



G.E.Society's

**J.S.S. Arts, Science and Commerce College, Gokak**(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3<sup>rd</sup> CYCLE)

Website: www.jssgokak.in

☎ : 08332 - 225141

Email: jssgokak@gmail.com

Date: 25/06/2018

## Department of Botany

### Action Plan

**Goal: To improve learning experience and create active involvement of students.** To enhance the learning environment we need to support them to make them reach their full potential. By addressing the basic needs like providing them a good ambient environment, providing them with notes and make them embrace the power of information communication technology to make them deliver their creative ways we can successfully reaching our goal.

Sl. No.	Plan	Expected outcome	Proposed date
1	To provide notes in PDF format for the whole syllabi of all semester	Improvement in result	Throughout the academic period.
2.	To make students to participate in-house seminar on the topics of their choice.	Make student to get used to ICT usage.	Throughout the academic period
3.	Organize one extension activity in neighbouring school.	Create awareness about the importance of environment.	Jan 2 <sup>nd</sup> week 2019
4.	Plan for certificate course in nursery and mushroom culture.	Make student to develop self sufficient skills.	September 2018
5.	Experimental learning by organizing study tours.	To make students aware of nature in-situ	For II Sem
			For III Sem
			For V Sem
			For VI sem

*Gopal*  
 Head of Department  
 Botany Department  
 J.S.S. Arts, Science & Commerce College  
 GOKAK

*Ashley*  
 PRINCIPAL  
 J.S.S. Degree Arts, Science &  
 Commerce College, GOKAK.



G.E.Society's

**J.S.S. Arts, Science and Commerce College, Gokak**

(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3-CYCLE)

Website: www.jssgokak.in

☎ : 08332 - 225141


Email: jssgokak@gmail.com



**Department of Botany**  
**Syllabus and workload distribution for odd semester (I, III & V)**  
**Academic year 2020-2021**

Teaching Hours Distribution					
	BSC I/ II Sem	BSC III/ IV Sem	BSC V/VI Sem		Total Hrs
			P-I	P-II	
Dr. T. C. Gopal	30	24			54
R. M. Mahindrakar		4		50	54
H. S. Dasar			50		50
Anjana Chandergi	30	24			54

Practical Hours Distribution					
	BSC I/ II Sem	BSC III/ IV Sem	BSC V/VI Sem		Total Hrs
			P-I	P-II	
Dr. T. C. Gopal	8	8			16
R. M. Mahindrakar		4		16	16
H. S. Dasar			16		16
Anjana Chandergi	8	8			16

  
Head of the  
Botany Department  
J. S. S. Science College  
GOKAK.

  
PRINCIPAL  
J.S.S. Degree Arts, Science &  
Commerce College, GOKAK.



G.E.Society's

**J.S.S. Arts, Science and Commerce College, Gokak**

(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3-CYCLE)

Website: www.jssgokak.in

☎ : 08332 - 225141

Email: jssgokak@gmail.com

**First Semester B.Sc. (Botany)****Paper Code:****BOTDSCT1.1 Paper Title: Biodiversity (Microbes, Algae, Fungi and Archegoniate) Teaching Hours: 4****Hrs/ Week Marks: Th-80+IA-20****Total hours: 60****Credits: 3**

