులీలైన కుసుమ వీరస్వామి, నాగమ్మ దంపతులకు జన్మించాడు. ఇతడు ఆదిఆంధ్ర జోలియర్ ఎలిమెంటరీ స్కూలులో 5వ తరగతి వరకు చదివాడు. తరువాత ధర్మ ఫారం చదివి ఆయుర్వేదంలో వైద్య విద్యన పట్టా పొందాడు. ఇతడికి తెలుగు, సంస్కృతము, ఆంగ్లము, హిందీ, ఉర్దూ భాషలలో ప్రావీణ్యం ఉంది. చదువుకునే రోజుల్లోనే సంఘసంస్కరణ అభిలాష కలిగి కందుకూరి వీరేశలింగం చేత ప్రభావితమైనాడు. ఇతడు తన జాతి హిందూత్వంతో అవమానంతో అమానుషంగా, అంటరానితనం, సామాజిక వివక్షలతో, బాధపడుతున్న దశతులను మరియు ఇతర అణగారిన వర్గాలను సంఘ- సంస్కరించాలనే దృక్పథంతో "హరిజన శతకాన్ని" రచించాడు. 1930వ దశకంలో కాంగ్రేసు పార్టీ చొరవతీసుకొని హరిజన సేవ సంఘం యొక్క ఆంధ్ర విభాగాన్ని ప్రారంభించింది. మహాత్మా గాంధీ అంటరాని కులాల ప్రజలకు హరిజనులు అని పేరుపెట్టడంతో అది ప్రాచుర్యం పొందింది. క్రమేణా ఆది ఆంధ్ర నాయకులంతా కాంగ్రేసు స్థాపించిన హరిజన సేవ సంఘంలో భాగమైన కుసుమ ధర్మన్న వంటి కట్టుబడిన నాయకులు మాత్రం దొన్ని వ్యతిరేకించారు. నిమ్మ జాతుల అభివృద్ధి విషయంలో మహాత్మా గాంధీ ఆశయాలను నమ్మి గౌరవించినా, ఆచరణలో లోపాలను ధర్మన్న సహించలేదు. గాంధీ యొక్క ఆంధ్ర రాష్ట్ర పర్యటనలో భాగంగా రాజమండ్రి వచ్చి హరిజన నాయకులతో సమావేశం నిర్వహించిన సందర్భంలో, ధర్మన్న ఆ సమావేశాన్ని బహిష్కరించాడు. 'హరిజన నాయకులైతే మా పేటలకు వచ్చి యిక్కడ మాట్లాడాలని' కఠురుపెట్టి గాంధీని, ఇతర కాంగ్రెస్ నాయకులను తమ పేటకు రప్పించి, ఆతిథ్యమిచ్చి దశతుల గౌరవాన్ని చాటాడు. దశత చైతన్యం కోసం ధర్మన్న పడిన తపన ఆయన 1933లో రాసిన హరిజన శతకంలో కనిపిస్తుంది. "ఆత్మ గౌరవమునలరంగచాటరా" అని ఉద్వేగించిన ధర్మన్న వర్ణధర్మం వేరిట భారతీయ సమాజంలో నెలకొని ఉన్న హెచ్చు తగ్గులను నిరసించిన జాతీయ వాది. సమకాలికులు ఆయనను 'ఆది ఆంధ్ర కవి సార్యభౌమ'గా పేర్కొన్నారు.</p>
Examples /Illustrations	దశతుల బాధలు, కష్టాలు
Additional Inputs	1930ల నాటి సంఘసంస్కరణ కవిత్యం
Teaching Aids used	పాఠ్య పుస్తకం
References cited	వికీపీడియా
Student activity planned after the teaching	కుల వివక్ష గురించిన చర్చ
Activity planned outside the Class room, if any	కుల వివక్షకు గురైన కవుల వివరాలు సేకరించడం
Any other activity	పత్రికలు, సమాజాన్ని, వాళ్ళ ఊరిని పరిశీలించడం

Signature of the Principal

Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	గుంటూరు శేషేంద్ర శర్మ-ఆధునిక మహాభారతం
Hours Required	03
Learning Objectives	సమాజంలోని అసమానతలు
Previous Knowledge to be reminded	గుంటూరు శేషేంద్ర శర్మ గురించి తెలిసిన విశేషాలు
Topic Synopsis	<p>జన బాహుళ్యంలో శేషేంద్ర గా సుపరిచుతులైన గుంటూరు శేషేంద్రశర్మ ప్రముఖ తెలుగు కవి, విమర్శకుడు, సాహితీవేత్త. కేంద్ర సాహిత్య అకాడమీ అవార్డు గ్రహీత. ఆధునిక సాహిత్యంపై తనదైన ముద్ర వేసిన గుంటూరు శేషేంద్ర శర్మ 30కి పైగా రచనలు చేసారు. ఈయన రచనలు అంతర్జాతీయ ఖ్యాతి గాంచాయి. "నా దేశం-నా ప్రజలు" 2004 నోబెల్ సాహిత్య పురస్కారానికి నామినేట్ అయ్యింది. వ్యాసుడు రాసిన మహాభారతం ఎనిమిది వేల శ్లోకాలు గల "జయం" అనే ఇతిహాసం. భూమి కోసం, భుక్తి కోసం జరిగిన షోరు కథనమైన ప్రాచీన భారతం చదివితే పుణ్యం వస్తుందని అంటారు. అదే భూమి కోసం, భుక్తి కోసం వర్ణ చేతన కథనం ఆధునిక భారతం చదివితే ఎన్నో లోభాలు. రచయిత సూచించిన లోభాలు — గులొం మనస్తత్వం కారణంగా వంగిపోయిన మోకాళ్లలో బలం వచ్చి, మనిషి కాళ్లు నిటారుగా నిలుస్తాయి. దొని పైన వంగి వంగి సలాములు చేసి చేసిపంకరటింకర్లు అయిపోయిన వెన్నెముక ఇనుప చువ్వలో నుల్లుంటుంది. సిగ్గు విడిచి తల వంచించి మెలిగో అలవోటుచేత సదా వేలాడే తల ఒక్కసారి భుజాలమీద లేచి నిర్భయంగా నిలబడుతుంది. మనిషి మనిషిగా మారిపోతాడు. భూగోళానికి ఇరుసు అవుతాడు. శేషేంద్ర కవిగా సాగుచేసిన ఫలసాయమంతో ఒకచోట చేరిస్తే అదే "నా దేశం నా ప్రజలు" అనే ఆధునిక మహాభారతం. నిరంతర శ్రమ ఫలితమే మానవ నాగరికత. నగరీకరణలో ఎక్కడ, ఎప్పుడు, ఎలా లోపం జరిగిందో తెలియ గానీ, దొని ఫలితమే నేడు మనం చూస్తున్న అసమ సమాజం. ఎందుకీలా జరిగిందో ఊహించగలం. మనిషి స్వార్థంవల్ల, విశాల దృష్టి లేకపోవడం వల్ల, సుకుచితత్వం వల్లనే ఇదంతా. శేషేంద్ర దీనికి విరుగుడు స్పష్టంగా చెప్పాడు. వీటన్నింటి గురించి బాగా ఆలోచించిన కవి కొన్ని చోట్ల విపరీతంగా ఆగ్రహవేశాలు వ్యక్తపరిచాడు. మళ్లీ తనను తాను సముదాయించుకుంటాడు. "నీకెందుకింత అశాంతి నీకెందుకింత ఆవేశం అంటే ఏం చెప్పను? సముద్రాన్ని అడుగు నీ కెందుకింత అశాంతి అని, రుంధూమాలు తొల్లి అడుగు నీకుందుకింత ఆవేశం అని" కావ్యం ప్రారంభంలోనే మనకు కొన్ని విషయాలు స్పష్టంగా చెప్పేస్తాడు.</p>
Examples /Illustrations	శేషేంద్ర శర్మ కవితా పంక్తులు
Additional Inputs	ఆధునిక కవిత్వం తీరుతెన్నులు
Teaching Aids used	ఆధునిక మహాభారతం
References cited	యాట్యూబ్
Student activity planned after the teaching	ఆధునిక కవిత్వ లక్షణాలను అధ్యయనం చేయడం
Activity planned outside the Class room, if any	కవిత రాయడం
Any other activity	కవిత రాయడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	తెలుగు భాష
Hours Required	05
Learning Objectives	మాతృ భాష ప్రాధాన్యత
Previous Knowledge to be reminded	తెలుగు భాష గొప్పదనం గురించి
Topic Synopsis	<p>ఆంధ్రులు మాట్లాడే భాషకు ఆంధ్రము, తెలుగు, తెనుగు అనే పేర్లున్నాయి. ఆంధ్ర, తెలుగు అనేవి రెండు వేర్వేరు జాతులనీ అవి క్రమంగా మిళితమైనాయన్న కొంతమంది అభిప్రాయానికి బిచ్చ శాస్త్ర పరంగా కానీ భాషాశాస్త్ర పరంగా కానీ గట్టి ఆధారాలు లేవు. వైదిక వాక్యము ప్రకారం ఆంధ్రులు సాహజోపేతమైన సంచరజాతి. భాషాశాస్త్ర పరంగా తెలుగు గోదావరి, కృష్ణా నదుల మధ్య నివసిస్తున్న స్థిరనివాసుల భాష. తెలుగు భాష మాట్లాడే ప్రాంతాన్ని ఆంధ్ర రాజులు ముందుగా పరిపాలించడం వల్ల ఆంధ్ర, తెలుగు అన్న పదాలు సమానార్థకాలుగా మారిపోయాయని కొంతమంది ఊహిస్తారు. 10 వ శతాబ్దపు పారశిక చరిత్రకారుడు అల్ బరుని తెలుగు భాషను 'ఆంధ్రీ' అని వర్ణించాడు. క్రీ. శ. 1000 కు ముందు శాసనాలలోగాని, వాక్యములో గాని తెలుగు అనే శబ్దం మనకు కన్పించదు. 11వ శతాబ్దం ఆరంభం నుండి "తెలుగు భాషాలురు", "తెల్లరవారి", "తెలింగకులకాల", 'తెలుంగనాడొకగణమాధవికెతియ' వంటి పదాలు శాసనాల్లో రాయబడ్డాయి. 11వ శతాబ్దములో నన్నయ భట్టారకుని కాలమునాటికి తెలుగు రూపాంతరముగా "తెనుగు" అనే పదము వచ్చింది. 13వ శతాబ్దంలో మహమ్మదీయ చరిత్రకారులు ఈ దేశమును "త్రిలింగి" అని వ్యవహరించారు. దేశభాషలందు భాషలందు తెలుగు లెస్స అని శ్రీకృష్ణ దేవరాయలు తెలుగు ప్రాశస్త్యం గురించి చెప్పాడు. తేట తేట తెలుగు తీసి గురించి కవులు గానం చేశారు. ఇటాలియన్ ఆఫ్ ద క్రస్ట్ గా తెలుగు భాష పేరు గాంచింది. అటువంటి అశుభ భాష, తెలుగు భాష అంతరించినట్లయే భాషల జాబితాలో ఉందని యునెస్కో ప్రకటించింది. భాష ఒక వస్తువు కాదు, ముడి సరుకు కాదు. ఒక ప్రాంతపు సంస్కృతి, సంప్రదాయాలకు నిలయం. భాషలో సాంస్కృతిక వారసత్వం అంతర్గతంగా ఉంటుంది. ఆయా ప్రాంతాల భాష కనుమరుగు కావడం వల్ల అక్కడి మౌఖిక సాహిత్యం కూడా కనుమరుగువుతుంది. అపారమైన విజ్ఞానం అంతర్గతంగా ఉన్న మౌఖిక సాహిత్యం కనుమరుగు కావడం దేశానికే తీవ్ర నష్టం. తగిన చర్యలు తీసుకుని, ఆయా భాషలను పరిరక్షించేందుకు అంకితభావంతో కృషి చేయాల్సిన అవసరాన్ని గుర్తించాలి.</p>
Examples /Illustrations	మాతృ భాష ప్రాధాన్యం
Additional Inputs	తెలుగు భాషను కాపాడుకోవాల్సిన అవసరం
Teaching Aids used	పి.పి.టి, పాఠ్య పుస్తకం
References cited	ఇంటర్నెట్
Student activity planned after the teaching	తెలుగు భాష ప్రాధాన్యతను గురించి చర్చించడం
Activity planned outside the Class room, if any	పర భాషా పదాలను సాధ్యమైనంత తక్కువగా వాడడం
Any other activity	JAM (1 నిమిషం తెలుగులో మాట్లాడడం)

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P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	వ్యక్తిత్వ వికాసం
Hours Required	05
Learning Objectives	వ్యక్తిత్వ వైపుణ్యాలను పెంచుకోవడం
Previous Knowledge to be reminded	వ్యక్తిత్వ వైపుణ్యాలను పరిశీలించడం
Topic Synopsis	<p>వ్యక్తిత్వ వికాసం గూర్చి చదవటం, వివరాలు ఇలా చాలానే చేస్తూ ఉంటాయి. కానీ దాన్ని వెంపొందించుకొనే ప్రయత్నం చాలా తక్కువమంది చేస్తారు. Personality Development పై వ్యాసాలు ఏవైనా చదివినప్పుడు, "అవును, ఇలా చేస్తే మనకు చాలా మంచి జరుగుతుంది కదా. ఇకంరేపట్టుంచి ఈ పనిలో ఉంటాను" అని అనుకొంటాయి. కానీ నిజానికి మనం చేసేది అది కాదు. మొదటి తప్పు ఏంటంటే, "రేపట్టుంచి" చేద్దామనుకోవటం. నిద్ర లేయగానే ఆ రోజు మామూలుగా చేయవలసిన పనులను గూర్చి ఆలోచిస్తామేకానీ నిద్ర చదివినది గుర్తుకుండదు. మళ్ళీ వారం పది రోజులకు గుర్తుకొస్తే, అప్పుడు కూడా ఇలానే జరుగుతుంది. ఈ వారం పది రోజుల్లో గుర్తుకు వచ్చినా వాయిదా వేయటం జరుగుతుంది. ఇలా చేయటం వలన, మన మీద మనకు నష్టం తగ్గిపోతుంది. మరో సారి ఈ నష్టాన్ని వెనక్కు తెచ్చుకోవటం చాలా కష్టం, ఈలోగా చాలా సమయం మరియు అవకాశాలనూ కోల్పోతాం. అనుకున్నది సాధించాలి, హాయిగా బ్రతకాలి అన్నా జీవిత కాలం చూస్తూ చూస్తూచేజాలి పోతుంది. అందుకే, ఇంత వరకూ వృథా చేసింది చాలు, ఇకనైనా చిన్న చిన్న గెలుపుల్లో ఆనందాలను రుచి చూడటానికి నడుం బిగించాలి. ఇవే సుఖమైన జీవితానికి పునాదులు, డబ్బు కాదు, డోస్ కాదు, మరేమీ కావు, ఇవి మాత్రమే. వర్ణ వ్యవస్థ, కుల వ్యవస్థ తొలకకు మత విశ్వాసాలు, కర్మ, పునర్జన్మ భావాలను, సంస్కృతి అలవాట్లు, కులవృత్తి ఉత్పత్తి విధానం, కుల వ్యవస్థ నిర్మించిన గ్రామీణ స్వయం పోషక ఉత్పత్తి విధానం, కులాలవారి రక్షణంబంధాలు, ఆలోచనా విధానం, ఒక గుదిబండగా వారి వ్యక్తిత్వాలను, జీవితాలను శాస్త్రీయ వస్తున్నాయి. వారి జీవిత లక్ష్యాలలో, వ్యక్తిత్వ వికాసంలో తొత్తిక భావధారలో గతం బలమైన అంతచేతనగా స్థిరపడిపోయింది. అంతచేతన నుండి, ఆచరణ నుండి వాటిని తొలగించకుండా నూతన వ్యక్తిత్వ వికాసం సాధ్యం కాదు. కాబట్టి వాటిని తొలగించడమే వ్యక్తిత్వ వికాసం.</p>
Examples /Illustrations	మహాత్మా గాంధీ, అట్టుల్లా లాంటివారు
Additional Inputs	జీవన వైపుణ్యాలను మెరుగు పరచుకోవడం
Teaching Aids used	పాఠ్య పుస్తకం
References cited	వివిధ వ్యక్తిత్వ వికాస పుస్తకాలు
Student activity planned after the teaching	చర్చ
Activity planned outside the Class room, if any	వ్యక్తిత్వ వికాస పుస్తకాలు చదవడం
Any other activity	వ్యక్తిత్వ వికాస పుస్తకాలు చదవడం, పరీక్ష



Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	ఛందస్సు
Hours Required	05
Learning Objectives	వ్యాకరణం
Previous Knowledge to be reminded	గురు,లఘువులను గుర్తించడం
Topic Synopsis	<p>పాదాది నియమములు గలిగిన పద్య లక్షణములను తెలుపుచిఛందస్సు. తెలుగు ఛందస్సు, సంస్కృత ఛందస్సు పై ఆధార పడి అభివృద్ధి చెందింది. సంస్కృత ఛందస్సులోని వృత్తాలతో బాటు ఛాతులు, ఉపఛాతులు తెలుగులోని ప్రత్యేకతలు. ఆధునిక పాఠకులు, లేఖకులు, నవ కవులు, విప్లవ కవులు ఛందస్సు పురాతనమైందని, ప్రగతి నిరోధకమని భావించినా కొన్ని సినిమా పాటలలో, శ్రీ శ్రీ గేయాలలో మాత్రా ఛందస్సును చూడవచ్చు. ఛందస్సు ద్విసంఖ్యామానంపై ఆధారపడి ఉంది. ఛందస్సులో రెండే అక్షరాలు. గురువు మరియు లఘువు. గురువుని U తోటి, లఘువుని తోటి సూచిస్తారు. ఈ గురు లఘు నిర్ణయం ఒక అక్షరంపై పలికే సమయంపై ఆధార పడి ఉంటుంది. ఉదాహరణకు "అమల, అమ్మ, ఆవల, అండ" ఇందు మొదటి పదము "అమల": అ మ ల మాడు అక్షరాలా ఒక్కొక్కటి ఒక లిప్త కాలము మాత్రమే తీసుకుంటున్నాయి. రెండవ పదము "అమ్మ" ఇందులో మొదటి అక్షరము అ ఒక లిప్త కాలము ఆ తరువాతి మ్మ అక్షరము రెండు లిప్తల కాలము తీసుకుంటున్నది. అలాగే మాడవ పదము "ఆవల" ఆ = రెండు లిప్తలు, వ, లలు ఒక లిప్త కాలములు తీసుకుంటున్నాయి. ఇలా ఒక లిప్త కాలము తీసుకొను వాటిని లఘువు అని, రెండు లిప్తల కాలము తీసుకొను వాటిని గురువు అని అంటారు. అక్షరాల గుంపును గణము అని అంటారు. ఇవి నాలుగు రకాలు 1. ఏకాక్షర గణాలు .2. రెండక్షరాల గణాలు 3. మాడక్షరాల గణాలు 4. నాలుగక్షరాల గణాలు.</p>
Examples /Illustrations	ఉత్పలమాల, చంపకమాల ,మత్తేభం, శార్దూలం
Additional Inputs	ఛందో సౌందర్యం
Teaching Aids used	బాలవ్యాకరణం, నల్లబుల్ల, చార్ట్
References cited	వ్యాకరణం. కాం
Student activity planned after the	ఛందస్సు అభ్యాసం

teaching	
Activity planned outside the Class room, if any	ఛంద్ అభ్యాసం
Any other activity	పరిష్కరించిన ఛందస్సులో పద్యం రాయడం

Signature of the Principal

P.R.R.&V.S Govt., Degree College ,vidavaluru
Teaching plan

Name of the Department/Subject	Telugu
Name of the Lecturer	Smt.N.Sri Devi
Course/Group	B.A/B.Com/B.Sc
Paper	First Semester
Name of the Topic	అలంకారాలు
Hours Required	05
Learning Objectives	వ్యాకరణం
Previous Knowledge to be reminded	అలంకారాలను గుర్తించడం
Topic Synopsis	<p>కావ్య సరస్వతికి శోభను చేకూర్చేవి అలంకారాలు. 'అలం' శబ్దానికి 'కృ' ధాతువు చేరి 'అలంకారం' అనే రూపం సిద్ధించింది. అలంకారమంటే భూషణం అని అర్థం. ఇవి కావ్య సౌందర్యాన్ని పెంపొందించి, శోభను కలిగిస్తాయి. ఆలంకారములు విటిని ప్రధానంగా శబ్దాలంకారాలు, అర్థాలంకారాలని రెండు రకాలుగా విభజించారు. భోజుడు 'సరస్వతీ కంఠాభరణం'లో మూడు విధాలుగా వేర్వేర్చాడు. శబ్ద, అర్థాలంకారాలతో పాటు ఉభయాలంకారాలను (శబ్దార్థ మిశ్రమాలు) వివరించాడు. ఆ తర్వాత మమ్మటుడు, రుయ్యకుడు, విశ్వనాథుడు, విద్యానాథుడు లాంటివారు మిశ్రాలంకారాల గురించి ప్రస్తావించారు.</p> <p>అలంకారాల్లో ప్రధానమైనవి శబ్దాలంకారాలు, అర్థాలంకారాలు.</p> <p>శబ్దాలంకారాలు</p> <p>శబ్ద వైచిత్రీ రొమణీయకత వల్ల కావ్యానికి సౌందర్యాన్ని చేకూర్చేవి శబ్దాలంకారాలు. సంగీతానుగుణ్యమైన శ్రవణ ఫల్యతో పాఠకులకు ఆహ్లాదం కలిగించేవి శబ్దాలంకారాలు. ఇవి ఆరు రకాలు.</p> <p>అర్థ సౌందర్యం వల్ల కావ్య శోభను బిగుణీకృతం చేసేవి అర్థాలంకారాలు. అర్థం లేని శబ్ద సౌందర్యం ఆహ్లాదకరం కాదు. అర్థ ప్రధానమైన అలంకారాలు అర్థాలంకారాలు.</p>
Examples /Illustrations	శబ్దాలంకారాలు, అర్థాలంకారాలు
Additional Inputs	అలంకార సౌందర్యం
Teaching Aids used	కావ్యాలంకార సంగ్రహం, నల్లబుల్ల, చార్ట్

References cited	వ్యాకరణం.కాం
Student activity planned after the teaching	అలంకారాలను గుర్తించడం
Activity planned outside the Class room, if any	అలంకారాలను రాయడం
Any other activity	పరీక్ష, సినిమా హాటలలో అలంకారాలను గుర్తించడం



Signature of the Principal

PRR & VS Government College

(Accredited with 'B' by NAAC)

Vidavalur, SPSR Nellore Dist



Teaching Plan 2020-21

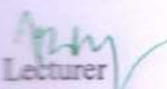
English Praxis Course-I: A Course in
Reading & Writing Skills (Semester – I)

Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Listening Skills
Hours required	3
Learning Objectives	To Teach Listening skills
Previous knowledge to be reminded	Previous knowledge about LSRW skills
Topic Synopsis	<p>Listening is the first of the four skills in communication viz., Listening, Speaking, Reading and Writing. It is considered a very important skill in achieving one's goals. Good listening is necessary for learning knowledge, understanding what others are saying, understanding attitude and behaviour of the speaker, communicating better, improving relations and improving negotiation skills. By listening attentively, one can ask good questions, respond to others' questions very well, avoid misunderstanding, understand others' feelings and solve the problems of a situation easily. Good interpersonal skills and good communication skills are based on good listening skills. Good listeners are appreciated as knowledgeable people as they understand the true meaning of what they listen to. They can become influential speakers as they learn from others. Knowing how to listen properly will ensure a greater level of success in a career environment. Listening is a necessity to be successful in life, and it assists in improving one's personality.</p>
Examples/Illustrations	Examples of good audio material
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Speaking Skills - Word Stress
Hours required	3
Learning Objectives	To teach emphasis on syllables
Previous knowledge to be reminded	Previous knowledge in stress
Topic Synopsis	<p>In English, words are made up of syllables. If a word has more than one syllable, all the syllables are not equally prominent; one of the syllables is more prominent than the others. This is called word stress. It is a very important feature of spoken English. Mastering the subject of word stress is not easy, as there are many rules and exceptions. While native speakers do it naturally, English learners have to learn through a lot of practice and repetition.</p> <p>Word Stress Rules</p> <p>Nouns and adjectives with two syllables have the stress usually on the first syllable. e.g. 'Table, 'Scissors, 'Pretty, 'Clever</p> <p>Exceptions (due to a word was borrowed from another language or it could be totally random): Ho'tel, Ex'treme, Con'cise,</p> <p>Verbs and prepositions with two syllables have the stress usually on the second syllable. e.g. Pre'sent, Ex'port, A'side, Be'tween</p> <p>Three syllable words ending in "er" and "ly" often have a stress on the first syllable. e.g. 'Orderly, 'Quietly, 'Manager</p>
Examples/Illustrations	Examples for stress
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department J/C

Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Speaking Skills - Intonation
Hours required	2
Learning Objectives	To teach speaking skills
Previous knowledge to be reminded	Previous knowledge in intonation
Topic Synopsis	<p>The falling tone (∨): In the falling tone, the voice of the speaker begins at a high note and comes down to a low one on a single syllable. Functions of the falling tone: The falling tone is usually used for the following types of sentences: Statements which are complete and definite: e.g. You have an extra class at nine tomorrow. Wh- questions asked neutrally or in a matter-of-fact manner: e.g. When is the night train for Mumbai? Commands: e.g. Come and meet me in the department. Exclamations: e.g. What a pleasant surprise! Question tags expecting confirmation or agreement (where the listener is expected to agree): e.g. You're on holiday, aren't you? Yes, I am.</p> <p>The rising tone (∧): In the rising tone, the voice starts at a low note and rises to a high one. Functions of the rising tone: The rising tone is used with the following cases: Incomplete utterances: the first clause of a sentence or a tone group at the end. e.g. When I went to Agra, it was winter there. Yes/No type questions: e.g. Are you coming? Wh- questions showing politeness, friendliness, warmth, concern and personal interest: e.g. How is your father? Requests or statements intended to sound like requests: e.g. Pass me the bowl, please. Statement intended to be a question: e.g. You came this morning? Question tags while asking for information: e.g. You're on holiday, aren't you? No, I'm no. Greetings and wishes: e.g. Good morning. Exclamations used as questions: e.g. Really?</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

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Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Grammar - Tenses
Hours required	2
Learning Objectives	To teach grammatical aspects
Previous knowledge to be reminded	Previous knowledge in grammar
Topic Synopsis	<p>1. Simple Past Tense: •An Action which was completed at a definite time in the past. •To Express an Imaginary or Improbable Condition.</p> <p>2. Past Continuous Tense: •An Action which was going on at sometime in the past. •An Action with 'always' to show a frequently repeated past action, which often annoys the speaker.</p> <p>3. Past Perfect Tense: •An action which was completed before another action started in the past. •To express the unfulfilled or impossible condition.</p> <p>4. Past Perfect Cont. Tense: •An Action which began and continued up to some point of time in the past.</p> <p>5. Simple Present Tense: •Habitual, regular or often repeated action. •A general or universal truth. •A planned future action. •Historic present. •Dramatic present (Stage Directions). •The Open or Probable Condition.</p> <p>6. Present Continuous Tense: •An Action that is taking place at the time of Speaking. •An Action happening about this time but not necessarily at the time of Speaking. •To express futurity.</p> <p>7. Present Perfect Tense: •An Action which took place in past and has connection with the present. •An Action used with 'just' to express a recently completed action. •A Past Action whose time is not given and not definite.</p> <p>8. Present Perfect Continuous Tense: •An Action which began in the Past and is Continuing at Present. (Past to Present and beyond).</p> <p>9. Simple Future Tense: •An Action that will take place in Future.</p> <p>10. Future Continuous Tense: •An Action that will be going on at some point of time in the Future.</p> <p>11. Future Perfect Tense: •An Action that will be completed before a certain point of time in the Future.</p> <p>12. Future Perfect Continuous Tense: •An Action that will be going on over a period of time that will end in the future or up to some point in the Future.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----



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 Teaching Plan

Name of the Topic	Grammar - Articles
Hours required	3
Learning Objectives	To teach grammatical aspects
Previous knowledge to be reminded	Previous knowledge in grammar
Topic Synopsis	<p>'A / an and the' are called Articles. These are also called Demonstrative Adjectives.</p> <p>Articles can be categorised into – Indefinite Article and Definite Article.</p> <p>1. Indefinite Article: 'A'/'an' is called indefinite article because it does not refer to a particular person or thing. e.g. a student, a book.</p> <p>2. Definite Article: 'The' is called definite article because it refers to a particular person or thing. e.g. the student, the book.</p> <p>The use of 'a' or 'an' depends on the pronunciation of the word before which it is used.</p> <p>'An' is used before the words which start with Vowel Pronunciation.</p> <p>e.g. An apple, an elephant, an orange, an umbrella, an honourable man, an hour.</p> <p>'A' is used before the words which start with Consonantal Pronunciation.</p> <p>e.g. A car, a book, a European, a one-eyed man, a university.</p> <p>The Uses of 'a' or 'an'</p> <p>It is mainly used in the sense of one.</p> <p>eg. He bought a mango, and she bought an orange.</p> <p>It is used in the sense of every or a single.</p> <p>eg. He gets ten thousand rupees a month. (every). He was not given even a chance to correct himself. (a single)</p> <p>The Uses of 'the'</p> <p>It is used to point out a particular person or a thing. e.g. the man, the book.</p> <p>It is used before a noun which is the only one of its kind or class. e.g. the sky, the moon, the earth.</p> <p>No article should be used:</p> <p>Before proper nouns. e.g. Ravi is a good boy.</p> <p>Before material nouns. e.g. Gold is a precious metal.</p>
Examples/Illustrations	Examples from some good writings
Additional inputs	-----
Teaching Aids used	Text Book and board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Preposition
Hours required	2
Learning Objectives	To teach grammatical aspects
Previous knowledge to be reminded	Previous knowledge in grammar
Topic Synopsis	<p>A Preposition is a word placed before a noun or a pronoun to show the relation between the noun or pronoun and another word in the sentence.</p> <p>Use of some prepositions: By, With: 'By' denotes the doer or agent. 'With' denotes the instrument. Used by the agent. e.g. He was killed by a thief with a knife.</p> <p>In, At, To, Into: 'In and at' are used when we speak of a thing or person at rest. To and Into are used when we speak of a thing or a person in motion. e.g. The pen is in the box. He is at the top of the class. He ran to the school. He jumped into the river.</p> <p>On, Upon: On is used for the thing or persons which are at rest. e.g. The book is on the table. Upon is used for the things or persons in motion. e.g. The tiger jumped upon the ass.</p> <p>For, Since, From: 'For' is used for a period of time. 'Since' is used for a point of time, and it is used only with perfect tenses. 'From' is also used for a point of time, and it is used with all tenses. e.g. I have been waiting here for two hours. He waited for his friend for one hour. He has been living there since 2016. He lived here from 2010 to 2015.</p> <p>In, Within: 'In' before a noun denoting a period of time means 'at the end of', 'within' means 'before the end of', e.g. He will return in an hour (=at the end of an hour). He will return within an hour (=before the end of an hour).</p>
Examples/Illustrations	Examples from Internet sources
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Soft Skills
Hours required	3
Learning Objectives	To teach soft skills
Previous knowledge to be reminded	Previous knowledge about soft skills
Topic Synopsis	<p>SWOT / SWOC stands for Strengths, Weaknesses, Opportunities and Threats/Challenges. It is a scientific tool for an individual or organization to study these four elements for existing status and plan for future. The main and typical problem of today's youth is familiarity with many things and ignorance of own self. In order to achieve in life, one has to know oneself and build strong personality. The following are some of the advantages of SWOC analysis.</p> <ul style="list-style-type: none"> • SWOC analysis shows why people are unable to reach their goals in life. • It helps to understand various ways to reach your goal. • It is beneficial to recognize both the opportunities available and the threats to face. • By realizing weaknesses, one can overcome and escape threats. • Its framework makes you unique from your peers by showing your rare talents. • It points out the need to boost your career and assists you to reach your personal goals. • Knowing and using your strengths can make you potential and turns you a quality person. • Used in an employment context, it stirs you to excel in your profession. • It discloses opportunities that you need to be utilized. • It also helps to peep into yourself so that you can draft your career plan and complete successfully.
Examples/Illustrations	Examples of SWOC analysis
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	SWOC Analysis and Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan 2020-21

English – 3 (Semester – III)

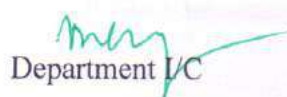
Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Shyness My Shield
Hours required	3
Learning Objectives	To teach soft skills through prose
Previous knowledge to be reminded	Previous knowledge about M.K. Gandhi
Topic Synopsis	<p>'Shyness My Shield' is written by M.K. Gandhi, popularly known as Mahatma Gandhi. This is an extract from The Story of My Experiments with Truth, Mahatma Gandhi's Autobiography. In this essay, he describes his fear of public speaking. He says that during his stay in England, he always felt tongue-tied in the meetings of the Executive Committee of the Vegetarian Society. When there was a serious discussion about something important, he failed to speak on that occasion. This shyness was there throughout his stay in England. Once in the presence of half a dozen or more people also he could not speak. Next time at a meeting for the promotion of vegetarianism, he failed to speak, and his speech was read by somebody else. His last effort to make a public speech in England was at the dinner he arranged on the eve of his departure for home. At that dinner he could not speak except a few words of thanking the gentlemen for responding to his invitation. But he was able to get over this shyness only in South Africa. He feels that his shyness has its own advantages. The greatest benefit is that it has taught him the economy of words. He feels that a man of few words will rarely be thoughtless in his speech and he will measure every word. Finally, he says that his shyness has been in reality his shield and buckler. It has allowed him to grow, and helped him in his discernment of truth.</p>
Examples/Illustrations	Examples from Gandhiji's life
Additional inputs	-----
Teaching Aids used	Text Book and Black Board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


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Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Why People Really Love Technology: An Interview with Genevieve Bell
Hours required	3
Learning Objectives	To teach language through prose
Previous knowledge to be reminded	-----
Topic Synopsis	<p>'Why People Really Love Technology: An Interview with Genevieve Bell' is written by Alexis C. Madrigal, a contributing editor for The Atlantic, an American magazine. Genevieve Bell, an Australian anthropologist and researcher, is the director of Intel Corporation's Interaction and Experience Research. In the present interview, the interviewer talks to Bell about what gadgets people around the world might be using over the next decade. She gives answers for several questions. Talking about her current role at Intel, she says that her career started in Intel R&D labs, but moved into the products group because she was determined to work out how to make social science and anthropology have a business impact. If we want to talk about the future, we also have to start building it. In her answer about the gadget adoption, she says that 44 to 45 percent of the world's internet users are women. They spend more time online than men. She feels if computation gets too smart and achieves 'consciousness,' it'll kill us. She talks about ubiquitous computing, internet facilities in different countries and dematerialization. She says that internet has just become part of different aspects of our lives. Finally, she talks about technology related to facility and kitchen computing.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book and Black Board
References cited	-----
Student Activity planned after the teaching	Writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

