



SRI VIDYA MANDIR ARTS & SCIENCE COLLEGE

(Autonomous)

[An Autonomous College Affiliated to Periyar University, Salem, Tamil Nadu]

[Accredited by NAAC with 'A' Grade with CGPA of 3.27]

[Recognized 2(f) & 12(B) Status under UGC Act of 1956]

Katteri – 636 902, Uthangarai (Tk), Krishnagiri (Dt)

Tamil Nadu, India

Website: www.svmcugi.com

E-mail: svmcbotany2015@gmail.com



DEGREE OF BACHELOR OF SCIENCE IN BOTANY

CHOICE BASED CREDIT SYSTEM (CBCS)

REGULATIONS AND SYLLABUS FOR

B.Sc. BOTANY PROGRAMME

(SEMESTER PATTERN)

(For Students Admitted in the College from the

Academic Year 2020-2021 Onwards)



Programme Outcomes (POs)

PO1	The study of botany will provide a good knowledge about Microbiology, Phycology, Taxonomy, Molecular Biology, Medicinal plants, Plant Tissue Culture and Ecological distributions.
PO2	Acquire tremendous opening to enhance the plant science knowledge on Plant Diversity and ecological dimension of vascular cryptogams and Angiosperms and to study the plant kingdom.
PO3	Gain knowledge and understand the range of plant diversity in terms of structure, function and environmental relationship from primitive to highly evolved plant groups.
PO4	Gather knowledge on various physiological and biochemical pathways and their vital role in biotic factors.
PO5	Apply logical information on the significance of moral natural standards and resulting duties applicable to biodiversity protection, practical and manageable utilization of plants.
PO6	Students can reveal the medicinal properties of plants in the socioeconomic values of identified plant sciences and to spread information on different parts of therapeutic plants and proper contemplations on human health issues.
PO7	Information on conservation of plant resources and different hotspots expand studies to investigate their helpful qualities economically, socially and aesthetically.
PO8	Use look into research based information and research techniques including the lab experiments, analysis and data prediction, information, and advancement of the data to provide a substantial ends.



Programme Specific Outcomes (PSOs)

PSO1	Through scientific classification, the students understand about the plant communities and binomial names, economic significance including the utilizations and varieties among several types of Angiosperms.
PSO2	Students can apply the knowledge and relate the information gained from the allied subjects viz; Zoology and Chemistry, to explain and conclude through the interdisciplinary approaches.
PSO3	The students enhance knowledge on the pathways of metabolisms, transport and translocation of water and solutes and biochemical parameters like carbohydrate, protein and lipid together with a better understanding of regulation of growth, development and influence of environment.
PSO4	The students will have the option to secure tremendous academic information on the science of fossils and living plants alongside their associations with their condition in the environment.
PSO5	Investigation of horticulture and arranging procedures helps to the students to execute information on the procedure of development of nurseries and the management and maintenance of the gardens.



SRI VIDYA MANDIR ARTS & SCIENCE COLLEGE

(Autonomous)

Bachelor of Science (B.Sc.) in Botany

Programme Pattern and Syllabus (CBCS)

(For Students Admitted in the College from the Academic Year 2020-2021 Onwards)

Sl. No.	Part	Nature of Course	Course Code	Name of the Course	Hours/Week	Credits	Marks		
							CIA	ESE	Total
SEMESTER I									
1	I	Language	20UTA1F01	Tamil – I	6	3	25	75	100
2	II	Language	20UEN1F01	English– I	6	3	25	75	100
3	III	Core – I	20UBO1C01	Plant Diversity – I (Algae, Fungi, & Lichen)	4	5	25	75	100
4		Core Practical – I Extended to Semester II	20UBO2P01	Practical – I	3	Credit and marks are carried to Core Practical – I of Semester II			
5		Allied – I	20UZO1A01	Allied Zoology – I	6	4	25	75	100
6		Allied Practical – I Extended to Semester II	20UZO2AP01	Allied Zoology Practical – I	3	Credit and marks are carried to Allied Practical – I of Semester II			
7	IV	Value Education	20UVE101	Yoga	2	2	25	75	100
Total					30	17	125	375	500
SEMESTER II									
8	I	Language	20UTA2F02	Tamil – II	6	3	25	75	100
9	II	Language	20UEN2F02	English -II	6	3	25	75	100
10	III	Core – II	20UBO2C02	Plant Diversity – II (Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)	5	5	25	75	100
11		Core Practical – I Extended from Semester I	20UBO2P01	Practical – I (Algae, Fungi, Lichen, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)	3	3	40	60	100