Topic	Hours	Topic covered by
<b>Unit1:</b> <b>Viruses :</b> Discovery, general structure, replication (general account), DNA virus (T-phage); Lytic and lysogenic cycle, RNA virus (TMV); Economic importance; <b>Bacteria:</b> Discovery, General characteristics and cell structure; Reproduction – vegetative, asexual and recombination (conjugation, transformation and transduction); Economic importance. <b>Viral Plant Diseases:</b> TMV, Vein clearing, Dwarfing, Yellowing and BBTV disease. <b>Bacterial Plant Disease:</b> Citrus canker, Bacterial blight and Crown gall disease.	15 Hrs.	Dr. T. C. Gopal
<b>Unit2:</b> <b>Algae:</b> General characteristics; Ecology and distribution; Range of thallus organization and reproduction; Classification of algae by Smith; Morphology and life-cycles of the following: <i>Nostoc</i> , <i>Oedogonium</i> , <i>Vaucheria</i> , <i>Volvox</i> , <i>Ectocarpus</i> & <i>Batrachospermum</i> . Economic importance of algae. <b>Fungi:</b> Introduction- General characteristics, ecology and significance, range of thallus organization, cell wall composition, nutrition, reproduction and classification; True Fungi- General characteristics, ecology and significance, life cycle of <i>Rhizopus</i> (Zygomycota), <i>Penicillium</i> (Ascomycota), <i>Cercospora</i> (Deuteromycota), <i>Puccinia</i> , <i>Agaricus</i> (Basidiomycota); <b>Fungal Diseases:</b> Late blight of potato, White rust of <i>Albugo candida</i> , Black rust of <i>Puccinia</i> , Powdery mildew and Early Blight of Tomato. <b>Symbiotic Associations-Lichens:</b> General account, reproduction and significance; Mycorrhiza: ectomycorrhiza and endomycorrhiza and their significance	15 Hrs.	Dr. T. C. Gopal
<b>Unit3:</b> <b>Introduction to Archegoniate:</b> Unifying features of archegoniate, Transition to land habit, Alternation of generations. <b>Bryophytes:</b> General characteristics, adaptations to land habit, Classification, Range of thallus organization. Classification (up to family), morphology, anatomy and reproduction of <i>Riccia</i> , <i>Marchantia</i> , <i>Anthoceros</i> and <i>Funaria</i> (Developmental details not to be included). Ecology and economic importance of bryophytes with special mention of <i>Sphagnum</i> .	15 Hrs.	Miss. Anjana Chandergil
<b>Unit4:</b> <b>Pteridophytes:</b> General characteristics, classification, Early land plants ( <i>Lepidodendron</i> , <i>Lepidocarpon</i> , <i>Calamites</i> ). Classification (up to family), morphology, anatomy and reproduction of <i>Selaginella</i> , <i>Equisetum</i> and <i>Pteris</i> . (Developmental details not to be included). Heterospory and seed habit, stelar evolution. Ecological and economic importance of Pteridophytes. <b>Gymnosperms:</b> General characteristics, classification. Classification (up to family), morphology, anatomy and reproduction of <i>Cycas</i> , <i>Gnetum</i> and <i>Pinus</i> . (Developmental details not to be included). Ecological and economic importance.	15 Hrs.	Miss. Anjana Chandergil

*Gopal*  
 Head of the  
 Botany Department  
 J.S.S. Science College  
 GOKAK.

*Arjun*  
 PRINCIPAL  
 J.S.S. Degree Arts, Science &  
 Commerce College, GOKAK.





G.E.Society's

**J.S.S. Arts, Science and Commerce College, Gokak**

(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3-CYCLE)

Website: www.jssgokak.in

☎ : 08332 - 225141

Email: jssgokak@gmail.com

**1. BOTANY (optional)****B.Sc.III Semester** (w.e.f:2018-19) and onwards.**Subject: BOTANY (optional)****Paper:- Diversity of Cryptogams (Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms).**

Hrs

52

Topic	Hours	Topic covered by
<b>Unit I: Algae.</b> General characters, Pigmentation, Classification by Fritsch (up to class level). Distribution, thallus structure, reproduction and life cycle of Nostoc, Volvox, Oedogonium, Sargassum and Batrachospermum. Economic importance.	10 Hrs.	Dr. T. C. Gopal
<b>Unit II: Fungi</b> General characters, Classification (Alexopoulos's system). Distribution, Structure, Repro- duction and life cycle of Albugo, Rhizopus, Penicillium and Puccinia. Economic importance of fungi. General account of lichens.	08 Hrs	Dr. T. C. Gopal
<b>Unit III: Plant Pathology.</b> General account of Bacteria and Viruses. Introduction and general symptoms of plant diseases. Symptoms, Pathogens and control measures of Late blight of potato, White rust of cr- ucifers, Tikka disease of ground nut.	06 Hrs.	Dr. T. C. Gopal
<b>Unit IV: Bryophytes</b> General characters, Classification (Smith). Structure, reproduction and schematic life cycle of Riccia, Anthoceros a- nd Funaria. (Developmental details are not expected). Evolution of sporophytes.	06 Hrs.	Miss. Anjana Chandergi
<b>Unit V: Pteridophytes.</b> General characters and classification. Distribution, Structure (External and Internal) and Rep- roduction of Psilotum, Selaginella, Equisetum and Nephrolepis (Developmental details are no- t expected). Stelar evolution. Heterospory and seed habit	10 Hrs.	Miss. Anjana Chandergi
<b>Unit VI: Gymnosperms:</b> General characters and classification. Distribution, Structure (External and Internal) and Repro- duction of Cycas, Pinus and Gnetum (Developmental details are not expected).	08 Hrs	Miss. Anjana Chandergi
<b>Unit VII: Paleobotany:</b> Geological timescale, fossilization - molds, Impression, Petrification and cast. Study of fossils - Calamitis, Lepidodendron, Lygenopteris.	04 Hrs.	Asst. Prof. R. M. Mahindrakar

*T. C. Gopal*  
Head of Dept  
Botany Department  
J.S.S. Science College  
GOKAK.