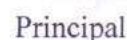
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Commissionerate of Collegiate Education, A.P.
PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Once upon a Time
Hours required	3
Learning Objectives	To teach language through poetry and attitude
Previous knowledge to be reminded	-----
Topic Synopsis	<p>'Once upon a Time' is written by Gabriel Okara, a Nigerian poet. In this poem, the speaker tells his son about the behaviour of people both in the past and in the present. He compares the people's attitude in olden days and modern world. The speaker tells his son that once upon a time people used to laugh with their hearts out of happiness. But now they laugh for the sake of laughing. In those days, people used to shake hands with their hearts, but now they shake hands without any warmth. Now, when people say 'feel at home' and 'come again', they do not really mean it. When they invite each other to their house, they will allow them to come for a couple of times with pleasure but later they will not allow coming into their house. Now the speaker has learned many things and changing his facial expressions for different occasions. He has learned to laugh and shake hands hypocritically. The speaker tells his son that he wants to be what he used to be when he was like his son. He wants to unlearn all these bad habits. Especially, he wants to relearn how to laugh because his present laugh is not sincere. Finally, he asks his son to show him how to laugh, and also show him how he used to laugh and smile when he was young like his son once up on a time.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Reading
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C


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Teaching Plan

Name of the Topic	Digging
Hours required	3
Learning Objectives	To teach language through poetry
Previous knowledge to be reminded	-----
Topic Synopsis	<p>'Digging' is written by Seamus Heany, an Irish poet, playwright and winner of Nobel Prize in Literature in 1995. This poem is about the digging of potatoes by an old man. In this poem, at the beginning the speaker is at his desk and about to begin writing with his pen at his window. In his hand, the pen feels like a gun. He is distracted by the rasping sound when someone is digging outside in the garden. It is the speaker's father who is digging. He seems to be working pretty hard. The speaker watches from the window as his father bends, digging among the flowerbeds. It reminds him of his father working in the potato fields twenty years ago when the speaker was a young boy. He recollects how his father was digging with the spade to pull potatoes from the earth. They love the cool hardness of the potatoes in their hands. The speaker says both his father and grandfather were good at digging potatoes. His grandfather was able to cut more grass than any other man in those days. The memories of smells and sounds of digging for potatoes and peat come to his mind. But he doesn't have the proper tool for digging like his father and grandfather. So, he wants to dig his past through his writing.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Reading
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

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 Teaching Plan

Name of the Topic	The Interpreter of Maladies
Hours required	3
Learning Objectives	To teach language through short story
Previous knowledge to be reminded	-----
Topic Synopsis	<p>'The Interpreter of Maladies' is written by Jhumpa Lahiri, an Indian American author. This short story is taken from her debut short story collection Interpreter of Maladies. Mr. Kapasi, a middle-aged tour guide, takes the Das family by car to the Sun Temple at Konarak one summer day. The family from the United States consists of Mr. and Mrs. Das, a young couple, and their three children, Ronny, Bobby, and Tina. He observes that Mr. and Mrs. Das are not moving closely. Mr. Kapasi tells the couple that he has another job as an interpreter for a doctor and his Gujarati patients. He wants to take them to some hills, another tourist site to spend more time with her. All of them except Mrs. Das go to the hills. She stays in the car, and reveals to Mr. Kapasi a secret which nobody knows because he is an interpreter of maladies. She believes that he can suggest some remedy. He tells her to confess the truth to her husband. Then she leaves his car and joins her family. Meanwhile, the children and Mr. Das have been playing with the monkeys. When Mrs. Das rejoins them, Bobby, their son, is missing. They find him surrounded by monkeys. Mrs. Das screams for Mr. Kapasi to do something. The story ends as Mr. Kapasi chases off the monkeys and carries Bobby back to his family.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


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PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	The Beloved Charioteer
Hours required	3
Learning Objectives	To teach language through short story
Previous knowledge to be reminded	-----
Topic Synopsis	<p>‘The Beloved Charioteer’ is a short story written by Shashi Deshpande, an Anglo Indian writer. This story is about three generations, wherein the relationship between mother and daughter is highlighted. A grandmother lives with her daughter Arti, and granddaughter Priti. She is living happily because of her good relation with her granddaughter. But she is unable to make her daughter live happily in the same way because she becomes indifferent towards everything after the death of her father and husband. She neglects even the needs of her daughter, Priti because of her grief. The grandmother finds comfort in her granddaughter Priti, because she feels that Priti’s affection is a gift from heaven. She tries her best to bring her daughter back to the happiness but in vain. She hopes that she will talk and laugh again one day. She wants to share the sufferings and sorrows with her daughter but cannot. She is hurt because Arti can find her comfort from her dead father and not from her living mother. When Arti breaks the glass of her late father’s photograph, she gets an opportunity of telling about her father. She tells Arti how she was always dominated by him. She also tells her that Arti is her beloved charioteer. At the end, she is happy because she makes her daughter at least look at her.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Reading
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

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Commissionerate of Collegiate Education, A.P.
PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Kanyasulkam (Acts I & II)
Hours required	3
Learning Objectives	To teach language through play
Previous knowledge to be reminded	-----
Topic Synopsis	<p>'Kanyasulkam (Acts I & II)' is a Telugu play written by Gurajada Appa Rao, a famous Indian Telugu writer. It has been translated into English by C. Vijayasree and T. Vijaya Kumar. This play is about the evil practice of Kanyasulkam (Bride Price) which was prevalent among the Telugu speaking people in South India, and it highlights the malady of child marriages using the technique of comedy. The first act takes place in a hillock in Vijayanagaram. The main character Girisam is educated in English and he wants to reform society from its evil practices. He lives in the house of boarding house woman, a widow. He has a lot of debts and he writes a love letter to the daughter-in-law of Venku Pantulu. So he thinks that he may get into some troubles. In order to escape from these troubles, he wants to run away with his disciple, Venkatesam, to his village on the pretext of teaching him English education. The second act takes place at Agnihotravadhanulu's house, in Krishnarayapuram agraharam. Here, Agnihotravadhanulu and his wife Venkamma talk about his son Venkatesam's education. After Girisam and Venkatesam enter, some discussion takes place about the social evil practices at that time – objection to widow marriages and selling girls i.e., Kanyasulkam. Karakataka Sastry's disciple Mahesam has aversion to the traditional way of learning Sanskrit verses. He wants to learn English and he is encouraged by his teacher.</p>
Examples/Illustrations	Examples of Translated plays
Additional inputs	-----
Teaching Aids used	Text Book and Black board
References cited	-----
Student Activity planned after the teaching	Role Play
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan 2020-21

Communication and Soft Skills – 2 (Semester – III)

Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Word Stress
Hours required	2
Learning Objectives	To teach word stress
Previous knowledge to be reminded	Previous knowledge of word stress
Topic Synopsis	<p>Word Stress Patterns in English</p> <p>In multi-syllable words the stress falls on one of the syllables while the other syllables tend to be spoken over quickly. This leads to sounds that are not clear (muted) on unstressed syllables. In order to improve your pronunciation, focus on pronouncing the stressed syllable clearly. However, don't be afraid to "mute" (not say clearly) the other unstressed vowels.</p> <p>With this in mind, here are the eight common word stress patterns in English.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department VC

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 Teaching Plan

Name of the Topic	Intonation
Hours required	2
Learning Objectives	To teach intonation and speaking skills
Previous knowledge to be reminded	Previous knowledge of Intonation
Topic Synopsis	<p>The falling tone (∨): In the falling tone, the voice of the speaker begins at a high note and comes down to a low one on a single syllable.</p> <p>Functions of the falling tone:</p> <ol style="list-style-type: none"> 1. Statements which are complete and definite: 2. Wh- questions asked neutrally or in a matter-of-fact manner: 3. Commands: 4. Exclamations: 5. Question tags expecting confirmation or agreement (where the listener is expected to agree): <p>The rising tone (∧): In the rising tone, the voice starts at a low note and rises to a high one.</p> <ol style="list-style-type: none"> 1. Incomplete utterances: the first clause of a sentence or a tone group at the end. 2. Yes/No type questions: 3. Wh- questions showing politeness, friendliness, warmth, concern and personal interest: 4. Requests or statements intended to sound like requests: 5. Statement intended to be a question: 6. Question tags while asking for information: 7. Greetings and wishes: 8. Exclamations used as questions:
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Speaking
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


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 Teaching Plan

Name of the Topic	Group Discussion
Hours required	2
Learning Objectives	To demonstrate Group Discussion
Previous knowledge to be reminded	Previous knowledge of Group Discussion
Topic Synopsis	<p>Group Discussion is a discussion conducted in a group. It tests the skills, traits and abilities of a candidate for being recruited by an organisation. The number of participants varies from group to group. The group is given a topic and is asked to discuss for fifteen to twenty minutes. This discussion is monitored by experts and the performance of the individuals is evaluated.</p> <p>A group discussion is also like an examination held before an interview. It evaluates how you can function as part of a team and also its manager. As a member of an organisation, either as its manager or as its member you will always have to work in teams. Therefore your interaction in a team becomes an important criterion for your selection. That is why a group discussion is conducted in every interview.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Group Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


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 Teaching Plan

Name of the Topic	Interview Skills
Hours required	2
Learning Objectives	To demonstrate Interview Skills
Previous knowledge to be reminded	Previous knowledge of Interview Skills
Topic Synopsis	<p>The tips for the pre interview stage:</p> <ol style="list-style-type: none"> a. Get your certificates and other documents ready and in order. b. Avoid funky hairstyles and look decent. c. Get a simple and decent dress pressed and be ready for Interview. d. Do not wear flashy dresses with gaudy designs. e. Avoid ornamentation. f. Get your footwear polished and ready. g. Know about the organization. h. Update your G. K. i. Present yourself fifteen minutes before the scheduled time.
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Mock interview
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Presentation Skills
Hours required	2
Learning Objectives	To demonstrate presentation skills
Previous knowledge to be reminded	Previous knowledge of Presentation Skills
Topic Synopsis	<p>Developing Presentation skills</p> <p>Planning: This is the first step for an effective presentation. Think innovatively and plan keeping the audience in mind. Plan a beginning, a middle and an end.</p> <p>Be original and smart: Do not try to imitate others. Be yourself.</p> <p>Short, Sweet and not beyond given time: Try to make your presentation short and simple but effective. Use right language. Keep the audience in mind: Irrespective of the size of the audience, observe the mood of them.</p> <p>Stay cool and relaxed: Do not feel nervous. Do not try to get it by heart. Use your natural expression and try to stay cool and relaxed.</p> <p>Be interactive and humorous: Never try to lecture in a monotone. Nobody can listen to you for a long time. Ask questions, clarify doubts and involve the participants in the presentation. Be friendly and accessible.</p> <p>Mind your body language: Follow appropriate dress code. Look into the eye of the participants.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Speaking
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan 2020-21

English Praxis Course-II: A Course in
Reading & Writing Skills (Semester – II)

Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	How to Avoid Foolish Opinions
Hours required	3
Learning Objectives	To teach Language through prose
Previous knowledge to be reminded	Previous knowledge about such Prose lessons
Topic Synopsis	<p>'How to Avoid Foolish Opinions' is an essay written by Bertrand Russell, an eminent writer, philosopher and the Nobel Laureate in Literature in 1950. In this essay, he suggests some simple ways to avoid various foolish opinions and silly errors.</p> <p>Russell opines that foolish opinions disturb human and social relations. In this essay, he mentions five ways to avoid foolish opinions. The first one is to settle the matters by observation because it is better than assumption in some matters. So he advises us to make the observation ourselves if the matter is one that can be settled by observation. The second one is to reconsider our opinions when opposite opinions result in anger. Opinions should be formed by experience and should not be biased. The third one is that the best way to get rid of dogmatism is to become aware of the fact that different societies hold different opinions. He advises that people should adopt good customs of others, not foolish practices. The fourth one is to make use of psychological imagination. He feels that consideration of opponent's point of view will reduce dogmatism. The last one suggested by Russell is to keep self-esteem within limits. We have to be very cautious of opinions that flatter our self-esteem. Finally, he opines that the only way of dealing with this general human pride is to remind ourselves that man is a brief episode in the life of a small planet in a little corner of the universe.</p>
Examples/Illustrations	Examples of such essays
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


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 Teaching Plan

Name of the Topic	The Doll's House
Hours required	3
Learning Objectives	To teach Language and soft skills through prose
Previous knowledge to be reminded	Previous exposure to such prose lessons
Topic Synopsis	<p>'The Doll's House' is short story written by Katherine Mansfield, a writer from New Zealand. This short story not only deals with a gifted doll's house on the surface, but also exposes the social evils prevailing those days.</p> <p>In this story, there are the Burnell daughters – Isabel, Lottie and Kezia, who belong to a rich family. The Kelvey daughters – Else and Lil are from a poor family. The Burnell daughters receive a beautiful doll's house as a gift from their relatives. It resembles a real house, and it has real like bed rooms, living rooms, kitchen, and so on. The children are amazed to have this. Isabel tells about it during the lunch hour at the school to all her friends except the Kelvey two daughters as they are poor. Even her mother forbids their daughters from speaking with the Kelveys. Every day after school, the Burnells invite two girls to see the doll's house in their courtyard. But the Kelvey daughters are not invited. Then Kezia asks her mother if she can bring the Kelveys as well. Her mother has declined. But one day Kezia invites them to come and see the doll's house. With much hesitation, they come and see the wonderful house. At this very moment Aunt Beryl harshly sends them out. Thus, the gifted doll's house is the amusement of socially high class children at its beauty and the humiliation of underprivileged class kids.</p>
Examples/Illustrations	Examples from various soft skills
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	Ode to the West Wind
Hours required	3
Learning Objectives	To teach language through poetry
Previous knowledge to be reminded	Previous knowledge about P.B. Shelly
Topic Synopsis	<p>'Ode to the West Wind' is one of the best poems written by P.B. Shelly, a Romantic poet. The poetic theme of the poem is 'Wind' that blows from the west side during the autumn season.</p> <p>People criticize the autumn season as it takes away all the nature's beauty, and curse the west wind as it raises dusty storms all day. But the poet feels that both the autumn and the west wind play vital role in the whole nature. So he looks at the bright side of the two things. He describes numerous favours done by the west wind in the poem. In autumn, it drives the leaves from the tree to the fields where it becomes fertilizer for the crops. It carries the dry seeds across the landscape and places them into the soil so that they find their place to grow in spring. Thus, the west wind becomes both the destroyer and the preserver. He describes it as a bringer of clouds, vapours, rain, hail and lightning. He addresses his prayer to the west wind. He wishes to have the power and the freedom which it has. He wishes to be lifted and borne by it as a wave, as a leaf and as a cloud. Finally, he prays to the west wind to make use of him as its lyre. He is sure that his ideas will be accepted by society one day or the other. Then this world will become a better and happier place. He gives expression to his hope and faith in the line, 'If Winter comes, can Spring be far behind?'</p>
Examples/Illustrations	Examples from Shelly's works
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department VC