12		Allied – II	20UZO2A02	Allied Zoology – II	4	4	25	75	100
13		Allied Practical – I Extended from Semester I	20UZO2AP01	Allied Zoology Practical – I	3	3	40	60	100
14	IV	SBEC – I	20UBO2S01	Mushroom Culture Technology	2	2	25	75	100
15		Common Paper	20UE2S02	Environmental Studies	1	2	25	75	100
Total					30	25	230	570	800
SEMESTER III									
16	I	Language	20UTA3F03	General Tamil –III	6	3	25	75	100
17	II	Language	20UEN3F03	General English – III	6	3	25	75	100
18	III	Core – III	20UBO3C03	Anatomy, Embryology of Angiosperms and Microtechniques	4	4	25	75	100
19		Core Practical – II Extended to Semester IV	20UBO4P02	Practical – II	3	Credit and marks are carried to Core Practical – II of Semester IV			
20		Allied – III	20UCH3A01	Allied Chemistry – I	4	4	25	75	100
21		Allied Practical – II Extended to Semester IV	20UCH4AP01	Allied Chemistry Practical – I	3	Credit and marks are carried to Allied Practical – II of Semester IV			
22	IV	SBEC – II	20UBO3S02	Horticulture	2	2	25	75	100
23		NMEC-I		Non-Major Elective – I	2	2	25	75	100
Total					30	18	150	450	600
SEMESTER IV									
24	I	Language	20UTA4F04	General Tamil – IV	6	3	25	75	100
25	II	Language	20UEN4F04	General English – IV	6	3	25	75	100
26	III	Core Course – IV	20UBO4C04	Cell and Molecular Biology	4	4	25	75	100
27		Core Practical – II Extended from Semester III	20UBO4P02	Practical – II Anatomy, Embryology of Angiosperms, Microtechniques,	3	3	40	60	100



				Cell and Molecular Biology					
28		Allied – IV	20UCH4A02	Allied Chemistry – II	4	3	25	75	100
29		Allied Practical – II Extended from Semester IV	20UCH4AP01	Allied Chemistry Practical – I	3	3	40	60	100
30	IV	SBEC – III	20UBO4S03	Plant Tissue Culture	2	2	25	75	100
31		NMEC-II		Non-Major Elective – II	2	2	25	75	100
Total					30	23	230	570	800
SEMESTER V									
32	III	Core Course – V	20UBO5C05	Plant Morphology, Taxonomy and Economic Botany	5	5	25	75	100
33		Core Course – VI	20UBO5C06	Genetics, Plant Breeding and Evolution	5	5	25	75	100
34		Core Course – VII	20UBO5C07	Bioinstrumentation and Biostatistics	5	5	25	75	100
35		Core Practical – III Extended to Semester VI	20UBOP603	Practical – III	6	Credit and marks are carried to Core Practical – III of Semester VI			
36		Major Elective – I	20UBO5E01	Plant Biotechnology	5	5	25	75	100
37	IV	SBEC – IV	20UBO5S04	Medico Ethno Botany	2	2	25	75	100
38		SBEC – V	20UBO5S05	Seed Technology	2	2	25	75	100
Total					30	24	150	450	600
SEMESTER VI									
39	III	Core Course – VIII	20UBO6C08	Plant Physiology, Biochemistry and Biophysics	5	5	25	75	100
40		Core Course – IX	20UBO6C09	Ecology, Phytogeography and Resource Conservation	5	5	25	75	100
41		Core Course – X	20UBO6C10	Microbiology and Plant Pathology	5	5	25	75	100
42		Core Practical – III	20UBOP603	Practical – III	3	4	40	60	100