*A. S. Terdeat*  
PRINCIPAL  
J.S.S. Degree Arts, Science &  
Commerce College, GOKAK.



G.E.Society's

J.S.S. Arts, Science and Commerce College, Gokak

(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3- CYCLE)

Website: www.jssgokak.in

Phone : 08332 – 225141

Email: jssgokak@gmail.com



**V Semester Paper-I:**

**Plant Breeding, Tissue Culture and Horticultural Practices. 50 Hrs**

Topic	Hours	Topic covered by
<b>Unit 1: Plant Breeding:</b> History and objectives. Introduction, Selection (Pure line, Mass Selection), Hybridization-interspecific and intergeneric. Mutational & Polyploidy breeding. Germplasm and its maintenance. Pollen Bank, Quarantine method.	10 Hrs.	<b>Asst Prof. H. S. Dasar</b>
<b>Unit 2: Plant Tissue Culture:</b> Scope and Significance. Basic Aspects and Cellular totipotency (Shoot tip, Embryo and Haploid culture techniques). Differentiation and morphogenesis.	10 Hrs	
<b>Unit 3: Introduction to Horticulture, Nursery management and importance</b> <u>Methods of propagation</u> – vegetative – rhizome, bulb, corm and sucker (natural). Artificial – Cutting, layering, grafting and budding. Bonsai – methods and importance. <u>Nursery management</u> : Introduction, types of nurseries and cultural practices. Seed (propagule) collection, storage and treatment. Manures, fertilizers and pesticides. Methods of irrigation – drip, sprinkler and flood	12 Hrs.	
<b>Unit 4: Green House Technology –</b> Introduction, advantages and limitations. Types of Green Houses – Green House structure, principle Green house technology as applied to ornamental, vegetable and fruit plants.	08 Hrs.	
<b>Unit 5: Harvest Technology and Weed Management:</b> <u>Harvest Technology</u> : Flower and fruit plants management. Artificial ripening, maturity indices, methods of picking. Post-harvest technology and management of fruits: grading, processing, storage and packing. <u>Weed Management</u> : Introduction and significance. Invasive weeds – concept and causes of their dominance. Weed control – physical, chemical and biological methods.	10 Hrs.	

*Gopal*  
Head of the  
Botany Department  
J.S.S. Science College  
GOKAK

*Ankita*  
PRINCIPAL  
J.S.S. Degree Arts, Science &  
Commerce College, GOKAK.



G.E. Society's

**J.S.S. Arts, Science and Commerce College, Gokak**(ACCREDITED AT 'A' WITH 3.10 CGPA IN 3<sup>rd</sup> CYCLE)

Website: www.jssgokak.in

☎ : 08332 - 225141

Email: jssgokak@gmail.com

**V Semester Botany Paper-II****Paper-II: Ecology, Environmental Biology and Phytogeography 50hrs**

Topic	Hours	Topic covered by
<b>Unit 1: Plant and environment:</b> Atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical properties), and biota. Morphological, anatomical and physiological responses of plants to water (hydrophytes, xerophytes and epiphytes), temperature (thermoperiodicity and vernalization), light (photoperiodism, heliophytes and sciophytes) and salinity.	12 Hrs.	Asst Prof. R. M. Mahindrakar
<b>Unit 2: Population ecology and Ecosystems:</b> Growth curves; ecotypes; ecads, Ecological succession-hydrach and xerarch. Structure of Ecosystems (Pond and Forest): abiotic and biotic components; food chain, food web, ecological pyramids, energy flow.	10 Hrs	
<b>Unit 3: Phytogeography:</b> Botanical regions of world, Vegetation types of Karnataka and India.	06 Hrs.	
<b>Unit 4: Conservation of Natural resources:</b> Different types of natural resources and their conservation, Forest and Forest Management: Forest and its ecological significance, deforestation, forest management and social forestry. Natural depletion of vegetation endangered and threatened economic plants of India and red databook. Wild life management in India, Indian board of wildlife, national park and sanctuary. Energy resources: conventional and nonconventional sources of energy. Biodiversity: significance, types, depletion, conservation of biodiversity.	12 Hrs.	
<b>Unit 5: Pollution:</b> Introduction, causes, effects and control measures of Water pollution, Air pollution, Soil pollution, Acid rain, Global warming, and Ozone depletion. Sewage water and wastewater types. Methods of effluent treatment of industrial wastewater, sludge disposal and its care related to environment.	10 Hrs.	

*Lyopal*

Head of the

Botany Department

J. S. S. Science College

GOKAK.

*Arleidy*  
PRINCIPALJ.S.S. Degree Arts, Science &  
Commerce College, GOKAK.