



BAGALKOT UNIVERSITY

Mudhol Road, Jamkhandi-587301 Dist: Bagalkot

PROGRAM /COURSE STRUCTURE AND SYLLABUS FOR BOTANY

as per the Choice Based Credit System (CBCS) designed in
accordance with Learning Outcomes-Based Curriculum
Framework (LOCF)

For
Bachelor of Science
(BOTANY)
(General Degree)
I and II Semester

w.e.f.

Academic Year 2024-25

Preamble for UG Syllabus of Bagalkot University

Bagalkot University Jamkhandi has been established by the Government of Karnataka and has started functioning from the academic year 2023-24. All the degree colleges other than engineering and medical colleges in the district of Bagalkote, are affiliated to this university as per the Karnataka State Universities Act 2000, as modified by the 26th Act of 2022. The students taking admission to any of the colleges in the district of Bagalkote, from the academic year 2023-24 will be students of Bagalkot University. The Government of Karnataka has instructed all the Universities to revise the under graduate syllabus as per the Government order no. ED 166 UNE 2023 Bengaluru Dated 08-05-2024 from the academic year 2024-25.

Hence the Bagalkot University has revised the syllabus as suggested by its Board of Studies and approved by Academic Council and Syndicate. The subject code format for all the subjects of the new syllabus is also revised.

The subject code format is described in the following.

Subject Code Format

1	2	3	4	5	6	7	8	9	10
VER	DEGREE	SEM	DISCIPLINE			SUB. TYPE	SL. NO.	FOR	TH/LAB/F
							SUB. TYPE		
2	A	1	C	H	E	M	0	1	T
2	B	1	P	O	L	M	0	1	T

[1]The Version information gives the version of the syllabus. It can take values 1,2..9,a,b,...

[2]The UG degree codes to be provided as / The code applicable to all degrees

Sl. No	Degree Code		Degree
1	B.Sc.	A	Bachelor of Science
2	B.A	B	Bachelor of Arts
3	B.Com.	C	Bachelor of Commerce
4	BBA	D	Bachelor of Business Administration
5	BCA	E	Bachelor of Computer Applications
6	BSW	F	Bachelor of Social Work
7.	-----	S	Applicable to all degrees

[3]The Semester Information is provided as

Sl. No	Semester
1	1
2	2
3	3
....	

[4-6]The Discipline Information to be provided as

Sl No	Degree	Discipline Code
1	B.Com.	XXX
2	BCA	XXX
3	BBA	XXX
4	BSW	XXX
5	B.A	'HIS', 'POL', 'GEO', 'KAN', 'HIN' etc. The detailed list is to be provided
6	B.Sc.	'PHY', 'CHE', 'BOT', 'ELE' etc. The detailed List is to be Provided

[7] The Subject Type to be provided as

Sl. No.	TYPE	Description
1	Major	M
2	Language	L
3	Constitutional Moral Values	C
4.	Elective	E
5.	Skill / Practical based learning	S
6.	Mini Project	P
7.	Internship	I
8.	Case study/ Survey using principles of Research methodology	R

[8-9] The Running Serial Number is to be provided for a particular Subject type 01 to 99

[10] This character specifies the category of the subject namely, T=Theory, L-Practical, P-Project Work, F-Field work, Viva-V, I-Internship, Dissertation-D

The subject-wise expert committee to draft, as per the Curriculum Framework for various Undergraduate Programmes to be followed with effect from academic year 2024-25. Recommended by the Joint Board of Studies of Bagalkot University, Jamkhandi BGKUJ/RO/2024-25/245/16 dated:11 June 2024.

The Framework for General degree -3 Majors Degree with deep Specialization up to 4th semester under CBCS scheme is finalized as per the framework for 3-Major. Degree with deep specialization, is pleased to submit its partial report on the syllabus for the First Year (First & Second Semesters) B.Sc Botany and detailed Course Structure for B.Sc Botany Three Major up to 4th Semester.

The committee discussed various models suggested by the Karnataka State Higher Education Council in its joint meetings with the Chairpersons of Board of Studies of all state universities in Karnataka and resolved to adopt a Model 3-Majors with a general degree.