		III Extended from Semester V		Plant Morphology, Taxonomy, Economic Botany Genetics, Plant Breeding, Evolution Bioinstrumentation and Biostatistics					
43		Core Practical – IV	20UBO6P04	Practical – IV Plant Physiology, Biochemistry Biophysics Ecology, Phytogeography Resource Conservation Microbiology and Plant Pathology	3	4	40	60	100
44		Major Elective – II (Any One)	20UBO6E02	Forestry	5	5	25	75	100
			20UBO6E03	Food and Nutrition					
45	IV	SBEC – VI	20UBO6S06	Algal Biotechnology	2	2	25	75	100
46		SBEC – VII	20UBO6S07	Nursery and Gardening	2	2	25	75	100
47	V			Extension Activities		1			
Total					30	33	230	570	800
Grand Total					180	140	1115	2985	4100

Note:

CBCS – Choice Based Credit system

CIA – Continuous Internal Assessment

ESE – End of Semester Examinations

SWAYAM – Study Webs of Active-Learning for Young Aspiring Minds

NPTEL – National Programme on Technology Enhanced Learning

**Major Elective Courses**

1. Plant Biotechnology
2. Forestry
3. Food and Nutrition

Non-Major Elective Courses

1. Mushroom Cultivation
2. Home Gardening

List of Extension Activities

1. National Cadet Corps (NCC)
2. National Service Scheme (NSS)
3. Youth Red Cross (YRC)
4. Physical Education (PYE)
5. Eco Club (ECC)
6. Red Ribbon Club (RRC)
7. Women Empowerment Cell (WEC)



PROGRAMME SYLLABUS



Program: B.Sc. Botany				
Core – I	Course Code: 20UBO1C01	Course Title: Plant Diversity – I (Algae, Fungi and Lichen)		
Semester I	Hours/Week 5	Total Hours 75	Credits 5	Total Marks 100

Course Objectives

1. To enhance the knowledge on Primitive plants and to know about the diversity distributions of the primitive life of the lower plants.
2. To understand the distribution, structure, reproduction and life cycle patterns of lower life forms.
3. To know the economic importance of lower plants.

SYLLABUS

UNIT - I

Algae: Introduction and general characters; detailed study of habits, habitats and distribution of algae, outline classification of algae by Fritsch (1945). Detailed study of occurrence, thallus structure, reproduction and life cycle of Cyanophyceae - *Nostoc*, Chlorophyceae – *Caulerpa* and Charophyceae- *Chara*

UNIT - II

Detailed study of occurrence, thallus structure, reproduction and life cycle of Bacillariophyceae - *Cyclotella*; Phaeophyceae - *Sargassum*; Rhodophyceae - *Gracilaria*. Economic importance of Algae.

UNIT - III

Fungi: General characters, structure and reproduction of fungi. Outline classification of fungi by Alexopoulos and Mims (1979). Detailed study of occurrence, structure, reproduction and life cycle of Oomycetes – *Albugo* and Zygomycetes - *Pilobolous*.

UNIT - IV

Detailed study of occurrence, structure, reproduction and life cycle of Ascomycetes - *Peziza*, *Saccharomyces*; Basidiomycetes – *Puccinia*; Deuteromycetes – *Cercospora*. Economic importance of Fungi.



UNIT - V

Lichen: General characteristics, thallus organization (*Usnea*), types, reproduction. Economic and ecological importance of Lichens.

Text Books

1. Alexopoulos, C.J. and Mims, C.W. (1979). Introductory Mycology. Wiley Eastern Ltd., New Delhi.
2. Bilgrami K. S. (2015). A Text book Of Algae. CBS Publication.
3. Bold, H.C. and Wynne, M.J. (1985). Introduction to the Algae. Prentice Hall of India, New Delhi.
4. Dharani Dhar Awasthi (2000). A Handbook of Lichens Vedams Books (P) Ltd. New Delhi.
5. Dube, H.C. (1983). Introduction of Modern Mycology. Blackwell Science Publication. Oxford.
6. Dube, H.C. (1990). An Introduction of Fungi. Vikas Publication House Ltd, New Delhi.
7. Fritsch, F.E. (1945). Structure and reproduction of Algae. Cambridge University press, New York.
8. Kumar, H.D. (1999). Introductory Phycology. 2nd Edition. Affiliated East-West. Press Pvt. Ltd. New Delhi.
9. Lee, R.D. (2008). Phycology 4th Edition, Cambridge University Press, New York
10. Pandey, B.P. (1994). Algae.S. Chand & Company Ltd. New Delhi.
11. Round, FE. (1984). The Ecology of Algae. Cambridge University Press, New York.
12. Sharma, O.P. (2011). Algae, Tata McGraw Hill Education Private limited, New Delhi.
13. Sharma, O.P. (2011). Fungi and allied microbes The McGraw –Hill companies, New Delhi.
14. Sharma, P.D. (2003). The Fungi. Rastogi Publications, Meerut, New Delhi.
15. Vashishta, B.R., Sinha, A.K. and Singh, V.P. (2011). Botany for Degree Students Algae, S. Chand. Pub. New Delhi.

