



(Estd : 1987)

# **SIR C R REDDY COLLEGE FOR WOMEN**

(Affiliated to ADIKAVI NANNAYA UNIVERSITY, Rajamahendravaram)

An ISO - 9001:2015, 14001:2015, 50001:2018 Certified Institution

UGC 2(f) certified institution

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## **DEPARTMENT OF BOTANY**

### **COURSE OUTCOMES**

## **BSC-BOTANY**

### **COURSE OUTCOMES**

<b>B.Sc-Botany</b>	<b>Semester:I</b>	<b>Credits:4</b>
<b>Course: I</b>	Fundamentals of Microbes and Non-vascular Plants	<b>Hrs/Wk:5</b>

#### **Course Outcomes:**

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

#### **Co1**

Explain origin of life on the earth.

#### **Co2**

Illustrate diversity among the viruses and prokaryotic organisms and can categorize them

#### **Co3**

Classify fungi, lichens, algae and Bryophytes based on their structure, reproduction and life cycles.

#### **Co4**

Analyze and ascertain the plant disease symptoms due to viruses, bacteria and fungi

#### **Co5**

Recall and explain the evolutionary trends among amphibians of plant kingdom for their shift to land habitat.

#### **Co6**

Evaluate the ecological and economic value of microbes, Thallophytes and Bryophytes

<b>B.Sc.</b>	<b>Semester-I</b>	<b>Credits:1</b>
<b>Course: 1(L)</b>	<b>Fundamentals of Microbes and Non-vascular Plants -Lab</b>	<b>Hrs/Wk: 2</b>

**Course Outcomes:**

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

**Co1**

Demonstrate the techniques of use of lab equipment, preparing slides and identify the material and draw diagrams exactly as it appears.

**Co2**

Observe and identify microbes and lower groups of plants on their own

**Co3.**

Demonstrate the techniques of inoculation, preparation of media etc.

**Co4**

Identify the material in the permanent slides etc.

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<b>B.Sc.</b>	<b>Semester-II</b>	<b>Credits: 4</b>
<b>Course:2</b>	<b>Basics of Vascular plants and Phytogeography</b>	<b>Hrs/Wk:4</b>

### **Course Outcomes:**

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

#### **Co1**

Classify and compare Pteridophytes and Gymnosperms based on their morphology, anatomy, reproduction and lifecycles

#### **Co2**

Justify evolutionary trends in tracheophytes to adapt for land habitat.

#### **Co3**

Explain the process of fossilization and compare the characteristics of extinct and extant plants.

#### **Co4**

Critically understand various taxonomical aids for identification of Angiosperms.

#### **Co5**

Analyze the morphology of the most common Angiosperm plants of their localities and recognize their families.

#### **Co6**

Evaluate the ecological, ethnic and economic value of different tracheophytes and summarize their goods and services for human welfare.

#### **Co7**

Locate different phytogeographical regions of the world and India and can analyze their floristic wealth

<b>B.Sc.</b>	<b>Semester-II</b>	<b>Credits:1</b>
<b>Course:2(L)</b>	<b>Basics of Vascular plants and Phytogeography-Lab</b>	<b>Hrs/Wk: 2</b>

**Course Outcomes :**

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

**Co1**

Demonstrate the techniques of section cutting, preparing slides, identifying of the material and drawing exact figures.

**Co2**

Compare and contrast the morphological, anatomical and reproductive features of vascular plants.

**Co3**

Identify the local angiosperms of the families prescribed to their genus and species level and prepare herbarium

**Co4**

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.

**Co5**

Prepare and preserve specimens of local wild plants using herbarium techniques.

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<b>B.Sc.</b>	<b>Semester- III</b>	<b>Credits: 4</b>
<b>Course:3</b>	<b>Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity</b>	<b>Hrs/Wk:4</b>

### **Course Outcomes:**

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

#### **Co1**

Understand on the organization of tissues and tissue systems in plants.

#### **Co2**

Illustrate and interpret various aspects of embryology.

#### **Co3**

Discuss the basic concepts of plant ecology, and evaluate the effects of environmental and biotic factors on plant communities.

#### **Co4**

Appraise various qualitative and quantitative parameters to study the population and community ecology.

#### **Co5**

Correlate the importance of biodiversity and consequences due to its loss.

#### **Co6**

Enlist the endemic/endangered flora and fauna from two biodiversity hotspots in India and assess strategies for their conservation

<b>B.Sc.</b>	<b>Semester-III</b>	<b>Credits:1</b>
<b>Course:3(L)</b>	<b>AnatomyandEmbryologyofAngiosperms,PlantEcologyand BiodiversityLab</b>	<b>Hrs/Wk: 2</b>

**Course Outcomes:**

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

**Co1**

Get familiarized with techniques of section making, staining and microscopic study of vegetative, anatomical and reproductive structure of plants.

**Co2**

Observe externally and under microscope, identify and draw exact diagrams of the material in the lab.

**Co3**

Demonstrate application of methods in plant ecology and conservation of biodiversity and qualitative and quantitative aspects related to populations and communities of plants.

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<b>BSc botany</b>	<b>Semester:IV</b>	<b>Credits:4</b>
<b>Course:4</b>	<b>Plant Physiology and Metabolism</b>	<b>Hrs/Wk:4</b>

**Course Outcomes:**

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

**Co1**

Comprehend the importance of water in plant life and mechanisms for transport of water and solutes in plants.

