

S.V.R.K. Government Degree College, Nidadavole,
West Godavari District, Andhra Pradesh

Department of Botany

Course outcomes

CBCS / Semester System (w.e.f. 2020-21 Admitted Batch)

Of

**I Semester /Botany Core Course - 1
Fundamentals of Microbes and Non-vascular Plants**

**II Semester /Botany Core Course – 2
Basics of Vascular plants and Phytogeography
(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and
Phytogeography)**

**III Semester /Botany Core Course - 3
Anatomy and Embryology of Angiosperms, Plant Ecology and
Biodiversity**

**IV Semester/ Botany Core Course – 4
Plant Physiology and Metabolism**

And

**IV Semester / Botany Core Course –5
Cell Biology, Genetics and Plant Breeding**

I Semester /Botany Core Course - 1
Fundamentals of Microbes and Non-vascular Plants
(Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)

Theory:

Learning Outcomes:

On successful completion of this course, the students will be able to:

- Explain origin of life on the earth.
- Illustrate diversity among the viruses and prokaryotic organisms and can categorize them.
- Classify fungi, lichens, algae and bryophytes based on their structure, reproduction and life cycles.
- Analyse and ascertain the plant disease symptoms due to viruses, bacteria and fungi.
- Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.
- Evaluate the ecological and economic value of microbes, thallophytes and bryophytes.

Course Outcomes: (For Practical)

On successful completion of this practical course, student shall be able to;

- Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.
- Observe and identify microbes and lower groups of plants on their own.
- Demonstrate the techniques of inoculation, preparation of media etc.
- Identify the material in the permanent slides etc.

II Semester /Botany Core Course – 2
Basics of Vascular plants and Phytogeography
(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and
Phytogeography)

(Total hours of teaching – 60 @ 02 Hrs./Week)

Theory:

Learning Outcomes:

On successful completion of this course, the students will be able to:

- ✚ Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and life cycles.
- ✚ Justify evolutionary trends in tracheophytes to adapt for land habitat.
- ✚ Explain the process of fossilization and compare the characteristics of extinct and extant plants.
- ✚ Critically understand various taxonomical aids for identification of Angiosperms.
- ✚ Analyse the morphology of the most common Angiosperm plants of their localities and recognize their families.
- ✚ Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.
- ✚ Locate different phytogeographical regions of the world and India and can analyse their floristic wealth.

Practical syllabus of Botany Core Course – 2/ Semester – II

Basics of Vascular plants and Phytogeography

(Pteridophytes, Gymnosperms, Taxonomy of Angiosperms and Phytogeography)

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course Outcomes:

On successful completion of this course students shall be able to:

- ✚ Demonstrate the techniques of section cutting, preparing slides, identifying of the material and drawing exact figures.
- ✚ Compare and contrast the morphological, anatomical and reproductive features of vascular plants.
- ✚ Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium.
- ✚ Exhibit skills of preparing slides, identifying the given twigs in the lab and drawing figures of plant twigs, flowers and floral diagrams as they are.
- ✚ Prepare and preserve specimens of local wild plants using herbarium techniques.

III Semester /Botany Core Course - 3

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to:

- + Understand on the organization of tissues and tissue systems in plants.
- + Illustrate and interpret various aspects of embryology.
- + Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.
- + Appraise various qualitative and quantitative parameters to study the population and community ecology.
- + Correlate the importance of biodiversity and consequences due to its loss.
- + Enlist the endemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.

Practical syllabus of Botany Core Course – 3 /Semester – III

Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs./Week)

Course Outcomes:

On successful completion of this practical course students shall be able to:

- + Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.
- + Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.
- + Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

IV Semester/ Botany Core Course – 4
Plant Physiology and Metabolism
(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to:

- ✚ Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.
- ✚ Evaluate the role of minerals in plant nutrition and their deficiency symptoms.
- ✚ Interpret the role of enzymes in plant metabolism.
- ✚ Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.
- ✚ Analyse the biochemical reactions in relation to Nitrogen and lipid metabolisms.
- ✚ Evaluate the physiological factors that regulate growth and development in plants.
- ✚ Examine the role of light on flowering and explain physiology of plants under stress conditions.

Practical Syllabus of Botany Core Course – 4 / Semester – IV

Plant Physiology and Metabolism

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course outcomes: On successful completion of this practical course, students shall be able to:

- ✚ Conduct lab and field experiments pertaining to Plant Physiology, that is, biophysical and biochemical processes using related glassware, equipment, chemicals and plant material.
- ✚ Estimate the quantities and qualitative expressions using experimental results and calculations
- ✚ Demonstrate the factors responsible for growth and development in plants.

IV Semester / Botany Core Course –5
Cell Biology, Genetics and Plant Breeding
(Total hours of teaching – 60 @ 04 Hrs./Week)

Theory:

Learning outcomes:

On successful completion of this course, the students will be able to:

- + Distinguish prokaryotic and eukaryotic cells and design the model of a cell.
- + Explain the organization of a eukaryotic chromosome and the structure of genetic material.
- + Demonstrate techniques to observe the cell and its components under a microscope.
- + Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.
- + Elucidate the role of extra-chromosomal genetic material for inheritance of characters.
- + Evaluate the structure, function and regulation of genetic material.
- + Understand the application of principles and modern techniques in plant breeding.
- + Explain the procedures of selection and hybridization for improvement of crops.

Practical Syllabus of Botany Core Course – 5/IV Semester

Cell Biology, Genetics and Plant Breeding

(Total hours of laboratory exercises 30 Hrs. @ 02 Hrs. /Week)

Course Outcomes:

After successful completion of this practical course the student shall be able to:

- + Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.
- + Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models
- + Solve the problems related to crosses and gene interactions.
- + Demonstrate plant breeding techniques such as emasculation and bagging