Reference Books

1. Bessey, E.A. (1979). Morphology and Taxonomy of fungi, Vikas publishing House Pvt. Ltd, New Delhi.
2. Bold, H.C. and Wynne, M.J. (1985). Introduction to the Algae. Prentice Hall of India, New Delhi.
3. Burnett, J.H. (1971). The fundamentals of Mycology. ELBS Publication, London.



4. Fritsch, F.E. (1945). Structure and reproduction of Algae. Cambridge University press.
5. Hale, M.E. (1983). The Biology of Lichens. Edward Arnold, London.
6. Lee, R.D. (2008). Phycology 4th Edition, Cambridge University Press, New York.
7. Mehrotra, R.S. and Aneja, K.R. (1990). An Introduction to Mycology, New Age International Pub, New Delhi.
8. Muthukumar, S. and Tarar, J.L. (2006). Lichen Flora of Central India, Eastern book Corporation , New Delhi.
9. Nash, T.H. (1996). Lichen Biology. Cambridge University Press, London.
10. Round, F.E. (1984). The Ecology of Algae. Cambridge University Press.
11. Sundararajan, S. (2004). Practical manual of fungi, Anmol publications Pvt.ltd New Delhi.
12. Webster, J. (1970). Introduction to Fungi , Cambridge university press, London.

Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Differentiate and identify the algal species using algal pigments.	K1
CO2	Know about the distribution and mode of nutrition on fungal species.	K2
CO3	Apply knowledge on lichen as indicators of pollution.	K3
CO4	Enlarge the knowledge of Lichen and its functions.	K3

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M

S - Strong

H - High

M - Medium

L – Low



Program: B.Sc. Botany				
Core – II	Course Code: 20UBO2C02		Course Title: Plant Diversity – II (Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)	
Semester II	Hours/Week 5	Total Hours 75	Credits 5	Total Marks 100

Course Objectives

1. To know about the diversity of Cryptogams and Phanerogams.
2. To understand the life cycle pattern of Bryophytes, Pteridophytes and Gymnosperms.
3. To study the fossil remains of plants belonging to various eras of Paleobotany.

UNIT – I

Bryophytes: Introduction and general characters of Bryophytes. Classification of Bryophytes (Smith, 1955). A detailed study of occurrence, structure, reproduction and life cycle of *Marchantia*, *Anthoceros* and *Funaria*. Economic importance of Bryophytes.

UNIT – II

Pteridophytes: Introduction and general characters of Pteridophytes. Classification of Pteridophytes (Riemer, 1954). Sporangial organization – Homospory, Heterospory and seed habit, Apogamy and apospory. Vascular organization and Stelar evolution in Pteridophytes.

UNIT – III

A detailed study of occurrence, structure, reproduction and life cycle of *Selaginella*, *Equisetum* and *Adiantum*. Economic importance of Pteridophytes.

UNIT – IV

Gymnosperms: Introduction and general characters of Gymnosperms. Classification of Gymnosperms (Sporne, 1965). Detailed study of occurrence, structure, reproduction and life cycle of *Cycas*, *Pinus* and *Gnetum*. Economic importance of Gymnosperms.

UNIT – V

Paleobotany: Introduction, Geological time scale, fossilization process and types. Radiocarbon dating. Study of the following fossils – *Rhynia*, *Lepidodendron* and *Williamsonia*.

**Text Books**

1. Gangulee, Das, and Kar. (2001). College Botany Vol II. New central Book agency Pvt. Ltd. Calcutta.
2. Pandey, B.P. (1981). Gymnosperms. Chand & Co., New Delhi.
3. Sambamurty, A.V.S.S. (2006). A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany. IK International Publishing House, New Delhi, India
4. Shukla and Mishra. (1982). Essentials of Paleobotany. Vikas Publishing House, Pvt Ltd., New Delhi.
5. Vashista, P.C. (1992). Pteridophyta. Chand & Co., New Delhi.
6. Vashista, P.C., Sinha and Anil Kumar. (2008). Text book of Bryophytes. Chand &Co., New Delhi.