The expert committee suggested to the implementation of this curriculum structure in Department of Botany in UG Colleges in Karnataka.

The subject expert committee designed the Course Learning Outcome (CO) to help the learners to understand the main objectives of studying the courses by keeping in mind of the Programme outcomes (PO) of the graduate degree in Botany or a graduate degree with Botany as a major subject.

As the Botany subject is a vast with several branches of specializations, it is difficult for every student to learn each branch of Botany, even though each paper has its own importance. Hence the subject expert committee suggested to consider elective papers in this course, so student can select elective paper as per her/his needs and interest.

PROGRAM STRUCTURE

Syllabus and Credits Structure under Choice Based Credit System [CBCS] General Degree for the Three Years B.Sc. with Botany Undergraduate Programme with effect from 2024-25

First Semester B.Sc. (Botany) Scheme

SEMESTER-I											
Category	Course code	Title of the Paper	Marks			Teaching hours/ week			Credits	Duration of Exam (Hrs)	Teaching Department
			IA	SEE	Total	L	T	P			
L1	-----	Language 1	20	80	100	3	-	-	3	3	-----
L2	-----	Language 2	20	80	100	3	-	-	3	3	-----
Major	2A1BOTM01T	Diversity of viruses, microbes, algae, fungi and their applications	20	80	100	3	-	-	3	3	Botany
	2A1BOTM01L	Diversity of viruses, microbes, algae, fungi and their applications	10	40	50	-	-	4	2	3	Botany
Major		Major Subject 2	20	80	100	3	-	-	3	3	---
		Practical	10	40	50	-	-	4	2	3	---
Major		Major Subject 3	20	80	100	3	-	-	3	3	---
		Practical	10	40	50	-	-	4	2	3	---
	2S1XXXC01T	Constitutional Values/	10	40	50	2	-	-	2	2	Constitutional Values:
	2S1XXXC02T	Environment studies									Political Science
											Environmental Studies:
											Chemistry/ /Geography/ Botany
Total Marks					700	Semester Credits			23		

Second Semester B.Sc. Botany Scheme

SEMESTER-II											
Category	Course code	Title of the Paper	Marks			Teaching hours/ week			Credits	Duration of exams (Hrs)	Teaching Department
			IA	SE E	Total	L	T	P			
L3	-----	Language 3	20	80	100	3	-	-	3	3	-----
L4	-----	Language 4	20	80	100	3	-	-	3	3	-----
Major	2A2BOTM02T	Diversity and Applications of Bryophytes, Pteriophytes, Gymnosperms and Paleo botany	20	80	100	3	-	-	3	3	Botany
	2A2BOTM02L	Diversity and Applications of Bryophytes, Pteriophytes, Gymnosperms and Paleo botany	10	40	50	-	-	4	2	3	Botany
Major	-----	Major Subject 2	20	80	100	3	-	-	3	3	-----
	-----	Practical	10	40	50	-	-	4	2	3	-----
Major	-----	Major Subject 3	20	80	100	3	-	-	3	3	-----
	-----	Practical	10	40	50	-	-	4	2	3	-----
	2S1XXXC01T	Constitutional Values	10	40	50	2	-	-	2	2	Constitutional Values: Political Science
	2S1XXXC02T	Environment Studies									Environmental Studies: Chemistry/Geography/ Botany
Total Marks					700	Semester Credits			23		

Bagalkot University, Jamkhandi
B.Sc. Botany

Programme Specific Outcomes (PSO):

On completion of the 03 years Degree in **Botany** students will be able to:

- Demonstrate, solve and understand the major concepts in all the disciplines of **Botany**.
- Understand practical skills so that they can understand and assess risks and work safely and competently in the laboratory.
- To apply standard methodology to the solutions of problems in **Botany**
- Provide students with the ability to plan and carry out experiments independently and assess the significance of outcomes.
- Develop in students the ability to adapt and apply methodology to the solution of unfamiliar types of problems.
- Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of **Botany**
- To build confidence in the candidate to be able to work on his own in industry and institution of higher education.
- To develop an independent and responsible work ethics.
- The graduate should be able to demonstrate sufficient proficiency in the hands-on experimental techniques for their area of specialization within biology during research and their professional career.
- To enable the students for practicing the best teaching pedagogy as a biology teacher including the latest digital modules.
- The graduates should be knowledgeable and competent enough to appropriately deliver on aspects of global importance like climate change, SDGs, green technologies, etc at the right opportunity.
- Skill development for the collection, preservation, and recording of information after observation and analysis- from simple illustration to molecular database development.
- To enable the graduates to prepare for national as well as international level competitive examinations like UGC-CSIR, UPSC, KPSC, and others.