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Teaching Plan

Name of the Topic	Florence Nightingale
Hours required	2
Learning Objectives	To teach language through poetry
Previous knowledge to be reminded	Previous knowledge about such poems
Topic Synopsis	<p>‘Florence Nightingale’ is a biographical sketch written by Abrar Mohsin, an educationist from Africa. This is about Florence Nightingale, who made history during the Crimean War by nursing the sick and the wounded.</p> <p>The essayist says that there is nothing glorious about the wars as the poets praise in their poems. He feels that a war is always a dreadful thing and its outcome is nothing but destruction. Wars give joy to no one, but it is an unpleasant experience. The writer says that Florence Nightingale looks at the battle of Balaclava from entirely a different angle. Tennyson, a great poet speaks of heroism, whereas Nightingale grieves over the stupidity of the men who wage wars. She feels that there is senseless sacrifice at the inhuman altar of war. Florence Nightingale was born on 12 May, 1820 to a wealthy family at Florence in Italy. Her parents gave her the name of her birth place. Once she told her parents that she wanted to become a nurse. Then they were shocked as nursing was not regarded as a respectable profession in those days. In spite of that she was firm about her goal. Knowing about her services, the Secretary for the Crimean war invited her to serve the wounded soldiers. Her services were remarkable there. Because of her selfless service during this war, she was known as the ‘Lady with the Lamp.’</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	The Night Train at Deoli
Hours required	3
Learning Objectives	To teach language through short story
Previous knowledge to be reminded	Previous knowledge about Ruskin Bond's works
Topic Synopsis	<p>Ruskin Bond's "The Night Train at Deoli" is a story about the narrator's love for a poor basket-selling girl whom he meets at a small station, Deoli during his journey to Dehradun. In fact, he meets the girl only twice, but she remains in his memory for ever throughout his life.</p> <p>The narrator was a college student living in Delhi. During every summer vacation, he visits his grandmother who lives in Dehradun through a train journey. The train stops at Deoli, a small station for ten minutes early in the morning before it reaches Dehradun. The narrator does not know why it stops there as nobody boards or gets off at this place. After college studies, once the narrator travels to his grandmother's place. When the train stops at Deoli, a young girl comes to his window and stops on the platform. She is a poor girl selling bamboo baskets for the travellers. As it is a cold morning, she covers her shoulders with a shawl. Her feet are bare and her clothes are old. She looks decent and walks gracefully. The narrator stares at her simple beauty and falls in love with her. He buys a basket from her. He meets her even in his return journey. In the next summer vacation, when he travels once again to see his grandmother and in his return journey, he does not find her in the same station. So he wants to live with her memories for the rest of his life. However, he travels during every vacation and stops at Deoli with a hope of meeting her again.</p>
Examples/Illustrations	Examples of such stories
Additional inputs	-----
Teaching Aids used	Text Book and board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	Upagupta
Hours required	3
Learning Objectives	To teach language through short story
Previous knowledge to be reminded	Previous knowledge about Rabindranath Tagore
Topic Synopsis	<p>‘Upagupta’ is a poem written by Rabindranath Tagore, a great writer and educationist. He was the first non-European to win the Nobel Prize in Literature in 1913. This poem is about an incident in the life of Upagupta, a disciple of Lord Buddha.</p> <p>Upagupta was an ascetic. He was the epitome of kindness, wisdom and selflessness. One night he was sleeping in the dust under the wall of Mathura town. It was dark, lights were off and all people shut the doors. A dancing girl walked towards him and touched him with her feet due to darkness. She was attracted by his handsome face. She asked him to forgive her and asked him to come to her house. As he was a saint, he declined her invitation. He promised her that he would visit her house at a suitable time and asked her to go on her way. At that time, there was a flash of lightning and a growl of storm in the sky. So, she trembled in fear. In less than a year, in the spring season, the people of Mathura were celebrating the festival of flowers. The town was silent. The saint walked alone and reached the town gate. He found the dancing girl suffering from a contagious disease. She was driven away from the town. He sat by the side of her. He took her head on his knees, watered her lips, applied sandal balm to her sores and showed great care towards her. She asked him who the merciful one was. He said that it was the right time for him to keep up his promise.</p>
Examples/Illustrations	Examples from Tagore’s works
Additional inputs	-----
Teaching Aids used	Text Book and black board
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Coromandel Fishers
Hours required	3
Learning Objectives	To teach language and soft skills through poem
Previous knowledge to be reminded	Previous knowledge about Sarojini Naidu
Topic Synopsis	<p>The Coromandel Fishers is a poem written by Sarojini Naidu, an Indian political activist and poet. In this poem, she describes the beauty of nature and the folk culture of the Coromandel Coast of India. It depicts the relationship of fishermen with nature.</p> <p>The poet asks the fishermen to wake up and offer their prayers to the sun. The wind is calm and quiet like a child that sleeps soundly after crying all night. She calls them the kings of the sea. So she asks them to gather the nets, set their catamarans free and go into the sea to gather the wealth of the sea. She asks them not to delay and quickly set forth in the path of the sea-gulls call. She comforts them by saying that the sea is their mother, the cloud is their brother and waves are their friends. They toss their boats at sunset and drive them far. God who controls the storm will protect their lives from its rage. She says that the fishermen have sweet attractions on the shore. The shade of the coconut glade, the sweet fragrance of the mango grove, and the sight of the sands on a full moon night mixed with the voices of the birds early at dawn are very beautiful. But to the fishermen, the caress of the spray of the sea water and the dance of the wild waves are far sweeter. So, she asks the fishermen to row their catamaran to the edge of the borders, the horizon, where the low sky appears to unite with the sea.</p>
Examples/Illustrations	Examples of such one act plays
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Role play and Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	An Astrologer's Day
Hours required	3
Learning Objectives	To teach language and soft skills through short story
Previous knowledge to be reminded	Previous knowledge about R K Narayan
Topic Synopsis	<p>'An Astrologer's Day' is a short story, written by R. K. Narayan, a well-known Indian English writer. In this story, an astrologer enters the profession not by choice, but by the force of the mysterious situations in his past life.</p> <p>An astrologer sits under a tamarind tree and spreads out his professional equipment punctually at midday. He attracts people by his appearance, his clothes, and his paraphernalia. In fact, he can predict nothing, but it is a matter of guesswork. When he is about to go home, a client comes there. Then he starts saying something about him, but the client asks for something useful. He recognises the client by the match light when the client lit the cheroot, and feels uncomfortable by recollecting his past. He does not want to predict the client anymore. But after some argument, he tells the client how the client was stabbed and thrown into a well and left for dead in the past. The client tells the astrologer how he was saved by a passerby, and asks the astrologer how he can see him. He is also stunned when the astrologer calls him by his name, Guru Nayak. Finally, the astrologer advises the client to go back his home and stop looking for the man who stabbed him since he died in an accident. He also tells him not to travel southward again otherwise there is a great danger to his life. In fact, the client is the one who is stabbed by the astrologer, but he fails to recognize the astrologer. The story ends when the astrologer goes home, tells his wife his experience and stretches on the pyol peacefully as a great load is gone from him.</p>
Examples/Illustrations	Examples of such short stories
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	story writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Skimming and Scanning
Hours required	3
Learning Objectives	To teach language skills
Previous knowledge to be reminded	Previous knowledge about such skills
Topic Synopsis	<ul style="list-style-type: none"> • Skimming is a reading technique to get the gist of a text without reading the whole content. • It is a way of reading something in a fast manner to grasp the main points. • It is a quick reading. • The reader gets an idea of the content by reading the main points. • It is reading out the maximum content in minimum time. • The objective of skimming is to take a birds-eye view of the text. • The reader is not familiar with the text. • Scanning is a reading technique to search for particular information in a text with a particular approach. • It is a way of reading some text carefully and quickly to locate something. • It is a selective reading. • The reader gets the specific information by reading the text. • It is finding out the required data in minimum time. • The objective of scanning is to spot the specific facts. • The reader knows what he is searching for.
Examples/Illustrations	Examples of such
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Reading comprehension
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	Note Making
Hours required	3
Learning Objectives	To teach language and writing skills
Previous knowledge to be reminded	Previous knowledge about Note making
Topic Synopsis	<p>Note making is an advanced writing skill which is acquiring increasing importance due to knowledge explosion. There is a need to remember at least the main points of any given subject. Making notes is a complex activity which combines several skills. Note making can be a great help when you are studying for examination.</p> <p>While making notes the following steps can be followed:</p> <ol style="list-style-type: none"> 1. Read the passage thorough, from beginning to end, to get a general view of the text. This kind of reading is called skimming, an exercise that will tell you what the passage is about (the title) and also how the theme is developed in the course of the text. 2. Identify the main points or divisions of the passage and give them suitable headings. 3. Read the passage again closely and note down the sub-points that come under each main heading. <p>Put down sub-sub points if there are any. Note that as you pass from the main points to the sub points and, further, to the sub-sub points, the numbering of the points is spaced more and more to the right.</p>
Examples/Illustrations	Examples of such
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Exercise on note making
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan 2020-21

Business Communication (Semester – II)

Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Unit - I
Hours required	2
Learning Objectives	To teach business communication
Previous knowledge to be reminded	Previous knowledge related to business communication.
Topic Synopsis	<p>Business Communication</p> <p>The root word of 'Communication' in Latin is 'communicare' which means 'to share'. The process of passing any information from one person to another person with the help of some medium is called as Communication. It is an exchange of facts, ideas, opinions, or emotions by two or more persons. It refers to a natural activity of all humans to convey opinions, feelings, information, and ideas to others through words, body language, or signs.</p> <p>Business communication is the one that managers need to do in the business context. Effective business communication requires both the understanding of business and the style of communication. The use of common business English and the style of business correspondence are important requisites.</p> <p>Communication is important due to the following reasons: It is very important for coordination in the organization. It makes possible the smooth and efficient working of a company. It helps in establishing effective leadership as it is the basis of effective leadership. Effective communication creates job satisfaction among employees as it increases mutual trust and confidence between management and the employees. In the present business world, effective communication helps management in maintaining good public relations with workers and community in general.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	Unit - I
Hours required	2
Learning Objectives	To teach Process of Communication
Previous knowledge to be reminded	Previous knowledge of Communication aspects
Topic Synopsis	<p>Process of Communication</p> <p>The process of communication contains the following essential factors. They are – a) The sender (the speaker or writer), b) The message (the information or knowledge) and c) The receiver (the listener or reader). The process of communication may be divided as:</p> <p>Ideation: The first step is called ideation, where the sender should have an idea to send it to the receiver through an appropriate channel.</p> <p>Encoding: The sender's idea is converted into a message that can be transmitted. This step is called encoding.</p> <p>Channel: The message is transmitted through appropriate channels or media such as spoken, written, or digital. The sender has to select the best medium.</p> <p>Decoding: The receiver has to understand the original idea of the message. So the receiver will decode the message.</p> <p>Feedback: To complete the process of the communication, the sender has to receive a response from the receiver, which is called feedback. This is the most essential step in the entire communication process since it completes the cycle of communication.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Speaking
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Unit – II
Hours required	2
Learning Objectives	To teach Levels of Communication
Previous knowledge to be reminded	Previous knowledge of Communication
Topic Synopsis	<p>Various Levels of Communication in an Organization</p> <ul style="list-style-type: none"> • Downward communication is a vertical communication. • This flows from a superior to a subordinate or top to bottom. • It is very fast as it is empowered with authority. • It is to give orders for implementing instructions. • It is authoritative and directive in nature. It includes Orders, circulars, notices, etc. • Upward Communication is also vertical communication. • This flows from a subordinate to a superior or bottom to top. • It is slow as it has to pass through many levels. • It is to provide feedback and give suggestions. • It is informative in nature. It includes reports, proposals, suggestions, etc.
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Group Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----

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Teaching Plan

Name of the Topic	Unit – II
Hours required	2
Learning Objectives	To teach about Online Communication
Previous knowledge to be reminded	Previous knowledge of Online Communication
Topic Synopsis	<p>Different types of Online Communication</p> <p>All the communication that is carried out through internet is known as 'Online communication.' Online communication can be sent through different ways. They are –</p> <p>Social media: It is a great first step for communication as it is possible for posting open messages for everyone to see.</p> <p>Instant message: It is a great tool for quick informal chats or group chats.</p> <p>SMS text messaging: It is a good way to communicate small bits of information leisurely.</p> <p>Direct email: It is also direct messaging but it generally more formal.</p> <p>Blogging: It is a conventional website to publish messages, news, knowledge or any other kind of information.</p> <p>Voice calling: Voice calling is possible through telephone or mobile phone.</p> <p>Video chat: Video chatting can be done through the apps like WhatsApp, Skype, etc.</p> <p>Video marketing: The social channels like YouTube, Face book and Instagram are helpful for video marketing.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Practice using online communication
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Unit - III
Hours required	2
Learning Objectives	To demonstrate Business Communication
Previous knowledge to be reminded	Previous knowledge of Business Communication
Topic Synopsis	<p>Characteristics of a Good Business Communication</p> <p>Business communication always has specialized content, specific audience, specific purpose, specific time and specific place. A good business communication should possess the following characteristics:</p> <p>Conciseness: In business communication, whatever one has to say should be very concise.</p> <p>Clarity: Next important feature of business communication is clarity. In language, clarity is everything.</p> <p>Simplicity: As far as possible, information should be conveyed to others in a very simple and direct manner.</p> <p>Logical Development of Ideas: Logical development of ideas in business communication is very important.</p> <p>Consideration: Consideration refers to the receiver. What we are going to convey should be understandable from the receiver's point of view.</p> <p>Concreteness: It is essential in business communication. To get concreteness in communication, we have to use visual aids, specific facts and active voice.</p> <p>Accuracy: It is very important to maintain accuracy in business communication.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Teaching Plan

Name of the Topic	Unit - III
Hours required	2
Learning Objectives	To demonstrate Meeting Agenda and Minutes
Previous knowledge to be reminded	Previous knowledge of Reading skill
Topic Synopsis	<p>Business Meeting Agenda and Minutes</p> <p>Agenda: Agenda means things to be done. It is also called order of business to be discussed during the meeting. It is a document that outlines the contents of a forthcoming meet. It is a programme schedule of the meeting and prepared by convenor or secretary in consultation with chairperson and his approval and sent along with the notice of the meeting in order to enable the members to come prepare for discussion during the meeting. An agenda begins with the call to order meeting and ends with postponement of the meeting.</p> <p>Minutes: Minutes is a record of the decisions taken at a formal meeting. All companies, statutory bodies, social organizations, associations and committees have to maintain a record of the meetings. As minutes are the official record of word done and decision taken at the meeting, it must be precise and clear. Once minutes are approved and signed, it can be accepted by the court of law as evidence of the proceedings of the meetings. The main objective of minutes is to record, concisely and accurately, the essential work done at a meeting. The minutes of companies and statutory bodies are written in formal style.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Model Meeting Agenda and Minutes
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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Vidavalur, SPSR Nellore Dist



Teaching Plan 2020-21

Communication and Soft Skills – 3 (Semester – IV)

Name: Dr. V. Sri Rama Murthy

Designation: Lecturer in English

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Soft Skills
Hours required	2
Learning Objectives	To teach word stress
Previous knowledge to be reminded	Previous knowledge of word stress <i>Soft Skills</i>
Topic Synopsis	<p>Suggestions for Building Positive Attitude:</p> <ul style="list-style-type: none"> •Right belief breeds right attitude. Your belief in your talent boosts up your confidence and generates positive thinking. •Practise positive visualization. Try to see 'good' in others and expect bright future. •Be optimistic. Instill positive mind at the best time: Start your day with best listening and reading educative things not with entertaining and emotional stuff. •Set Positive goals and have a positive view about things. •Respect yourself and others too. Be realistic. Have good friends. •Do not believe in failure: The successes and the failures are all part of life. • Addicting to screen culture, false prestige, identity crisis, etc. are said to be the negative side of the youth. Have good habits! •Have a strong and persistent desire: Ambition is the path to success. Persistence is the vehicle you arrive in. Believe in 'I can win!'"
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Writing
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Paragraph Writing
Hours required	2
Learning Objectives	To teach Paragraph Writing
Previous knowledge to be reminded	Previous knowledge of Paragraph Writing
Topic Synopsis	<p>The following are the rules for writing a good paragraph:</p> <ol style="list-style-type: none"> a. A good paragraph should be short, but not too short. An idea should not be the subject of a paragraph unless it is of sufficient importance. b. The ideas and facts should be arranged in order of their importance and relate with one another. c. The length of a paragraph depends on the matter to be put into it. d. A paragraph must deal with one theme or one subject at a time. The controlling idea is the central idea that is developed in a paragraph. e. There should be unity in a paragraph and it must be the expression of a single idea or of a series of closely connected ideas. f. The length of the sentences in a paragraph must vary. g. The type of paragraph such as reflective, descriptive, narrative, historical, argumentative or philosophical that suits the subject best should be decided first.
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Speaking
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


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 Teaching Plan

Name of the Topic	Paraphrasing
Hours required	2
Learning Objectives	To demonstrate Paraphrasing
Previous knowledge to be reminded	Previous knowledge of Paraphrasing
Topic Synopsis	<p>Paraphrase is an expression in other words of the sense of any passage. Paraphrase means the restatement of the sense of a passage in other words. It must faithfully reproduce the thought of the original passage in similar language.</p> <p>We may paraphrase either a passage or a poem. But the paraphrases of both have the same features. Some of the features are given below:</p> <p>The paraphrase of a poem or a passage contains the same ideas/theme. In other words, it does not contain any new ideas or opinions. No idea or subtheme is repeated.</p> <p>All the figures of speech are expressed in simple and direct language. That is, a paraphrase may not contain similes, metaphors, epigrams and such other figures of speech.</p> <p>Usually, the sentences are not long and complex as the paraphrase aims at making the text/poem comprehensible to the reader. There are no sentences in direct speech, no sentences containing inversion and no rhetorical questions.</p> <p>Technical, archaic, unusual and obscure words are not found, unless they are absolutely necessary.</p>
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Group Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C


Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Summarizing
Hours required	2
Learning Objectives	To demonstrate Summarizing
Previous knowledge to be reminded	Previous knowledge of Summarizing
Topic Synopsis	<p>Summarizing: Summarizing is putting down the main ideas of someone else's work in your own words. It is closely related to note-making since the next step is to write a summary. Thus a summary is nothing but putting together the main ideas in the note-making in a sequentially written form.</p> <p>A good summary is one which:</p> <ul style="list-style-type: none"> • Is simple, clear and well structured. • Contains main theme and supporting ideas. • Is written in your own words. • Contains very few words. <p>A good summary does not:</p> <ul style="list-style-type: none"> • Contain sentences from the original text. They are replaced with sentences which contain the same semantics. • Contain any kind of new information or any views /opinions. • Use symbols and abbreviations, as you do in note-making. • Summarize only one part of the text. All the main points are taken into consideration.
Examples/Illustrations	Examples
Additional inputs	-----
Teaching Aids used	Text Book
References cited	-----
Student Activity planned after the teaching	Exercise
Activity planned outside the Class room, if any	Assignment
Any other activity	-----