Reference Books

1. Pandey, B.P. (1994). A Text book of Botany - Pteridophyta. Chand & Co. New Delhi.
2. Rashid. (1995). An introduction to Pteridophytes. Vikas Publishing House, Pvt. Ltd., New Delhi.
3. Smith, G.M. (1955). Cryptogamic Botany Vol. II. Tata McGraw Hill Publications, New Delhi.
4. Sporne, K.R. (1980). Morphology of Petridophytes -B.I. Publications, New Delhi.



Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Explore the knowledge on Plant diversity i.e. Bryophytes, Pteridophytes and Gymnosperms.	K1
CO2	To understand the internal structure and reproduction of Cryptogams and Phanerogams.	K2
CO3	Apply the medicinal and economic knowledge of Bryophytes, Pteridophytes and Gymnosperms for the benefit of human welfare.	K3
CO4	Apply the knowledge on earlier period evidences of fossils for the identification and also to establish the age of the fossil plants through radiocarbon dating.	K3

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M

S - Strong

H - High

M - Medium

L – Low



Program: B.Sc. Botany				
SBEC – I	Course Code: 20UBO2S01		Course Title: Mushroom Cultivation Technology	
Semester II	Hours/Week	Total Hours	Credits	Total Marks
	2	30	2	100

COURSE OBJECTIVES

1. To acquire knowledge of on the mushroom culture.
2. To understand the importance of mushrooms.
3. To learn the methodology involved in mushroom cultivation.
4. To know the various recipes preparation.

UNIT – I

Introduction to mushroom cultivation: General characters, structure and reproduction of mushrooms – Identification of mushrooms – Types of mushroom – Poisonous mushroom.

UNIT – II

Uses of mushroom: Nutritive, food and Medicinal value.

UNIT III

Mushroom culture techniques: Mushroom sheds construction – Spawn preparation – Medium preparation – Spawn running – Incubation – Cultivation methods for button and oyster mushrooms – Disease and control measures.

UNIT IV

Post harvest operations: Harvesting – Storage and preservation – Spoilage of mushrooms – Packing – Marketing.

UNIT V

Mushroom recipes: Mushroom soup – Sandwich – Gravy – Omelette – Mushroom chilly manchurian and briyani.

**Text Books**

1. Suman, B.C and Sharma, V.P. (2007) Mushroom Cultivation in India. Daya Publishing House. New Delhi.
2. Gogoi, R., Rathaiah, Y and Borah, T.R. (2006). Mushroom Cultivation Technology. Scientific Publishers. Jodhpur, Rajasthan.
3. Kanniyar, (1980). Text book of Mushroom, Today and Tomorrow publishers, Chennai.
4. Nita bahl, (1988). Hand book of mushrooms, Vol. II, IBH publishers, New Delhi.
5. Subrata Biswas, Datta, M., Ngachan, S.V. (2011) Mushrooms: A Manual For Cultivation. PHI Learning, New Delhi.

Reference Books

1. Chang S.T. and N.A.Hayer, 2002. The biology and cultivation of edible mushrooms.
2. Marimuthu, T., Krishnamoorthy, A.S., Sivaprakasam, K. and Jayarajan. R (1991). Oyster Mushrooms, Department of Plant Pathology, Tamil Nadu Agricultural University, Coimbatore.
3. Manjit Singh, Bhuvnesh Vijay, Shwet Kamal and Wakchaure, C.G. (2011). Mushrooms - cultivation, marketing and consumption. Directorate of Mushroom research, ICAR, Chambaghat, Solan, HP.
4. Pathak, V.N., Yadav, N. and Gour, M., 2000. Mushroom production and processing technology, Agrobios Ltd., Jodhpur, India.
5. Reeti Singh and U.C. Singh, (2005). Modern Mushroom cultivation, Agrobios (India) Ltd.
6. Swaminathan, M. (1990) Food and Nutrition. Bappco, The Bangalore Printing and Publishing Co. Ltd., Bangalore.
7. Tewari and Pankaj Kapoor, S.C., (1988). Mushroom cultivation, Mittal Publications, Delhi.



Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Acquire knowledge on mushrooms to differentiate edible from poisonous.	K1
CO2	Understand the mushroom cultivation.	K2
CO3	Apply knowledge on cultivation of the mushroom using techniques.	K3
CO4	Impart interest on preparation of mushroom recipes.	K3

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

s.

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M

S - Strong

H - High

M - Medium

L – Low



Program: B.Sc. Botany				
Core Practical – I	Course Code: 20UBO2P01	Course Title: Plant Diversity – I & II (Algae, Fungi, Lichen, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)		
Semester II	Hours/Week 3	Total Hours 45	Credits 3	Total Marks 100

COURSE OBJECTIVES

- To enable students to know about the diversity of lower organisms.
- To understand the life cycle pattern of Bryophytes, Pteridophytes and Gymnosperms.
- To study the fossil remains of plants in the division of Paleobotany.

Algae: Micro preparation and detailed microscopic analysis of vegetative and reproductive parts of the following Algae - *Nostoc*, *Caulerpa*, *Chara*, *Cyclotella*, *Sargassum* and *Gracillaria*. Study the Economic importance of Algae (Spotters - Agar-agar, Carrageenan, SCP (*Spirulina*) – *Chlorellin* (Antibiotic), Fodder (*Sargassum*) – Diatomite.

Fungi: *Albugo*, *Pilobolous*, *Peziza*, *Saccharomyces*, *Puccinia* and *Cercospora* (Spotter - *Penicillium* and *Pleurotus ostreatus*)

Lichen: *Lichen* and its types

Bryophytes: Micro preparation and detailed microscopic analysis of vegetative and reproductive parts the following Bryophytes – *Marchantia*, *Anthoceros* and *Funaria*

Pteridophytes: Study of the Habit, TS of leaf and Stem, Morphology of Reproductive structures of Following Pteridophytes. *Selaginella*, *Equisetum* and *Adiantum*

Gymnosperm: Study of the Habit, TS of leaf and stem, Morphology of Reproductive structures of following gymnosperm genera *Cycas*, *Pinus* and *Gnetum*

Paleobotany: Study the following fossil members, *Rhynia*, *Lepidodendron* and *Williamsonia*, through permanent slides.



***Bonafide record of practical work done should be submitted for the practical examination.**

Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Differentiate the lower forms and advanced Thallophytes and its vegetative and reproductive parts.	K3
CO2	Analyze the internal organization of Cryptogams and Phanerogams.	K4
CO3	Evaluate and assess different fossil plant through permanent slides.	K5

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S

S - Strong

H - High

M - Medium

L – Low



SRI VIDYA MANDIR ARTS AND SCIENCE COLLEGE (Autonomous)

KATTERI – 636 902

UG MODEL PRACTICAL QUESTION PAPER

End semester Examination Question Paper Pattern

(For the candidates admitted from the academic year 2020-21 onwards)

Core Practical: I (COVERING PLANT DIVERSITY - I & II)

(Algae, Fungi, Lichen, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)

Time: 3 Hours

Max. Marks: 60 Marks

Practical: 50 Marks

Record : 10 Marks

BREAK UP OF MARKS

1. Take transverse section of A, B, C, D and E Stain and mount in glycerin.
Identify giving a reason. Draw diagrams. Leave the slides for valuation. (20)
2. Draw diagrams and write notes of interest on F, G, H, I & J (15)
3. Name the genus, group and morphology of given part of K, L and M. (9)
(Diagrams not necessary)
4. Identify and write notes on the economic importance of N, O & P. (6)

KEY

(Algae, Fungi, Lichen, Bryophytes, Pteridophytes, Gymnosperms and Paleobotany)

A, B, C, D and E - Sectioning of materials from PD-1 & PD-II.