B.Sc. Semester – I

Course Title: Diversity of viruses, microbes, algae, fungi and their applications

Course Code: 2A1BOTM01T

Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
Major	Theory	03	03	40 hrs.	3hrs.	20	80	100

Course Outcomes (COs):

At the end of the course students will be able to:

- CO 1:** Develop an understanding of the concept of microbial nutrition, Classify viruses based on their characteristics and structures. Demonstrate an understanding of Algae.
- CO 2:** Develop a critical understanding of plant diseases and their remediation. Examine the general characteristics of bacteria and their cell reproduction/recombination.
- CO 3:** Increase the awareness and appreciation of human-friendly viruses, bacteria, algae, and their economic importance. Identify true fungi and demonstrate the principles and application of plant pathology in the control of plant disease.
- CO 4:** Demonstrate skills in laboratory, field, and glasshouse work related to mycology and plant pathology.
- CO 5:** Develop an understanding of microbes, fungi, and lichens and appreciate their adaptive strategies Identify the common plant diseases according to geographical locations and device control measures. Conduct experiments using skills appropriate to subdivisions.

Unit	Title: Diversity of Viruses, microbes, Algae, Fungi and their applications	40 hrs/sem
Unit I	<p>Viruses and Microbes</p> <p>Viruses – History; Classification (Baltimore); Living and non-living features; Structure of DNA virus (T4 phage); Lytic and lysogenic cycle; RNA virus (TMV); Viroids and Prions; Viral plant diseases –Banana bunchy top, Yellow mosaic of beans, Tobacco mosaic disease.</p> <p>Bacteria – History; Classification; General characteristics of Archaeobacteria and Eubacteria; Morphology and ultrastructure of bacterial cell; Nutrition (autotrophic & heterotrophic); Reproduction and Recombination; Plant diseases – Crown gall and Citrus canker.</p> <p>Cyanobacteria – Morphology (Unicellular to multicellular); Cell composition; Classification and distribution; Reproduction; Type study – Nostoc, Oscillatoria.</p>	10 hrs
Unit II	<p>Algae</p> <p>General characteristics; Distribution; Range of thallus organization, Pigmentation and Classification (according to G. M. Smith); Reproduction; Morphology and life-cycles of <i>Oedogonium</i>, <i>Chara</i>, <i>Ectocarpus</i>, <i>Batrachospermum</i>,</p>	10 hrs

Unit III	<p>Fungi General characteristics; Range of thallus organization; Cell wall composition; Nutrition; Reproduction and classification; (According to Alexopoulos) Life cycle of <i>Albugo</i> (Phycomycetes), <i>Rhizopus</i> (Zygomycetes), <i>Aspergillus</i> (Ascomycetes), <i>Puccinia</i> (Basidiomycetes), <i>Cercospora</i> (Deuteromycetes); Symbiotic Associations (Lichen). Mycorrhiza: ectomycorrhiza and endomycorrhiza.</p>	10 hrs
Unit IV	<p>Applications Virus: In biological study – Vaccines, As vectors (gene therapy). Monera: Fermentation, Bioremediation, Bioaccumulation, Vectors (Agrobacterium), N₂ fixation and Industrial Importance (Spirulina and Insulin production). Algae: In Agriculture, Industrial Economic importance of macroalgae (Seaweeds); In food, food chain in aquatic ecosystem. Fungi: Role of fungi in Biotechnology – Food (Fermented products, Mycoproteins and Mushroom cultivation); Industry (Organic acid –citric acid, Enzyme – Pectinase); Medicine (Penicillin); Baking (Yeast); Biological Control –Mycoherbicides, Mycofungicides, Mycoinsecticides.</p>	10 hrs