Lecturer


Department I/C

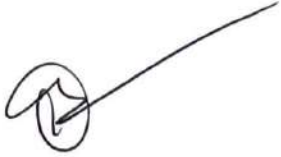

Principal


Commissionerate of Collegiate Education, A.P.,

Apr/2022
II Semester

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer : Dr. K.R.SHANMUGAM	
Course/Group : B.Sc- B.Z.C- Telugu Medium	
Paper : II	
Name of the Topic	Chordates, Pisces, Amphibia, reptiles, aves and mammals Introduction
Hours required	6
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	<ol style="list-style-type: none"> 1. Chordates : With VB, Lungs etc 2. Pisces : Catla 3. Amphibia : Frog 4. Reptiles : Naja 5. Aves : Pistacula 6. Mammals : Monkey
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	<ol style="list-style-type: none"> 1. The Invertebrates Book by Kotpal Verma 2. A.P. Academy Book 3. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None

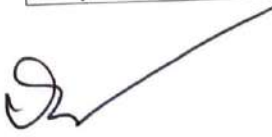



Signature of the Lecturer

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SPSR NELLORE DT

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer : Dr. K.R.SHANMUGAM	
Course/Group : B.Sc- B.Z.C- Telugu Medium	
Paper : II	
Name of the Topic	Petromyzon and Myxine, Herdmania, Fish heart, Pisces GC, Classification, Scales in fishes
Hours required	18
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	<ol style="list-style-type: none"> 1. Petromyzon and Myxine : characters 2. Herdmania : Structure, Metamorphosis 3. Fish heart : Venous heart 4. Pisces GC, Classification : FW, etc 5. Scales in fishes : Placoid, cycloid, ctenoid etc
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	<ol style="list-style-type: none"> 1. The Invertebrates Book by Kotpal Verma 2. A.P. Academy Book 3. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None




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Commissionerate of Collegiate Education, A.P.,

June 2022
II Semester

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer : Dr. K.R.SHANMUGAM	
Course/Group : B.Sc- B.Z.C- Telugu Medium	
Paper : 11	
Name of the Topic	Dipnoi fishes, Poisonous and non poisonous snakes, Aves GC, Classification and respiration, flight adaptations, Mammals GC and classification, Migration in fishes and birds
Hours required	18
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	1. Dipnoi fishes : Lung fishes- Australia, America and africa Poisonous and non poisonous snakes : Head, tails, scales etc 2. Aves GC, Classification : Flying 3. Respiration, flight adaptations in birds : Double respiration- 4. Mammals GC and classification : glands, hari etc- Prototheria, metatheria eutheria 5. Migration in fishes and birds: For food and breeding
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	1. The Invertebrates Book by Kotpal Verma 2. A.P. Academy Book 3. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None




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Commissionerate of Collegiate Education, A.P.,

July 2022
II Semester

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer	: Dr. K.R.SHANMUGAM
Course/Group	: B.Sc- B.Z.C- Telugu Medium
Paper	: II
Name of the Topic	Protheria, Metatheria and Eutheria
Hours required	7
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	1. Protheria : Egg laying Echidna 2. Metatheria : Kangaroo 3. Eutheria : Placentation- Monkey, Human
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	1. The Invertebrates Book by Kotpal Verma 2. A.P. Academy Book 3. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None


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SPSR NELLORE DT

Commissionerate of Collegiate Education, A.P.,

Apr/22
VI Semster

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer	: Dr. K.R.SHANMUGAM
Course/Group	: B.Sc- B.Z.C- Telugu Medium
Paper	: VI
Name of the Topic	Immunology, Immunity Types
Hours required	8
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	1. Immunology : What is immunology and immunity 2. Immunity Types : Innate, Acquired etc 3. Importance of Immunity etc will be discussed
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	1. A.P. Academy Book 2. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None

3


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Commissionerate of Collegiate Education, A.P.,

May 22
V Semester

Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer	: Dr. K.R.SHANMUGAM
Course/Group	: B.Sc- B.Z.C- Telugu Medium
Paper	: VI
Name of the Topic	Immune cell types, Organs of Immune system
Hours required	11
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	1. Immune cell types : Beta cells, t-lymphocytes, WBC etc 2. Organs of Immune system : Spleen, Bone marrow etc
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	1. A.P. Academy Book 2. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None


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Proforma for Teaching Plan

Name of the Department/Subject : Zoology	
Name of the Lecturer	: Dr. K.R.SHANMUGAM
Course/Group	: B.Sc- B.Z.C- Telugu Medium
Paper	: VI
Name of the Topic	Immunology, Antigen, antibodies
Hours required	10
Learning Objectives	Given
Previous knowledge to be reminded	Yes before starting the topic, ask the students about the previous information about the topic and then start the topic
Topic Synopsis	<ol style="list-style-type: none"> 1. Immunology : What is immunology and immunity 2. Antigen : Types, Properties, functions etc 3. Antibody : Types, Properties, functions etc 4. Importance of Immunity etc will be discussed
Examples/Illustrations	Giving the handouts, so the students now how the topic was discussed
Additional inputs	None
Teaching Aids used	Chalk piece, Black board, and giving the Handouts about the topic
References Cited	<ol style="list-style-type: none"> 1. A.P. Academy Book 2. Source from Internet
Student Activity Planned after the teaching	Conducted Exam
Activity planned outside the Class room, if any	None
Any other activity	None

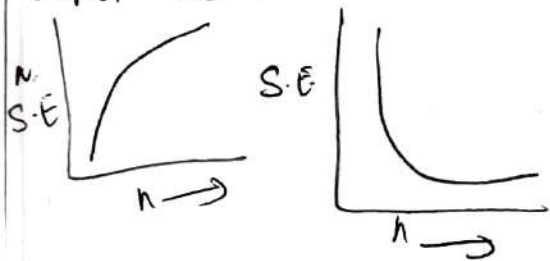



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Commissionerate of Collegiate Education, A.P.
PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Sampling theory
Hours required	25
Learning Objectives	Sampling Design
Previous knowledge to be reminded	Exact Sample theory
Topic Synopsis ISRA Errors Sampling Error If all the items of the POP are inspected and data regarding the POP characteristic is obtained we expect no error at all	Non Sampling Error :- 1) Specification Error 2) Ascertainment Error 3) Analysis Error. Steps in Sample Survey :- 1) Specification of the objective 2) Definition of the POP to be sampled 3) Des. of sample unit
Examples/Illustrations	POP in India, census
Additional inputs	MCA
Teaching Aids used	Black Board, calculator
References cited	Telugu Academy Applied Statistics
Student Activity planned after the teaching	Doing more problems related to this topic
Activity planned outside the Class room, if any	
Any other activity	Doing survey




Lecturer


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Teaching Plan

Name of the Topic	Simple Random Sampling
Hours required	25
Learning Objectives	Types of prob. Sampling
Previous knowledge to be reminded	Sampling Design.
Topic Synopsis $E(\bar{y}) = \bar{Y}$ SRSWR or SRSWOR Sample mean $E(\bar{y}) = E\left(\frac{\sum y_i}{n}\right)$ $= \frac{1}{n} \sum E(y_i)$ Each way the prob. is same $E(\bar{y}) = \frac{1}{n} \times \sum y_i \times \frac{1}{n}$ $= \frac{1}{n} \sum \bar{Y} = \frac{n\bar{Y}}{n} = \bar{Y}$ $P(x) = \frac{1}{N}$ $P(y) = \frac{1}{N}$ $E(x) = \sum x P(x)$ $E(y) = \sum y P(y)$ $V(\bar{y})_{SRSWR} = \frac{\sigma^2}{n}$ $V(\bar{y}) = E(\bar{y} - E(\bar{y}))^2$ $= E(\bar{y} - \bar{Y})^2 = E\left(\frac{\sum y_i}{n} - \bar{Y}\right)^2$ $= \frac{1}{n^2} \left(\sum E(y_i - \bar{Y})^2 \right)$ $= \frac{1}{n^2} \sum_{i=1}^n (y_i - \bar{Y})^2 \times \frac{1}{n}$ $= \frac{1}{n^2} \sum_{i=1}^n \sigma^2 = \frac{\sigma^2 + \sigma^2 + \dots}{n}$ $= n\sigma^2 / n = \sigma^2$ $V(\bar{y})_{SRSWR} = \frac{\sigma^2}{n}$	
Examples/Illustrations	Sample Surveys
Additional inputs	MCA
Teaching Aids used	Black Board & Calculators
References cited	Applied Statistics by SC Gupta
Student Activity planned after the teaching	Home Derivation Related
Activity planned outside the Class room, if any	to this topic
Any other activity	UBA Survey


Lecturer


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Teaching Plan

Name of the Topic	Stratified Random Sampling
Hours required	25
Learning Objectives	Heterogeneous Pop
Previous knowledge to be reminded	Sampling Error
Topic Synopsis	$E(\bar{y}_{st}) = \bar{Y}_{st}$ $\bar{y}_{st} = \frac{\sum N_h \bar{y}_h}{N} \Rightarrow$ $E(\bar{y}_{st}) = E\left(\frac{\sum N_h \bar{y}_h}{N}\right)$ $= \frac{1}{N} \sum N_h E(\bar{y}_h)$ $= \frac{1}{N} \sum N_h \bar{Y}_h = \bar{Y}_{st}$ <p>hence proved.</p> <p>Problem of Allocation: - Proportional & Optimum Allocation.</p>
Examples/Illustrations	Stratified Random Sampling
Additional inputs	Derivation M.C.Q
Teaching Aids used	calculator, Black Board
References cited	Applied Statistics By S. Gupta
Student Activity planned after the teaching	Design More Derivation
Activity planned outside the Class room, if any	Related to this topic
Any other activity	


Lecturer



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Teaching Plan

Name of the Topic	Systematic Sampling
Hours required	25
Learning Objectives	Sys Sampling
Previous knowledge to be reminded	SRS method.
Topic Synopsis	$S.T. E(\bar{Y}_{sys}) = \bar{Y}_{..}$ $= \frac{1}{k} \sum_{i=1}^k (\bar{Y}_{i.} - \bar{Y}_{..})^2$ $\bar{Y}_{..} = \frac{1}{N} \sum \sum Y_{ij} = \frac{1}{nk} \sum \bar{Y}_{i.}$ $S^2 = \frac{1}{N-1} \sum \sum (Y_{ij} - \bar{Y}_{..})^2$ $(N-1)S^2 = \sum \sum (Y_{ij} - \bar{Y}_{i.} + \bar{Y}_{i.} - \bar{Y}_{..})^2$ $(N-1)S^2 = \sum \sum (Y_{ij} - \bar{Y}_{i.})^2 + \sum \sum (\bar{Y}_{i.} - \bar{Y}_{..})^2$ $k(n-1)S^2_{wsj} + nkV(\bar{Y}_{sys})$ $V(\bar{Y}_{sys}) = \frac{N-1}{N} S^2 = \frac{k(n-1)}{N} S^2_{wsj}$ $V(\bar{Y}_{i.}) = V(\bar{Y}_{i.}) = E(Y_{i.} - E(Y_{i.}))^2$
Examples/Illustrations	Sys Sampling Derivation
Additional inputs	MCA
Teaching Aids used	Black Board, Calculator
References cited	Applied Statistics
Student Activity planned after the teaching	Deriv Derivation &
Activity planned outside the Class room, if any	problems related to
Any other activity	today topic


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Teaching Plan

Name of the Topic	Analysis of variance
Hours required	25
Learning Objectives	Agricultural Expt.
Previous knowledge to be reminded	Testory of significance
Topic Synopsis ANOVA is the separation of variation attributable to <u>one</u> from another (1) one way with equal replication (2) one way with unequal replication 3) Two way classification $TSS = \sum y_{ij}^2 - \frac{G^2}{nk}$ $RSS = \sum R_i^2 - \frac{G^2}{k}$ $TSS = ESS + RSS + CSS$ $MERS = \frac{RSS}{h-1}, MESS = \frac{CSS}{k-1}$ $MESS = \frac{ESS}{(h-1)(k-1)}$ $F_{ER} = \frac{MERS}{MESS}, f_{ER} = \frac{MERS}{MESS}$ $F_{ER} = F_{(h-1, (h-1)(k-1)}$ $F_{ER} = F_{(k-1, (h-1)(k-1)}$ $F_{ER} > F_{ER}, f_{ER} > f_{ER} \text{ we reject } H_0 \text{ for } H_1$	
Examples/Illustrations	Agri problems
Additional inputs	MCG
Teaching Aids used	calculator, Black Board
References cited	Applied statistics
Student Activity planned after the teaching	Doing more problems
Activity planned outside the Class room, if any	related to this topic
Any other activity	


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Teaching Plan

Name of the Topic	Design of experiment																									
Hours required	25																									
Learning Objectives	Research Design																									
Previous knowledge to be reminded	Adv																									
Topic Synopsis	<p>① possible of Experimentation ② Local control ③ Randomization ④ Local control CRD, RBD, LSD oneway local control:-</p> <table border="1" style="margin-left: 20px;"> <tr><td>A</td><td>B</td><td>C</td></tr> <tr><td>A</td><td>C</td><td>B</td></tr> <tr><td>C</td><td>B</td><td>A</td></tr> </table> <p>2 way local control:-</p> <table border="1" style="margin-left: 20px;"> <tr><td>A</td><td>B</td><td>C</td><td>D</td></tr> <tr><td>B</td><td>C</td><td>D</td><td>A</td></tr> <tr><td>C</td><td>D</td><td>A</td><td>B</td></tr> <tr><td>D</td><td>A</td><td>B</td><td>C</td></tr> </table> <p>Missing plot techniques:-</p> <p>① RBD $\bar{y} = \frac{hR\bar{p} + kG\bar{q} - 2G}{(h-1)(k-1)}$</p> <p>② LSD = $\bar{y} = \frac{kR\bar{p} + G\bar{q} + \bar{r}\bar{s}}{(k-1)(k-2)}$</p>	A	B	C	A	C	B	C	B	A	A	B	C	D	B	C	D	A	C	D	A	B	D	A	B	C
A	B	C																								
A	C	B																								
C	B	A																								
A	B	C	D																							
B	C	D	A																							
C	D	A	B																							
D	A	B	C																							
Examples/Illustrations	Design problems																									
Additional inputs	M.C.Q																									
Teaching Aids used	Black Board & calculator																									
References cited	Applied statistics																									
Student Activity planned after the teaching	Design more problems																									
Activity planned outside the Class room, if any	related to this topic																									
Any other activity																										


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PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Statistical Quality Control
Hours required	25
Learning Objectives	Normal Distn
Previous knowledge to be reminded	Area property
Topic Synopsis	<p>The main Purpose of SQC is to decrease the variation which helps us to produce quality items with less variation.</p> <p>Role of ND in SQC :-</p> <p>$P(\mu - \sigma < X < \mu + \sigma) = 0.6826$</p> <p>$P(\mu - 2\sigma < X < \mu + 2\sigma) = 0.9544$</p> <p>$P(\mu - 3\sigma < X < \mu + 3\sigma) = 0.9973$</p> <p>The above property proved that atleast 77.75% of the values lies b/w $\mu \pm 3\sigma$ limits with respect to N.D.</p> <p><u>Control chart</u> :-</p> <p>UCL = Upper Control Limit LCL = Lower Control Limit CL = Control Line</p>
Examples/Illustrations	Discrete and Continuous Item
Additional inputs	MCA
Teaching Aids used	Black Board and calculator
References cited	Applied Statistics
Student Activity planned after the teaching	Doing problems related to this topic
Activity planned outside the Class room, if any	
Any other activity	



Lecturer


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PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan

Name of the Topic	Acceptance Sampling plan
Hours required	25
Learning Objectives	80 LTPD, OC curve
Previous knowledge to be reminded	S&C
Topic Synopsis	<p>LTPD - It is denoted as high defect level that would be unacceptable to the customer and it is denoted by P_t. The customer is not willing to accept lots having proportion defective P_t or greater. $100P_t$ is called lot tolerance percent defective. This is the quality level with the consumer regard as satisfactory quality level (SQC).</p> <p>A very outgoing quantity is when sampling is testing in non destructive, 100 inspect rejected lots and replaced all defectives with good units. All rejected lots are made perfect and only defects lots are these lots that were accepted. The fraction defective of the lot after inspection is known as outgoing quality. The expected fraction defective remaining in the lot after the application of the sampling inspection.</p>
Examples/Illustrations	
Additional inputs	MLC
Teaching Aids used	Black Board
References cited	Applied Statistics
Student Activity planned after the teaching	Dorny problems related to this topic
Activity planned outside the Class room, if any	
Any other activity	


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Teaching Plan

Name of the Topic	Sampling Plans
Hours required	25
Learning Objectives	Sampling Plan - Single & Double
Previous knowledge to be reminded	Acceptance Sampling
Topic Synopsis	<p>Single Sampling Plan: $P(d \geq P) = \sum_{d=0}^c NP_c^d \bar{P}^{n-d}$</p> <p>$P_a = P(d \geq c) = \sum_{d=c}^n P(d, P)$</p> <p>$P_c = \sum_{d=0}^c nC_d P^d (1-P)^{n-d}$</p> <p>$P_p = 1 - \sum_{d=0}^c P(d, P)$</p> <p>$= 1 - \sum_{d=0}^c nC_d P^d (1-P)^{n-d}$</p> <p>$P(d) = \frac{n!}{d!(n-d)!} P^d \bar{P}^{n-d}$</p> <p>$P_a = \sum_{d=c}^n \frac{n!}{d!(n-d)!} P^d \bar{P}^{n-d}$</p>
Examples/Illustrations	Example and derivation
Additional inputs	MCA
Teaching Aids used	Black Board
References cited	Applied Statistics
Student Activity planned after the teaching	Do more problems
Activity planned outside the Class room, if any	related to this topic
Any other activity	