(A - Algae, B- Fungi, C- Bryophytes, D- Pteridophytes and E- Gymnosperms)

(Thallus, Rachis, and Reproductive part)

(Preparation – 2, Identification -1, and Reason -1) (5x4=20 Marks)

F, G, H, I & J (Slides, spotters, Specimen, Photo cards, etc from PD-1 & PD-II)

(F - Algae, G- Fungi/Lichen, H- Bryophytes, I- Pteridophytes and

J-Gymnosperms/Paleobotany)

(Thallus, Internal structure, Rachis, and Reproductive part)

(Identification -1, Reason -2) (5x3=15 Marks)

K, L, and M - Genus (1), Group (1) and Morphology (1)

(Algae/Fungi/Bryophytes/Pteridophytes/Gymnosperms) (3x3=9 Marks)

N, O, & P = Economic importance

(Algae/Fungi/Lichen/Bryophytes/Pteridophytes/Gymnosperms)

(Identification -1; Reason -1) (3x2=6 Marks)



Program: B.Sc. Botany				
Allied – I B.Sc. Zoology/Chemistry		Course Code: 20UBO1A01	Course Title: Phycology, Mycology and Plant pathology, Bacteria and Virus, Bryophytes, Pteridophytes and Gymnosperms	
Semester I	Hours/Week 6	Total Hours 90	Credits 4	Total Marks 100

Course Objectives

1. To enhance the fundamental knowledge of the plant kingdom.
2. To learn the structure and life cycle patterns of primitive to advanced life forms.
3. To know the economic importance of primitive plants.

UNIT – I

Phycology: General characters, Structure, Reproduction and life cycle of the following Genus: *Oscillatoria*, *Oedogonium*, *Sargasum* and *Gracilaria*. Economic importance of algae.

UNIT – II

Mycology and Plant Pathology: General characters, Structure, Reproduction and Life cycle of the following Genus: *Penicillium*, *Albugo* and *Agaricus*. Economic importance of Fungi.

Bacteria and Virus: A general study of Bacteria and viruses. Economic importance of bacteria.

UNIT – III

Bryophytes: General characters, Structure, Reproduction and Life cycle of *Marchantia* and *Funaria*. Economic importance of Bryophytes.

UNIT – IV

Pteridophytes: General characters, Structure, Reproduction and Life cycle of *Lycopodium* and *Adiantum*. Economic importance of Pteridophytes.

UNIT – V

Gymnosperms: General characters, Structure, Reproduction and Life cycle of *Cycas* and *Gnetum*. Economic importance of Gymnosperms.

**Text Books**

1. Gangulee, Das and Kar. (2001). College Botany Vol II. New central Book agency Pvt. Ltd. Calcutta.
2. Pandey, B.P. (1994). A Text book of Botany - Pteridophyta. Chand & Co. New Delhi.

Reference Books

1. Vashishta, B.R. (1998). The Algae.S. Chand & Co., New Delhi.
2. Vashishta, B.R. (1998). Fungi. S. Chand & Co., New Delhi.
3. Vashista, P.C., Sinha and Anil Kumar. (2008). Text book of Bryophytes. Chand & Co., New Delhi.
4. Vashista, P.C. (1992). Pteridophyta. Chand & Co., New Delhi.
5. Pandey, B.P. (1981). Gymnosperms. Chand & Co., New Delhi.
6. Gilbert M. Smith (1951). Manual of Phycology. New Delhi.

Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Differentiate and identify the plant types.	K3
CO2	Understand the life cycle patterns of cryptogamous and gymnosperms.	K4
CO3	Apply the knowledge of bacteria and virus.	K4
CO4	Explore the economic importance of lower life forms.	K5

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M

S - Strong

H - High

M - Medium

L – Low



Program: B.Sc. Botany				
Allied – II B.Sc. Zoology/Chemistry		Course Code: 20UBO2A02	Course Title: Cytology, Anatomy, Embryology, Taxonomy of Angiosperms, Plant physiology and Ecology	
Semester I	Hours/Week 6	Total Hours 90	Credits 4	Total Marks 100

Course Objectives

1. To learn the plant cell organelles and its functions.
2. To differentiate the anatomical and embryological features.
3. To acquire knowledge on the classification and nomenclature of angiosperms.
4. To know the physiological and ecological adaptation of plants.

UNIT – I

Cytology: Study of plant cell organelles with emphasis on cell wall, Chloroplast, Mitochondria and Nucleus.

UNIT – II

Anatomy & Embryology: Primary and secondary structure of dicot and monocot leaf, stem and root (Mesophytic only). Embryology - structure of anther, microsporogenesis and male gametophyte. Structure of ovule, megasporogenesis and female gametophyte. Double fertilization.

UNIT – III

Taxonomy of Angiosperms: Bentham and Hooker's classification (outline only). Study of the following families with their economic importance - *Leguminaceae*, *Cucurbitaceae*, *Rubiaceae*, *Asteraceae*, *Euphorbiaceae* and *Arecaceae*. Herbarium techniques.