**Co2**

Evaluate the role of minerals in plant nutrition and their deficiency symptoms.

**Co3**

Interpret the role of enzymes in plant metabolism.

**Co4**

Critically understand the light reactions and carbon assimilation processes responsible for synthesis of food in plants.

**Co5**

Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.

**Co6**

Evaluate the physiological factors that regulate growth and development in plants.

**Co7**

Examine the role of light on flowering and explain physiology of plants under stress conditions.

<b>B.Sc.</b>	<b>Semester-IV</b>	<b>Credits:1</b>
<b>Course:4(L)</b>	<b>Plant Physiology and Metabolism -Lab</b>	<b>Hrs/Wk: 2</b>

**Course outcomes:**

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

**Co1**

Conduct lab and field experiments pertaining to Plant Physiology ,that is,biophysical and biochemical processes using related glass ware,equipment,chemicals and plant material.

**Co2**

Estimate the quantities and qualitative expressions using experimental results and calculations

**Co3**

Demonstrate the factors responsible for growth and development in plants.

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<b>B.Sc.</b>	<b>Semester-IV</b>	<b>Credits: 4</b>
<b>Course:5</b>	<b>Cell Biology,Genetics and Plant Breeding</b>	<b>Hrs/Wk:4</b>

### **Course Outcomes:**

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

#### **Co1**

Distinguish prokaryotic and eukaryotic cells and design the model of a cell.

#### **Co2**

Explain the organization of a eukaryotic chromosome and the structure of genetic material

#### **Co3.**

Demonstrate techniques to observe the cell and its components under a microscope.

#### **Co4**

Discuss the basics of Mendelian genetics, its variations and interpret inheritance of traits in living beings.

#### **Co5**

Elucidate the role of extra-chromosomal genetic material for inheritance of characters

#### **Co6.**

Evaluate the structure, function and regulation of genetic material.

#### **Co7**

Understand the application of principles and modern techniques in plant breeding.

#### **Co8**

Explain the procedures of selection and hybridization for improvement of crops.

<b>B.Sc.</b>	<b>Semester-IV</b>	<b>Credits:1</b>
<b>Course:5(L)</b>	<b>Cell Biology,Genetics and Plant Breeding-Lab</b>	<b>Hrs/Wk: 2</b>

**CourseOutcomes:**

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

**Co1**

Show the understanding of techniques of demonstrating Mitosis and Meiosis in the laboratory and identify different stages of cell division.

**Co2**

Identify and explain with diagram the cellular parts of a cell from a model or picture and prepare models

**Co3**

Solve the problems related to crosses and gene interactions.

**Co4**

Demonstrate plant breeding techniques such as emasculation and bagging

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<b>B. Sc</b>	<b>Semester-V(SkillEnhancementCourse- Elective)</b>	<b>Credits:4</b>
<b>Course:6C</b>	<b>Plant Tissue Culture</b>	<b>Hrs/Wk: 4</b>

### **Course outcomes**

Students at the successful completion of the course will be able to:

**Co1**

Comprehend the basic knowledge and applications of plant tissue culture.

**Co2**

Identify various facilities required to setup a plant tissue culture laboratory.

**Co3**

Acquire a critical knowledge on sterilization techniques related to plant tissue culture.

**Co4**

Demonstrate skills of callus culture through hands on experience.

**Co5**

Understand the biotransformation technique for production of secondary metabolites.

<b>B. Sc</b>	<b>Semester-V(Skill Enhancement Course- Elective)</b>	<b>Credits:1</b>
<b>Course:6C</b>	<b>Plant Tissue CultureLab</b>	<b>Hrs/Wk: 2</b>

**Course Outcomes:**

On successful completion of this practical course, student will be able to:

**Co1**

List out, identify and handle various equipment in plant tissue culture lab.

**Co2**

Learn the procedures of preparation of media.

**Co3**

Demonstrate skills on inoculation, establishing callus culture and Micropropagation.

**Co4**

Acquire skills in observing and measuring callus growth.

**Co5**

Perform some techniques related to plant transformation for secondary Metabolite production.

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<b>B. Sc</b>	<b>Semester-V(SkillEnhancementCourse- Elective)</b>	<b>Credits:4</b>
<b>Course:7C</b>	<b>Mushroom Cultivation</b>	<b>Hrs/Wk: 4</b>

### **Course Outcomes:**

Students at the successful completion of the course will be able to:

#### **Co1**

Understand the structure and life of a mushroom and discriminate edible and poisonous mushrooms.

#### **Co2**

Identify the basic infrastructure to establish a mushroom culture unit.

#### **Co3**

Demonstrate skills preparation of compost and spawn.

#### **Co4**

Acquire a critical knowledge on cultivation of some edible mushrooms.

#### **Co5**

Explain the methods of storage, preparation of value-added products and marketing.

<b>B. Sc</b>	<b>Semester-V(SkillEnhancementCourse- Elective)</b>	<b>Credits:1</b>
<b>Course:7C</b>	<b>MushroomCultivationLab</b>	<b>Hrs/Wk: 2</b>

**Course Outcomes:**

On successful completion of this practical course,student will be able to:

**Co1**

Identify and discriminate different mushrooms based on morphology.

**Co2**

Understand facilities required for mushroom cultivation.

**Co3**

Demonstrate skills on preparation of spawn, compost and casing material.

**Co4**

Exhibit skills on various cultivation practices for an edible mushroom.

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