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Teaching Plan

Name of the Topic	
Hours required	
Learning Objectives	
Previous knowledge to be reminded	
Topic Synopsis	<p>α - curve</p> <p>ASSP: - $P_a = \sum_{d=0}^c (NP_{cd}) (N - NP_e)^{n-d}$</p> <p style="margin-left: 150px;">$\xrightarrow{Nc_n}$</p> <p>Using BD $= \sum_{d=0}^c n c_d p^d (1-p)^{n-d}$</p> <p>Using PP $= \sum_{d=0}^c \frac{e^{-np} p^d}{d!}$</p> <p>ASN: - for a SSP the ASN is the no of items inspected from</p> <p>each and lot (n) then</p> <p>ASN = n</p> <p>Double Sampling Plan -</p> <p>DSP was invented by Dodge & Romig the results of fixed sample are not conclusive with respect to accepting or rejecting.</p> <p>DSP: - $P_a = \sum_{d=0}^c P(d_1) + \sum_{d=0}^{c_2-d} P(d_1) \cdot P(c_2/d_1)$</p>
Examples/Illustrations	Derivation
Additional inputs	MCC
Teaching Aids used	Black Board
References cited	Applied Statistics
Student Activity planned after the teaching	Do more Problems
Activity planned outside the Class room, if any	related to this topic
Any other activity	


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Teaching Plan

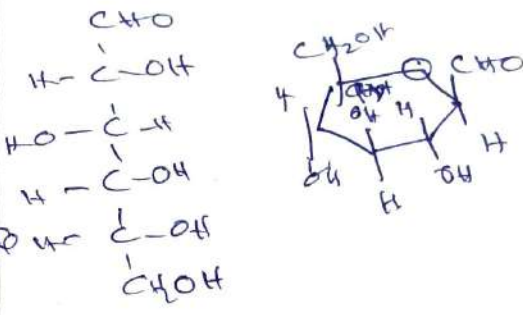
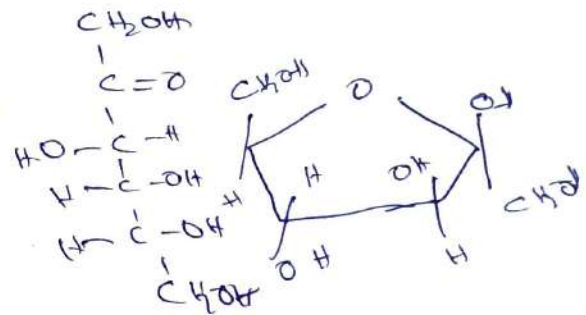
Name of the Topic	Reliability
Hours required	25
Learning Objectives	Reliable function
Previous knowledge to be reminded	OC Curve
Topic Synopsis	<p>Model A failure</p> <p>Initial failure: - whenever we are observing a large collection of units from operation. There are large no of failures initially the early failures are called initial failures</p> <p>Catastrophic failure: - These failures most are normally operating system to be unusable suddenly.</p> <p>They occur due to the sharp change in Parameters determining the Performance of the units.</p> <p>Hazard rate: - failure rate is defined as the ratio of the no of failures during a particular unit interval to the average pop during that interval it is denoted by λ</p> $\lambda(t) = \frac{f_i}{(n_i + n_{i+1})}$
Examples/Illustrations	Reliable Example
Additional inputs	toxic signals
Teaching Aids used	MCA Black Board
References cited	Applied Statistics
Student Activity planned after the teaching	Derivations related to λ
Activity planned outside the Class room, if any	OP in Memory temporarily
Any other activity	discussion


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Teaching Plan

Name of the Topic	Carbohydrates
Hours required	8h
Learning Objectives	To make the students understand the Chemistry of Carbohydrates
Previous knowledge to be reminded	Importance of carbohydrates
Topic Synopsis	<p>Evidence for cyclic structure of glucose - proof for the ring size pyranose & furanose.</p> <p>Structure - structure Evidence osazone formation</p> <p>Definition of anomers with eg.</p> <p>Interconversion of monosaccharides Aldopentose to Aldohexoses.</p> <p>glucose open chain</p>  <p>CH₂OH</p> 
Examples/Illustrations	illustrations
Additional inputs	Examination preparation teaching techniques
Teaching Aids used	Virtual labs, Text books, Notes
References cited	Text book of organic chemistry I.L. FINAR
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	Models preparation

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Teaching Plan

Name of the Topic	Amino acids and proteins
Hours required	7
Learning Objectives	To make the students understand the structures of Amino acids.
Previous knowledge to be reminded	General notion of Amino acids.
Topic Synopsis	<p>Definition, classification of Amino acids. preparation and properties of amino acids.</p> <p>General methods of Synthesis of α-amino acids. Zwitter ion and isoelectric point.</p> <p>St. and nomenclature of peptides and proteins</p>
Examples/Illustrations	Examples
Additional inputs	Notes
Teaching Aids used	Virtual Labs, Text books
References cited	Organic chemistry - OP Agarwal.
Student Activity planned after the teaching	Discussions
Activity planned outside the Class room, if any	Assignment
Any other activity	chart preparation


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Teaching Plan

of the Topic	Chemical kinetics
required	3h
ing Objectives	Importance of chemical kinetics in physical chemistry
ous knowledge to be reminded	Imp. of chemical kinetics, brief history
Synopsis	<p>Explanation order & molecularity.</p> <p>First order $k = \frac{1}{t} \ln \left(\frac{a}{a-x} \right)$</p> <p>Second order $k = (a-x) \times \frac{1}{t(a-a-x)}$</p> <p>Second order:</p> <p>Third order $k = \frac{1}{2(a-x)^2} - \frac{1}{2a^2}$</p> <p>Arrhenius equation</p> <p>Activation energy</p> <p>Arrhenius equation</p> $k = Ae^{-E_a/RT}$
amples/Illustrations	Examples
ditional inputs	Applications oriented examples
eaching Aids used	Virtual labs, Text books
ferences cited	Essential of physical chemistry, Bahadur & Tuli
tudent Activity planned after the teaching	Discussion
ctivity planned outside the Class room, if any	Assignment
Any other activity	problems solved.


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Teaching Plan

Name of the Topic	Heterocyclic compounds
Hours required	7h
Learning Objectives	To make the students understand the heterocyclic compounds
Previous knowledge to be reminded	Preparation of ammonia chlorophyll, Haemoglobin in biological system
Topic Synopsis	<p>Five membered compounds with one hetero atom Furan, Thiophene and pyrrole pyridine structure</p> <p>Preparation and properties of furan, thiophene and pyrrole Basic character and aromaticity Reactivity towards nucleophilic substitution reaction</p>
Examples/Illustrations	Examples
Additional inputs	Reference text books, notes
Teaching Aids used	Internet, ppt.
References cited	organic chemistry OP. Agarwal
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	Explain the N.S. reaction on blackboard


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Teaching Plan

Name of the Topic	Chemical kinetics
Hours required	8h.
Learning Objectives	Importance of chemical kinetics in physical chemistry
Previous knowledge to be reminded	Imp. of chemical kinetics brief history.
Topic Synopsis	<p>Explanation order & molecularity.</p> <p>First order $k = \frac{1}{t} \log \frac{a}{a-x}$</p> <p>Second order $k = (a-x) \times \frac{1}{t} \times \frac{x}{a(a-x)}$</p> <p>Third order $k = \frac{1}{2(a^2)t} - \frac{1}{2a^2}$</p> <p>Arrhenius equation</p> <p>Activation energy.</p>
Examples/Illustrations	Examples
Additional inputs	Application oriented examples
Teaching Aids used	Virtual labs, Text books
References cited	Essential of physical chemistry, Bahadur & Tuli
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	problems solved.


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Teaching Plan

Name of the Topic	Chemical kinetics
Hours required	3h
Learning Objectives	Importance of chemical kinetics in physical chemistry
Previous knowledge to be reminded	Imp. of chemical kinetics briefly history
Topic Synopsis	<p>Explanation order & molecularity.</p> <p>First order $k = \frac{1}{t} \ln \frac{a}{a-x}$</p> <p>Second order $k = (a-x) \times \frac{x}{t(a-x)}$</p> <p>Second order: Third order $k = \frac{1}{2at^2} - \frac{1}{2a^2t}$</p> <p>Arrhenius equation Activation energy</p> <p>Arrhenius equation $k = Ae^{-E_a/RT}$</p>
Examples/Illustrations	Examples
Additional inputs	Application oriented examples
Teaching Aids used	Virtual labs, Text books
References cited	Essential of physical chemistry, Bahadur & Tuli
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	problems solved.


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Teaching Plan**

Name of the Topic	photo chemistry
Hours required	5h
Learning Objectives	To make the students understand the photochemistry
Previous knowledge to be reminded	Introduction to Amino acids.
Topic Synopsis	<p>photochemistry 1st law and 2nd law</p> <p>Difference between thermal and photochemical process. Laws of photochemistry</p> <p>Quantum yield.</p> <p>Explanation of quantum yield</p> <p>Qualitative description of fluorescence, phosphorescence</p> <p>photosensitized reactions</p>
Examples/Illustrations	Examples
Additional inputs	Application oriented examples
Teaching Aids used	Virtual labs, Text books
References cited	Text book of physical chemistry OR Agarwal
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	—


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Teaching Plan**

Name of the Topic	Reactivity of metal complexes
Hours required	2h
Learning Objectives	To make the student understand about metal complexes
Previous knowledge to be reminded	Recollect the knowledge of co-ordinate compounds.
Topic Synopsis	<p>→ Labile and inert complexes, Applications of Trans effect</p> <p>→ Ligand Substitution reaction</p> <p>→ S_N2 and S_N1 reactions</p> <p>→ Substitution reactions of square planar</p> <p>Trans effect</p>
Examples/Illustrations	Examples
Additional inputs	Examination preparation technique,
Teaching Aids used	Visual lab, Text books
References cited	Inorganic chemistry - Puri & Shrivastava
Student Activity planned after the teaching	Discussion.
Activity planned outside the Class room, if any	Assignment
Any other activity	Ppt explanation (S_N1 & S_N2)

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Teaching Plan

Name of the Topic	Bioinorganic Chemistry
Hours required	4h
Learning Objectives	To make the students Biological importance of metals in life
Previous knowledge to be reminded	Explanation and importance of Biochemistry
Topic Synopsis	<p>Essential element, Biological importance of Sodium, Potassium, Magnesium, Calcium Iron, Co, Ni, Cu, Zn and Cl^-</p> <p>Structure and Functions of haemoglobin, myoglobin and chlorophyll.</p>
Examples/Illustrations	Examples
Additional inputs	Notes
Teaching Aids used	Virtual labs, Text books
References cited	Inorganic chemistry - Purcell & Shriver
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	Assignment
Any other activity	


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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. VENKATA RAMANARAO
Course/Group	BA. (HEP)
Paper	paper - I (Ancient Indian History & Culture)
Name of the topic	Survey of Sources in India
Hours Required	2 hrs
Learning Objectives	Students understand Indian Conditions in Ancient Society
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Archaeological Sources - Coins - Inscriptions - Monuments - Caves - Hill areas - Mirrors
Examples / Illustrations	- Nishka coin
Additional Inputs	video clippings
Teaching Aids Used	charts, Maps
References Cited	Telugu Academy, A.L. Bhashambabu
Student Activity planned after the Teaching	Quiz
Activity planned outside the class	Students prepare coins chart
Any Other activity	

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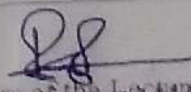
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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BA (HED)
Paper	paper - I
Name of the topic	Influence of Geography on History
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Himalayas, Sivalik - Lakes, Sanbar, pulicott - Everest mount - Beaches - Desert - Forest
Examples / Illustrations	Kollerulak
Additional Inputs	ch
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BACHELOR
Paper	paper-I
Name of the topic	Unity in Diversity
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - V.A. Smith - Composite culture - Hindu, muslim, Christians etc.... - Geographical conditions -
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	B.A (HED)
Paper	Paper-I
Name of the topic	Traces of Stone age cultures
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - polio Lithic Age - Mesolithic Age - Neolithic Age - Metal Age etc....
Examples / Illustrations	pot making,
Additional Inputs	
Teaching Aids Used	charts / maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BACHELOR
Paper	paper-1
Name of the topic	Indus valley civilization
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - Salient features - Political Conditions - Social Conditions - Religious Conditions - Economical Conditions - Downfall
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts / maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BA CHEP
Paper	paper - I
Name of the topic	Vedic Age
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Rigvedic culture - Social Conditions - Economical Conditions - political Conditions Later Vedic culture - Social, Economic, political Conditions
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BA CHED
Paper	paper - I
Name of the topic	Jainism
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - R. Shabavath - Vardhamana Mahaveera - Spread of Jainism - Teachings of Mahaveera
Examples / Illustrations	charts/maps
Additional Inputs	
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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Name of the Dept/ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	B.A. (H.E.P.)
Paper	Paper - 3
Name of the topic	Buddhism
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Life History of Budha - Teachings of Budha - Ramification of Buddhism - Buddhism in South East Asian Countries - Development of Buddhist Literature
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	Charts / Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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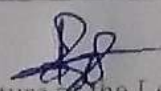
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PROFORMA FOR TEACHING PLAN

Name of the Dept/ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BA (HED)
Paper	Paper - I
Name of the topic	India in 6 th Century B.C
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Magadha dynasty - Bimbisara - Ajata Sattu - Mahajanapadas - Rise of Mahajanapadas
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts / Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BA CHEP
Paper	Paper- I
Name of the topic	Macedonian Invasions
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Alexander Invasions - Mauryan Empire - Life of Asoka - Asokas Dhamma
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts / Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	BACHELOR
Paper	Paper - I
Name of the topic	Kushans, The Age of Satavahanas
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Kushans - Kaniska - life history - Gandhara Art - The Age of Satavahanas - Satavahanas Administration
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	
Paper	
Name of the topic	Sangam Age
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - Tamil literature - The three Early Kingdoms (Chola, Chera, Pandya) - Society, Language, literature -
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	HISTORY
Name of the Lecturer	M. Venkatarajamanna Rao
Course/Group	BACHELOR
Paper	Paper-I
Name of the topic	India Between 300AD - 600AD
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - The Rise of Gupta's - Administration, Society, Economy, Religion, Art, Literature - Science & Technology - Decline of Gupta's
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts/Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	B.A (HEP)
Paper	Paper - II
Name of the topic	Harsha Vardhana
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - Harsha vardhana life History - Literature - Administration - Maha moksha parishats - Hiuen Tsang
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts / Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkatar Ramana Rao
Course/Group	B.A. (HEP)
Paper	paper - II
Name of the topic	Badami Chalukyas
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) <ul style="list-style-type: none"> - Badami / Vatapi importance - pulakesi - II - Ist pulakesi - Administration - polity, Economy - Narmada river war
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts / maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

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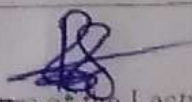
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PROFORMA FOR TEACHING PLAN

Name of the Dept./ Subject	History
Name of the Lecturer	M. Venkata Ramana Rao
Course/Group	B.A. (HEP)
Paper	paper - II
Name of the topic	Eastern Chalukyas
Hours Required	
Learning Objectives	
Previous Knowledge to be Reminded	
Topic Synopsis	(Continue on the reverse side if needed) - Kubja Vishnu Vardhana - Raja Raja Narendra - Nannayya - Andhra Mahabharatam - polity, Economy, Administration
Examples / Illustrations	
Additional Inputs	
Teaching Aids Used	charts/Maps
References Cited	
Student Activity planned after the Teaching	
Activity planned outside the class	
Any Other activity	

B. & -
 PRINCIPAL
 PRR & VS GOVT. COLLEGE
 VIDAVALUR - 524318
 SPSR NELLORE DT


 M. Venkata Ramana Rao
 Lecturer in History
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 Teaching Plan

I B.Com
 Sub Title: Information technology

Name of the Topic	Computer definition & characteristics
Hours required	6
Learning Objectives	learning basic block diagram
Previous knowledge to be reminded	Remainding applications of computer
Topic Synopsis	<p>Computer definition, characteristics, limitations, block diagram, applications.</p> <p>Explaining basic Computer block diagram Computer contains 5 functional units namely CPU, memory, input, output etc.</p>
Examples/Illustrations	Demo with desktop computer
Additional inputs	
Teaching Aids used	Black board
References cited	-
Student Activity planned after the teaching	Drawing block diagram in a chart
Activity planned outside the Class room, if any	
Any other activity	

Sankar V
 Lecturer

Sankar V
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Teaching Plan

Name of the Topic	Generations of Computer
Hours required	2
Learning Objectives	History of Computer, Evaluation
Previous knowledge to be reminded	Computer block diagrams
Topic Synopsis	<p>Generations of computers, Classification of computers</p> <p>there are 5 generations of computer starting from vacuum tubes. Now we are in 'Artificial Intelligence' generation.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	Discussion
Activity planned outside the Class room, if any	—
Any other activity	—

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Name of the Topic	Input devices & output devices
Hours required	04
Learning Objectives	learning various I/O devices
Previous knowledge to be reminded	remembering I/O functionalities
Topic Synopsis Input devices, output devices, storage devices	various input devices are keyboard, mouse etc various output devices are monitors, printer, plotter etc.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	demo in the laboratory black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