UNIT – IV

Plant Physiology: Water relationships of plants. Osmosis and absorption of water. Photosynthesis: Photosynthetic apparatus, primary photochemical reaction, path of carbon (Calvin cycle). Respiration: Glycolysis and Krebs cycle. Phytohormones: auxins and cytokinins.

**UNIT – V**

Ecology: Structure and functions of ecosystems. Vegetational types of Southern India. Pollution- Air, water and noise. Morphological and anatomical adaptations in Hydrophytes and Xerophytes.

Text Books

1. Gangulee, H.C., Das, K.S. and Dutta, C.T. (1986). College Botany Vol. - I. AIU Publications. New Delhi.
2. Pandey, S.N., Misra, S.P and Trivedi, P.S. (2016). A Textbook of Botany. Volume - I, 13th Edition. Vikas Publishing House.
3. Gangulee and Kar, A.K. (1986). College Botany Vol. - II. AIU Publications. New Delhi.
4. Pandey, S.N., Misra, S.P and Trivedi, P.S. (2016). A Textbook of Botany. Volume - II, 13th Edition. Vikas Publishing House.

Reference Books

1. Pandey, B.P. (1997). Taxonomy of Angiosperms. Chand & Co., New Delhi.
2. Jain, V.K. (1993). Fundamentals of plant physiology. S. Chand & Co. New Delhi
3. Shukla, R.S. and Chandal, P.S. (2000). Plant Ecology and soil science. Chand & Co. Ltd., New Delhi.
4. Bhojwani and Bhatnager. (1977). The embryology of angiosperms. Vikas Publishing House, New Delhi.
5. Pandey, B.P. (1978). Plant Anatomy. Chand and Co, New Delhi.
6. Maheswari, P. (1950). An introduction to the embryology of Angiosperms. McGraw Hill.



Course Outcomes (COs)

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

CO Number	CO Statement	Knowledge Level
CO1	Gain knowledge on plant cell organelles.	K1
CO2	Understand the anatomical and embryological variations of plant taxa.	K2
CO3	Apply the knowledge using keys and manuals for identifying unknown plants at species level.	K3
CO4	Demonstrate various physiological experiments.	K3

K1 – Remember, K2 – Understand, K3 – Apply, K4 – Analyze, K5 – Evaluate, K6 – Create

Mapping of COs with POs

PO CO	PO1	PO2	PO3	PO4	PO5
CO1	S	H	H	S	M
CO2	S	M	H	M	H
CO3	H	S	H	S	S
CO4	H	H	M	S	M

S - Strong

H - High

M - Medium

L – Low



**SRI VIDYA MANDIR ARTS AND SCIENCE COLLEGE (Autonomous)
KATTERI - 636 902**

UG MODEL PRACTICAL QUESTION PAPER

End semester Examination Question Paper Pattern

(For the candidates admitted from the academic year 2020-2021 onwards)

Time: 3 Hours

Max. Marks: 60 Marks

BREAK UP OF MARKS

Allied Practical: FIRST / SECOND ALLIED COURSE – II

Maximum: 60 Marks

Practical : 50 Marks

Record: 10 Marks

1. Take transverse section of A & B. Stain and mount in Glycerin. Identify giving reasons. Draw diagrams. Submit the slides for valuation. (10 Marks)
2. Refer C & D to their families, giving reasons (Diagrams not necessary) (10 Marks)
3. Identify the plant, family and morphology of the parts used for E, F, G, H and I. (15 Marks)
4. Write critical notes on J, K, L, M, N and O. Draw diagrams. (12 Marks)
5. Physiology Experiment - P (3 Marks)

KEY

1. For A and B – (Slide -2 Identification -1 Reasons – 2) 2 x 5 = 10 Marks
2. For C and D - Any two plants prescribed in the syllabus.
(Reasons 3, Identification -2) 2 x 5 = 10 Marks
3. For E, F, G, H and I - any 5 specimens given in
the practical syllabus. 5 x 3 = 15 Marks
4. Notes 1, Diagram 1 for J, K, L, M, N, O 2 x 6 = 12 Marks
5. P - Physiology Experiment 3 Marks

*** Bonafide record of practical work done should be submitted for the practical examination.**