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 Teaching Plan**

Name of the Topic	Input devices & output devices
Hours required	04
Learning Objectives	learning various I/O devices
Previous knowledge to be reminded	remembering I/O functionality
Topic Synopsis	<p>Input devices, output devices, storage devices</p> <p>Various input devices are keyboard, mouse etc Various output devices are monitors, printer, plotter etc.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	Demo in the laboratory black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

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 Teaching Plan

Unit - II

Name of the Topic	MEMORIES
Hours required	04
Learning Objectives	
Previous knowledge to be reminded	Different memories in computer memory unit - functionality
Topic Synopsis	<p>primary memory, secondary memory, cache memory.</p> <p>memory is the storage place for data. the memory directly connected with CPU is primary memory. secondary memory is additional memory used for backups.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

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Teaching Plan**

Name of the Topic	Types of softwares
Hours required	04
Learning Objectives	Different types of softwares
Previous knowledge to be reminded	Program definition
Topic Synopsis Application software, Commercial software, System software-etc	The set of programs are called as software → the software that controls overall system operations is system software. → the sw that the user works with is called application sw Ex MS office.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Ganesh V
Lecturer

Ganesh V
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 Teaching Plan**

Name of the Topic	Programming Languages
Hours required	04
Learning Objectives	
Previous knowledge to be reminded	Different development in programming languages
Topic Synopsis	<p>generations of programming languages.</p> <p>what is a programming language? → procedure oriented languages and object oriented language & features.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

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 Teaching Plan**

Name of the Topic	Unit - III
Hours required	Features of MS word 03
Learning Objectives	
Previous knowledge to be reminded	Different features of MS word
Topic Synopsis	MS word window component. Creating, saving and operating documents.
	MS word is an application for text formatting and documentation. We can create and manipulate using MS word and create documents in MS word.
Examples/ Illustrations	---
Additional inputs	---
Teaching Aids used	---
References cited	black board
Student Activity planned after the teaching	---
Activity planned outside the Class room, if any	---
Any other activity	---

[Signature]
Lecturer

[Signature]
Department VC

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 Teaching Plan**

Name of the Topic	Formatting and Editing Text
Hours required	03
Learning Objectives	
Previous knowledge to be reminded	manipulating text in MSword
Topic Synopsis	<p>Paragraph formatting. Copying and moving text. Header and footer.</p> <p>we can change the color, size of font in the text → we can move, copy and paste the text in other documents using MS-word commands.</p>
Examples/Illustrations	Demo
Additional inputs	
Teaching Aids used	black board
References cited	
Student Activity planned after the teaching	
Activity planned outside the Class room, if any	
Any other activity	

Sankar V
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 Teaching Plan

Name of the Topic	working with tables
Hours required	03
Learning Objectives	Creating tables in MSword
Previous knowledge to be reminded	MS word features
Topic Synopsis	<p>Inserting tables, Inserting and deleting rows and columns.</p> <p>we can insert tables in word document. we can enter text in the rows and columns of the table.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	Black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Santhosh V
Lecturer

Santhosh V
Department I/C

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 Teaching Plan**

Name of the Topic	working with graphics
Hours required	03
Learning Objectives	Inserting pictures in document
Previous knowledge to be reminded	MS word features.
Topic Synopsis	<p>Inserting pictures, Inserting shapes, mail merging, printing documents</p> <p>→ we can insert various kinds of shapes in MS word document. → we can print the documents. → we can merge different addresses with the mails in MS word.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Other activity	—

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Sankar V
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 Teaching Plan**

Unit-IV

Name of the Topic	MS-Excel work sheet basics
Hours required	06
Learning Objectives	MS excel features
Previous knowledge to be reminded	MS office applications.
Topic Synopsis	<p>we can create database for accounts in MS-excel.</p> <p>- we can use different formulas and functions on the data saved in the tables.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

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Lecturer

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 Teaching Plan

Name of the Topic	ms - power point
Hours required	06
Learning Objectives	features of MS power point
Previous knowledge to be reminded	MS-office applications
Topic Synopsis	<p>we can present data in the slides using MS-power point</p> <p>- we can add different effects such as audio, animation to the slides.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board & demo
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sanku V
Lecturer

Sanku V
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 Teaching Plan

II B Com

Name of the Topic	Introduction to C Language
Hours required	07
Learning Objectives	
Previous knowledge to be reminded	features of C language
Topic Synopsis	<p>structure of C program data types in C Tokens in C Language sample C programs</p> <p>Program is a set of instructions. C programming Language developed to write system programming by Dennis Ritchie. C Language contains certain data types and keywords thru which we can construct a program.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

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Teaching Plan

Name of the Topic:	operators & loops in C
Hours required	12
Learning Objectives	learning operators in C
Previous knowledge to be reminded	keywords, mathematical functions
Topic Synopsis	<p>Different operators in C</p> <p>- control structures in C language</p> <p>there are certain types of operators thru which we can do arithmetic and logical functions.</p> <p>C language contains repeated structures called loops, <u>Ex</u> For loop, while loop, do-while, etc.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

Sankar V
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 Teaching Plan**

Name of the Topic	oops features in C++
Hours required	18
Learning Objectives	
Previous knowledge to be reminded	learning object oriented language
Topic Synopsis	Programming constructs
Difference between object-oriented features and procedure oriented features.	C++ follows object oriented methodology. It implements operator overloading, inheritance, classes, objects and message passing etc.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

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 Teaching Plan

Name of the Topic	Constructors & Inheritance
Hours required	12
Learning Objectives	
Previous knowledge to be reminded	Creating new classes from existing classes
Topic Synopsis	<p>→ Constructors and destructor methods</p> <p>→ Inheritance concept and types of Inheritance</p> <p>A constructor is a method which has same name as class name and used for initialization purpose.</p> <p>Inheritance is the concept in which subclass is derived from superclass. It is also called reusability.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sanku V
Lecturer

Sanku V
Department IC

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 Teaching Plan**

III BCOM

Name of the Topic	Features of Java
Hours required	12
Learning Objectives	Learning about Java language
Previous knowledge to be reminded	oops features
Topic Synopsis	<p>→ Characteristics of Java language.</p> <p>→ How Java implements oops features.</p> <p>Java developed by Sun micro systems for internet programming. Java is pure object oriented language and platform independent.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

Sankar V
Department I/C

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 Teaching Plan**

Name of the Topic	classes and objects in Java
Hours required	06
Learning Objectives	Creating objects
Previous knowledge to be reminded	oop. features
Topic Synopsis	<ul style="list-style-type: none"> - Abstract data types as class - Creating object and defining methods <ul style="list-style-type: none"> → class is a user defined abstract construct which contain data-members and member functions → class can contain any no. of objects. → object is an instance or run time entity of the class.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

Sankar V
Department I/C

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 Teaching Plan**

Name of the Topic	Control Structures in Java
Hours required	06
Learning Objectives	
Previous knowledge to be reminded	Loops in Java Language Java features
Topic Synopsis	<ul style="list-style-type: none"> - Data types in Java - For loop - while loop - do while loop - switch statement <ul style="list-style-type: none"> - Flow of control can be determined based on condition or unconditionally in Java using Control Structures. - They can be repeated statement such as for loop, while loop etc
Examples/Illustrations	
Additional inputs	
Teaching Aids used	black board
References cited	
Student Activity planned after the teaching	
Activity planned outside the Class room, if any	
Any other activity	

Sankar V
Lecturer

Sankar V
Department I/C

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Teaching Plan**

Name of the Topic	Inheritance in Java
Hours required	06
Learning Objectives	06
Previous knowledge to be reminded	Creating new subclasses features of Java
Topic Synopsis	<p>Inheritance</p> <ul style="list-style-type: none"> - Types of Inheritance - single " - multiple " - multi level " - Hybrid " <p>Inheritance is the concept thru which new sub classes can be created by using already existing base class.</p> <ul style="list-style-type: none"> - This concept fulfills the O-O feature called reusability.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar V
Lecturer

Sankar V
Department I/C

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Teaching Plan

Name of the Topic	
Hours required	multi threading in java
Learning Objectives	ob
Previous knowledge to be reminded	Implementing multitasking features of Java
Topic Synopsis	<ul style="list-style-type: none"> - multitasking - multi programming - creating thread - thread life cycle <p>thread is small process which can run parallelly or simultaneously with other threads.</p> <ul style="list-style-type: none"> - multitasking can be achieved in java by creating threads and implementing thread life cycle.
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
Any other activity	—

Sankar
Lecturer

Sankar
Department I/C

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Teaching Plan**

Name of the Topic	Introduction to Internet
Hours required	06
Learning Objectives	Internet applications
Previous knowledge to be reminded	Advantages of Computer
Topic Synopsis <ul style="list-style-type: none"> - what is Internet - applications of Internet - how Internet works 	<p>Internet is a network of networks. several computers can be connected together to work parallelly.</p> <p>Internet is used to access data and resources from several computers.</p>
Examples/Illustrations	—
Additional inputs	—
Teaching Aids used	black board
References cited	—
Student Activity planned after the teaching	—
Activity planned outside the Class room, if any	—
any other activity	—

Sankar V
Lecturer

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 Teaching Plan

Name of the Topic	BASIC SYNTAX OF HTML
Hours required	12
Learning Objectives	
Previous knowledge to be reminded	HTML tags
Topic Synopsis	<p>Internet browsing</p> <p>Hyper text markup language is used to create web pages.</p> <p>Using different tags we can edit text and paragraphs.</p> <p>We can navigate thro the web pages using anchor tags.</p>
Examples/Illustrations	
Additional inputs	
Teaching Aids used	black board
References cited	
Student Activity planned after the teaching	
Activity planned outside the Class room, if any	
any other activity	

Sanki V
Lecturer

Sanki V
Department IC

Rudra S

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Teaching Plan

Name of the Topic	
Hours required	Refering Lists & Tables in class
Learning Objectives	ob
Previous knowledge to be reminded	Creating List & table in class
Topic Synopsis	<p> <ul style="list-style-type: none"> - creating Lists - type of Lists - creating table - Nesting of tables </p> <p>List is a collection of items. there are 2 types of lists namely ordered list and unordered list.</p> <p>A table is a collection of row and columns, we can create table using table tag in HTML.</p>
Examples/Illustrations	
Additional inputs	
Teaching Aids used	black board
References cited	
Student Activity planned after the teaching	
Activity planned outside the Class room, if any	
Any other activity	

Sanku W
Lecturer

Sanku W
Department VC

B. S. S.
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Teaching Plan

Name of the Topic	Form 2 Creating Style sheet
Hours required	06
Learning Objectives	Creating form in MS Word
Previous knowledge to be reminded	Form 1 MS Word
Topic Synopsis	<p>→ A form is application which contains text boxes, radio buttons, check boxes etc</p> <p>→ we can send data to the server using this form in MS Word</p> <p>→ Creating style sheet is user defined style to look more decorative</p>
Diagram/Illustration	
Visual inputs	
Key skills used	Hand word
Resources used	
Activity planned after the teaching	
Activity planned outside the Class room, if any	
Home activity	

[Signature]
 Date

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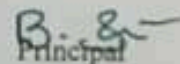
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 Teaching Plan

Name of the Topic	Concepts of Business - Trade, Industry and Commerce.
Hours required	14
Learning Objectives	Features, objectives classification
Previous knowledge to be reminded	Intermediate, and Experiences.
Topic Synopsis	<p>→ Definition & Concepts of Business.</p> <p>→ Features of Business.</p> <p>→ Objectives of Business.</p> <p style="margin-left: 20px;">a) Economic objectives</p> <p style="margin-left: 20px;">b) Social Objectives</p> <p style="margin-left: 20px;">c) Human Objectives.</p> <p>→ Classification of Business Activities.</p> <p style="margin-left: 20px;">a) Industry meaning & types</p> <p style="margin-left: 20px;">b) Functions of Commerce.</p> <p style="margin-left: 20px;">c) Trade</p> <p style="margin-left: 20px;">d) Aids to Trade</p> <p>→ Relationship between Trade, Commerce and Industry.</p>
Examples/Illustrations	Teaching Explanation
Additional inputs	Preparation of charts.
Teaching Aids used	Preparation of Diagrams.
References cited	RK Sharma, Shashi K. Gupta, Rahul Sharma.
Student Activity planned after the teaching	Conducting Seminar, Quiz, Slip Test
Activity planned outside the Class room, if any	Def Government Business organisations at Sine. nearby the Town
Any other activity	


Lecturer

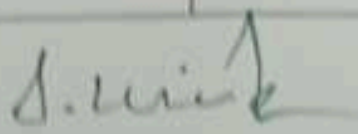

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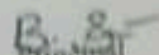

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 Teaching Plan

Name of the Topic	FORMATION OF ORGANISATIONAL
Hours required	08
Learning Objectives	Formations, Subdivisions, objectives
Previous knowledge to be reminded	Intermediate subjects
Topic Synopsis	<p>→ FORMS OF ORGANISATION</p> <p>→ FACTORS INFLUENCING CHOICE OF FORM OF ORGANISATIONS.</p> <p>→ Sole PROPRIETORSHIP Definitions, Features, Advantages Limitations & Sole Business. Suitability for sole business in India</p> <p>→ PARTNER SHIP FIRMS Meaning, Definition, Features Advantages and Limitations - Kind (Types) of partners - Advantages of Partnership - Disadvantages of Partnership</p> <p>→ Partnership Deed. → Contents.</p>
Examples/illustrations	Illustrations - Problem & Solution
Additional inputs	Net material
Teaching Aids used	charts
References cited	wikipedia
Student Activity planned after the teaching	
Activity planned outside the Class room, if any	visiting any organisation in Vidavalur & attain the motto
Any other activity	


Lecturer


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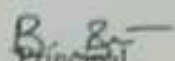

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Teaching Plan

Name of the Topic	JOINT STOCK COMPANY
Hours required	08
Learning Objectives	Identify, Features and Advantages & disadvantages
Previous knowledge to be reminded	Intermediate Accounting.
Topic Synopsis	<p>Concept, meaning of Joint Stock Company.</p> <ul style="list-style-type: none"> → Features of Joint Stock Company. → Kinds of Companies. → Advantages of Company. → Disadvantages of Company. → Difference between Public Company and Private Company.
Examples/Illustrations	Examples Teaching.
Additional inputs	Different names of stock companies in India
Teaching Aids used	Chart / PPT
References cited	Wikipedia / Text Book 2
Student Activity planned after the teaching	Conduct and Seminar, Quiz Test.
Activity planned outside the Class room, if any	Prepare chart of different stock companies
Any other activity	


Lecturer

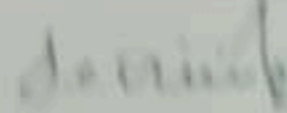

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University of Calicut, Kerala
Faculty of Education, K.P.
P.M. & V.S. Government College, Vithacatur, Malappuram Dist.
Teaching Plan

Name of the Topic	PERCENTAGE
Class taught	10 th
Lesson / Chapter	10
Previous knowledge to be assumed	
Topic Objectives	
<ul style="list-style-type: none"> 1. To understand the meaning of percentage 2. To convert a fraction into a percentage 3. To convert a decimal into a percentage 4. To convert a percentage into a fraction 5. To convert a percentage into a decimal 6. To find the percentage of a given number 7. To find the number when the percentage and the percentage of it are given 8. To find the percentage increase or decrease 	
<p>Examples Illustrations</p> <p>Additional topics</p> <p>Teaching Aids used</p> <p>References cited</p> <p>Student Activities planned after the teaching</p> <p>Exercises planned inside the Class room, if any</p> <p>Any other activities</p>	<p>Teaching:</p> <p>Relevant Company Formulas</p> <p>Charts and Examples</p> <p>eg. 10%, 20%, 30%, 40%</p> <p>Practical Examples</p> <p>Table 100, 1000, 10000, 100000</p>

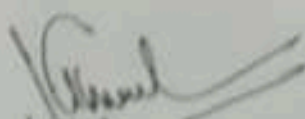

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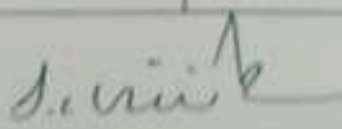

 Department IV


 Head

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, NPSR Nellore Dist
 Teaching Plan

Name of the Topic	Royalties
Hours required	Practical practice of 1 hour
Learning Objectives	Accounting process
Previous knowledge to be reminded	New practice
Topic Synopsis	<p>Definition, meaning of Royalties, Parties involved in the Royalties, Debit for lease and landlord.</p> <p>→ Accounting procedure of Royalties.</p> <p>→ problems and solutions in Royalties.</p> <p>University Ques P. Worked.</p>
Examples/Illustrations	Examples and illustrations
Additional inputs	Preparation of ledgers.
Teaching Aids used	Black Boards
References cited	SP Jain KL Narang & S. Agrawal
Student Activity planned after the teaching	Slip Test, Quiz, Seminar
Activity planned outside the Class room, if any	—
Any other activity	Awareness in practice.


 Lecturer

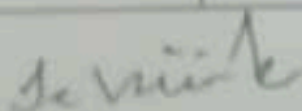

 Department I/C


 Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Single Entry Systems
Hours required	08
Learning Objectives	Meaning, Definition, Features
Previous knowledge to be reminded	Problem
Topic Synopsis	<p>Single Entry System meaning, Definition, Advantages, Limitations. Difference between Incomplete Records and Double Entry System. Problems and Solutions in Incomplete Records.</p>
Examples/Illustrations	Examples, Solutions.
Additional inputs	Not material
Teaching Aids used	Charts
References cited	CP Jain, Dr. Narayana. Simmi Agrawal
Student Activity planned after the teaching	Tests, Seminar.
Activity planned outside the Class room, if any	Visit of the Bank organization
Any other activity	Seminar


Lecturer

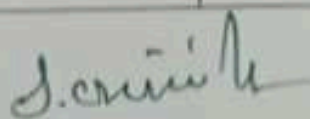

Department IC


Principal

**Commissionerate of Collegiate Education, A.P.
PRR & VS Government College, Vidavalur, SPSR Nellore Dist
Teaching Plan**

Name of the Topic	Self Balancing Ledger.
Hours required	10
Learning Objectives	Simple Solutions, in Big Organisations.
Previous knowledge to be reminded	-
Topic Synopsis	<p>→ Meaning of Self Balancing Ledger. need and uses of Self Balancing Ledger.</p> <p>→ preparation of General Ledger. → creditors Ledger. Debtors Ledger theory Notes given.</p> <p>Problems and Solutions worked.</p>
Examples/Illustrations	Examples and illustrations
Additional inputs	Awareness Programmes.
Teaching Aids used	Black Board, Digital Room.
References cited	SP Jain. KL Narayana S. Aravamudan
Student Activity planned after the teaching	Test, Seminars.
Activity planned outside the Class room, if any	-
Any other activity	-


Lecturer

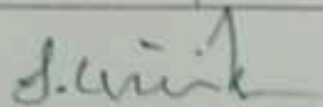

Department I/C


Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Partnership Firm Fundamentals
Hours required	04
Learning Objectives	Accounting Process.
Previous knowledge to be reminded	New Introduction
Topic Synopsis	
<p>→ Meaning and Definition of Partnership. Partnership Deed. Accounting Procedures Maintaining Capital Methods problems and solution in Capital Methods.</p> <p>→ Fixed Capital Method</p> <p>→ Fluctuating Capital Method.</p>	
Examples/Illustrations	Examples and illustrations
Additional inputs	Preparation of Budget.
Teaching Aids used	
References cited	SP. Sain. K. L. Narayana. S. Agrawal.
Student Activity planned after the teaching	Slip Test, Quiz, Seminar.
Activity planned outside the Class room, if any	Digital Room.
Any other activity	V.S.U. Q.P. Practice.

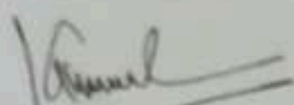

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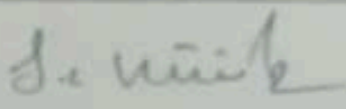

 Department I/C

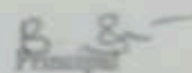

 Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Partnership Firm - Admission of a Partner.
Hours required	08
Learning Objectives	Need for Admission of a Partner.
Previous knowledge to be reminded	New Introduction.
Topic Synopsis	<p>Objective of Admission of a Partner.</p> <p>Goodwill Treatment in Admission of a Part- ner.</p> <p>Problems and Solution without Goodwill</p> <p>Problems and Solution with Goodwill.</p> <p>New Profit Ratio, Sorensen's Ratio with Problems and Solution.</p>
Examples/Illustrations	Examples & Illustrations
Additional inputs	Practicals & Chart.
Teaching Aids used	Hedger's preparations
References cited	SP Jain. & Narang & Agrawal
Student Activity planned after the teaching	SLIP Tests, Quiz and Seminars
Activity planned outside the Class room, if any	
Any other activity	VSV Q.P. practice


Lecturer

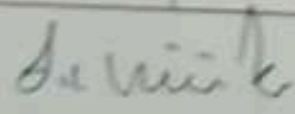

Department IC

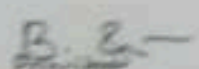

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Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vitanavuru, SPSR, Nellore Dist
 Teaching Plan

Name of the Topic	Partnership Firm
Hours required	to Partnership Firm
Learning Objectives	OR
Previous knowledge to be reminded	Reasons for Partnership Firm
Topic Synopsis	Reasons for Partnership Firm
Partnership Reasons for Partnership Firm part- ner. Calculation of Gaining Ratio. Accounting procedure preparation of ledger accounts and Balance Sheet problems and Solutions worked.	→ Not Retain the Good will → Retain the Good will
Examples/illustrations	Examples and Illustrations
Additional inputs	Preparation of ledgers
Teaching Aids used	Black Board
References cited	S.P. Jain, K.L. Narang and Principles of Accounts
Student Activity planned after the teaching	Conducted assignments
Activity planned outside the Class room, if any	Digital class room.
Any other activity	Practice Ex. 20 Q.P. Problems.

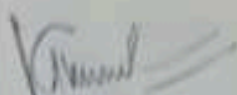

Lecturer

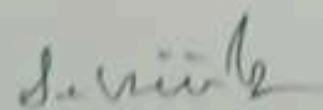

Department IC



Principal

Commissionerate of Collegiate Education, A.P.
 PRR & VS Government College, Vidavalur, SPSR Nellore Dist
 Teaching Plan

Name of the Topic	Accounting for Partner's Dispositions
Hours required	12
Learning Objectives	Read book for Dispositions Accounting Treatment Functions of Partnership
Previous knowledge to be reminded	Functions of Partnership
Topic Synopsis	<p>→ Dissolution of a Firm.</p> <p>→ Insolvent of a Partner.</p> <p>→ Garner v/s Murray</p> <p>→ Insolvent of all partners.</p>
Examples/Illustrations	Examples and illustrations
Additional inputs	V.S.U Q.P.
Teaching Aids used	Black Board.
References cited	Dr. Jain, K.L. Naray, Simmi Agrawal POTULSIAN.
Student Activity planned after the teaching	Test PPO, Seminars.
Activity planned outside the Class room, if any	Digital Room.
Any other activity	


Lecturer


Department I/C


Principal

Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	Cell theory and prokaryotic and eukaryotic cell
Hours Required	2
Learning Objectives	Distinguish prokaryotic and eukaryotic cells
Previous Knowledge to be reminded	Whittaker five kingdom classification.
Examples/Illustrations	Archaeobacteria , BGA
Additional Inputs	Animal cell
Teaching Aids Used	Black board, laptop, ppt
References Cited	1.Telugu Akademi - Botany 2. Cell biology by C.B. Power
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	Nil
Any other activity	Nil
Synopsis	
<p>Cell theory: proposed by schleiden and schwann</p> <ol style="list-style-type: none"> All organisms are made up of cells All metabolic activities takes place in cells Cells do not form spontaneously. Cells are formed from preexisting cells. <p>Prokaryotic cell:</p> <ol style="list-style-type: none"> Well defined nucleus and membrane bound cell organelle absent. Cell wall: made by peptidoglycan and mucopolymers. Cell membrane: mesosomes are respiratory structures and help in binary fission. 70 s ribosomes are present. Organized into polysomes. Naked DNA is present at nucleoid region. Plasmid is self-replicative additional DNA Flagella do not show 9+2 arrangement. Sex pili help in conjugation. Histones are absent. <p>Example: Bacteria, Cyanobacteria</p> <p>Eukaryotic cell:</p> <ol style="list-style-type: none"> Well defined nucleus and membrane bound cell organelle are present. Cell wall in plant cell made by cellulose and other substances and in fungi it is made by chitin. In animal cell no cell wall is absent. Cell organelle : <ol style="list-style-type: none"> Chloroplast: b)Mitochondria Endoplasmic reticulum: d) Golgi apparatus: Vacuole: f) Ribosomes: g) peroxysomes: h) glyoxysomes: i) cytoskeleton: Flagella if present show 9+2 arrangement. 	


Signature of the Lecturer


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Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	Ultra structure and functions of cell wall
Hours Required	3
Learning Objectives	Distinguish cell wall of different cells
Previous Knowledge to be reminded	Whittaker five kingdom classification.
Examples/illustrations	Archaeobacteria , BGA
Additional Inputs	Bacterial and fungal cell wall
Teaching Aids Used	Black board, laptop, ppt
References Cited	1.Telugu Akademi - Botany 2. Cell biology by C.B. Power
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	Drawing cell wall structure.
Any other activity	Nil
Synopsis	

Cell wall is outer most protective layer in plants but absent in animals.
Cell wall synthesized by protoplasm.

Cell wall structure:

1. **Middle lamella:** cement layer, made up of calcium and magnesium pectates.
- 2.
3. **Primary cell wall:** cellulose, hemicellulose, pectin and other polysaccharides. Elastic in nature.
4. **Secondary cell wall:** present in mature cells. Made up of lignin, suberin, pectin, tannins, wax etc. it has S1, S2, S3 layers.

Growth of cell wall:


1. Intussusception: micro fibrils filling the blanks of existing cell wall. Surface area increased.
2. Opposition: micro fibrils deposit on surface of existing cell wall. Thickness of wall increased.

Pits :

1. **Primary pits:** present in primary wall. Allow plasmadesmata through them.
2. **Secondary pits:** present in secondary wall. These are two types
 - a) Simple pits:
 - b) Bordered pits:


Functions:

1. Provide shape and protection.
2. Mechanical support to cell


Signature of the Lecturer


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Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	Structure and function of cell membrane
Hours Required	3
Learning Objectives	Distinguish prokaryotic and eukaryotic cells
Previous Knowledge to be reminded	Whittaker five kingdom classification.
Examples/illustrations	Archaeobacteria , BGA, plant and animal cell.
Additional Inputs	Nil
Teaching Aids Used	Black board, laptop, ppt
References Cited	1. Telugu Akademi - Botany 2. Cell biology by C.B. Power
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	Nil
Any other activity	Nil
Synopsis	<p>The membrane surrounding cytoplasm in all cells is called plasma membrane. It is made up proteins and lipids.</p> <p>Chemistry of membrane:</p> <ol style="list-style-type: none"> Made up of proteins and lipids. Present in 1: 0.8 to 1: 4. 75 A in thickness. Lipids: are phospholipids, glycolipids and sterols. Phospholipids are bipolar in nature having hydrophilic head made by phosphate and hydrophobic tail made by fatty acids. Phospholipids are lecithin, choline and cephalin. Glycolipids have sugar, fatty acids and spingosine. Sterols are present in animal cells. Proteins: 3 types 1. Structural 2. Functional- enzymes 3. Carrier proteins. Based on position 1. Extrinsic and 2. Intrinsic proteins. <p>Ultra structure of plasma membrane- models:</p> <ol style="list-style-type: none"> Lipid bilayer model: proposed by Gorter and Grendel. Daveson- Daniel model: Unit membrane model: proposed by Robertson. Fluid-mosai model: proposed by Singer and Nicolson. Micellar model: proposed by Hoffmann and Hilleir. <p>Functions:</p> <ol style="list-style-type: none"> compartmentalization Selectively permeable. Transport mechanism. Responding stimuli. Co-ordination.


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Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	Chromosomes
Hours Required	4
Learning Objectives	Distinguish prokaryotic and eukaryotic cells
Previous Knowledge to be reminded	Whittaker five kingdom classification.
Examples/illustrations	Archaeobacteria , BGA
Additional Inputs	Animal cell
Teaching Aids Used	Black board, laptop, ppt
References Cited	1.Telugu Akademi - Botany 2. Cell biology by C.B. Power 3. Genetics by B.D. Singh 4. Introduction to plant plant breeding by Chaudary
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	Nil
Any other activity	Nil
Synopsis	<p>1. Morphology:</p> <ol style="list-style-type: none"> Hereditary vehicles. Discovered by Hofmeister in Tradescantia. Haploid- 1 genome, diploid- 2 genomes, triploid- 3 genomes and so on. Chromosome covered by pellicle. Centromere or primary constriction: kinetochores Monocentric, dicentric, polycentric and acentric. Metacentric, sub-metacentric, acrocentric and telocentric Secondary constriction: Has genes of RNA production. Satellite: knob like structure after secondary constriction. Telomere: terminal part of chromosome and provide polarity to chromosome. <p>2. Organization DNA in a chromosome – Nucleosome concept:</p> <ol style="list-style-type: none"> Chromatin has 60% of proteins, 35% DNA and 5% RNA. Proteins are histones. Electron microscopic structure shows beaded like structures called nucleosomes. Nucleosome has core and DNA Histones are H1,H2,H3 and H4. Two copies of H2A, H2B, H3 and H4 form core (octamer) and H1 present in linker DNA. DNA coils by 2 turns around core and measures 146bp. Between nucleosomes linker DNA of 54bp is present. <p>3. Euchromatin and heterochromatin:</p> <ol style="list-style-type: none"> Euchromatin is uncondensed light coloured and active DNA. Heterochromatin is condensed thick coloured and inactive DNA.


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Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	DNA as genetic material.
Hours Required	4
Learning Objectives	Distinguish prokaryotic and eukaryotic cells
Previous Knowledge to be reminded	Whittaker five kingdom classification.
Examples/Illustrations	Archaeobacteria , BGA
Additional Inputs	Animal cell
Teaching Aids Used	Black board, laptop, ppt
References Cited	1.Telugu Akademi - Botany 2. Cell biology by C.B. Power
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	To prepare DNA models.
Any other activity	Nil
Synopsis	

Griffith Experiment & Transforming Principle

Frederick Griffith experiments were conducted with *Streptococcus pneumoniae*.

Two forms of bacteria 1. S- Strain with capsule and 2. R- Strain without capsule.

Experiment: Griffith injected both S and R strains to mice. The one which was infected with the S strain developed pneumonia and died while that infected with the R strain stayed alive.

In the second stage, Griffith heat-killed the S strain bacteria and injected into mice, but the mice stayed alive.

Then, he mixed the heat-killed S and live R strains. This mixture was injected into mice and they died. In addition, he found living S strain bacteria in dead mice.

Conclusion: Based on the observation, Griffith concluded that R strain bacteria had been transformed by S strain bacteria. The R strain inherited some 'transforming principle' from the heat-killed S strain bacteria.

DNA as Genetic Material

Griffith failed to explain the biochemistry of genetic material. A group of scientists, Oswald Avery, MacLeod and McCarty continued the Griffith experiment in search of biochemical nature of the hereditary material and found DNA as genetic material.

Avery and his team extracted and purified proteins, DNA, RNA and other biomolecules from the heat-killed S strain bacteria and by using proteases and RNases found that they didn't inhibit transformation but DNase did. They concluded DNA as genetic material.

Hershey-Chase Experiment

Hershey-Chase experiment was performed in 1952 to further confirm that DNA was the genetic material. They experimented with Bacteriophages

Bacteriophages were grown in two different mediums.

Some bacteriophages were grown in **radioactive phosphorus medium**. It was found that these Bacteriophages came up with **radioactive DNA**
Some bacteriophages were grown in **radioactive sulfur medium**. It was found that these Bacteriophages with **radioactive protein**.



Bacteriophages with Radioactive DNA were brought in contact with bacteria
Bacteria got infected
Agitated in a blender to separate phage particles from bacterial cells
Centrifugation leaves Phage particles as supernatant
Bacterial cells were found to be radioactive
No radioactivity was detected in the phage particles

Bacteriophages with Radioactive protein were brought in contact with bacteria
Bacteria got infected
Agitated in a blender to separate phage particles from bacterial cells
Centrifugation leaves Phage particles as supernatant
Phage particles were found to be radioactive
No radioactivity was detected in the bacterial cells
It was therefore concluded that it was not the proteins, rather DNA which entered into the bacteria. Therefore, DNA causes the replication of viruses inside the bacteria.

DNA was thus proved to be the genetic material.


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Name of the Department/Subject	BOTANY
Name of the Lecturer	P. SUDHAKAR
Course/Group	BZC
Paper	Cell Biology, Genetics and Plant breeding
Name of the Topic	DNA structure
Hours Required	2
Learning Objectives	Distinguish prokaryotic and eukaryotic cells
Previous Knowledge to be reminded	Biomolecules.
Examples/Illustrations	Nitrogen bases, pentose
Additional Inputs	Monosaccharaides.
Teaching Aids Used	Black board, laptop, ppt
References Cited	1.Telugu Akademi - Botany 2. Cell biology by C.B. Power
Student Activity Planned after teaching	Interaction, quiz , student seminars
Activities planned outside the class	To prepare DNA models.
Any other activity	Nil
Synopsis	

The DNA is a polymer of nucleotides. A nucleotide is made up nitrogen base, pentose sugar and phosphate group. Nitrogen base and pentose (deoxy-ribose) bound by glucosidic bond to form nucleoside which further bound to phosphate by phosphoester bond to form nucleotide.

The DNA molecule consists of 4 nitrogen bases, namely adenine (A), thymine (T), cytosine (C) and Guanine (G) which ultimately forms the structure of a nucleotide.

The A and G are purines and the C and T are pyrimidines.

Nucleotides connected by phosphodiester bonds to a DNA strand.

The two strands of DNA run in opposite directions. These strands are held together by the hydrogen bond that is present between the two complementary bases. The strands are helically twisted, where each strand forms a right-handed coil and ten nucleotides make up a single turn.

The pitch of each helix is 3.4 nm. Hence, the distance between two consecutive base pairs (i.e., hydrogen-bonded bases of the opposite strands) is 0.34 nm.


The DNA coils up, forming chromosomes, and each chromosome has a single molecule of DNA in it. Overall, human beings have around twenty-three pairs of chromosomes in the nucleus of cells. DNA also plays an essential role in the process of cell division.

Chargaff's Rule

Erwin Chargaff, a biochemist, discovered that the number of **nitrogenous bases in the DNA** was present in equal quantities. The amount of A is equal to T, whereas the amount of C is equal to G.

$$A=T; C=G$$

In all organisms should have a 1:1 ratio of purine and pyrimidine bases.


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