Recommended books:

1. Kumar, H.D. (1999). Introductory Phycology. Affiliated East-West. Press Pvt. Ltd. Delhi. 2nd edition.
2. Tortora, G.J., Funke, B.R., Case, C.L. (2010). Microbiology: An Introduction, Pearson Benjamin Cummings, U.S.A. 10th edition.
3. Sethi, I.K. and Walia, S.K. (2011). Text book of Fungi & Their Allies, MacMillan Publishers Pvt. Ltd., Delhi.
4. Alexopoulos, C.J., Mims, C.W., Blackwell, M. (1996). Introductory Mycology, John Wiley and Sons (Asia), Singapore. 4th edition.
5. Raven, P.H., Johnson, G.B., Losos, J.B., Singer, S.R. (2005). Biology. Tata Mc Graw Hill, Delhi, India.
6. Smith, G.M. 1971. Cryptogamic Botany. Vol. I Algae & Fungi. Tata McGraw Hill Publishing Co., New Delhi.
7. Sharma, O.P. 1992. Text Book of Thallophytes. Mc Graw Hill Publishing Co.
8. Sharma, P.D. 1991. The Fungi. Rastogi & Co., Meerut.
9. Dube, H.C. 1990. An Introduction to Fungi. Vikas Publishing House Pvt. Ltd., Delhi.
10. Clifton, A. 1958. Introduction to the Bacteria. McGraw Hill & Co., New York.
11. Aneja, K.R. 1993. Experiments in Microbiology, Pathology and Tissue Culture. Vishwa Prakashan, New Delhi.
12. Vashista, B.R. 1978. Algae. S Chand & Co. Ltd., New Delhi.
13. Basu A.N. 1993. Essentials of plant viruses, vectors and plant diseases. New Age International, New Delhi.
14. Chopra, G.L. A text book of algae. Rastogi & Co., Meerut.
15. Fritze, R.E. 1977. Structure and reproduction of Algae. Cambridge University Press.
16. Rangaswamy, G. 1988. Diseases of crop plants in India. Prentice Hall of India, New Delhi.
17. Sundarajan, S. 1997. College Botany Vol. I. S Chand & Co. Ltd., New Delhi.
18. Alexopoulos, 1992. An Introduction to Mycology. New Age International, New Delhi.
19. Vashista, B.R. 1978. Fungi. S Chand & Co. Ltd., New Delhi.
20. H.N. Srivastava, 2003. Algae Pradeep Publication, Jalandhar, India
21. Singh-Pande-Jain 2004-05. A Text Book of Botany. Rastogi Publication, Meerut
22. Anil K. Thakur & Susheel K. Bassi. Diversity of Microbes and Cryptogams. Chand Publication.

B.Sc. Semester – I

Course Title: Diversity of viruses, microbes, algae, fungi and their applications

Course Code: 2A1BOTM01L

Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
Major	Practical	02	04	40	3hrs.	10	40	50

Course Outcomes (COs):

At the end of the course, students will be able to:

- CO 1:** Develop an understanding of the concept of microbial nutrition, Classify viruses based on their characteristics and structures.
- CO 2:** Develop a critical understanding of plant diseases and their remediation. Examine the general characteristics of bacteria and their cell reproduction/recombination.
- CO 3:** Increase the awareness and appreciation of human-friendly viruses, bacteria, algae, and their economic importance. Identify true fungi and demonstrate the principles and application of plant pathology in the control of plant disease.
- CO 4:** Demonstrate skills in laboratory, field, and glasshouse work related to mycology and plant pathology.
- CO 5:** Develop an understanding of microbes, fungi, and lichens and appreciate their adaptive strategies
- CO 6:** Identify the common plant diseases according to geographical locations and devise control measures.

List of the Experiments, each will have 4rs / Week (Minimum 12 experiments)

1. Electron Micrographs / Models of Viruses – T₄ phage and TMV,
2. Line drawing photograph of lytic cycle and lysogenic cycle. Viral plant diseases.
3. Simple / differential staining of bacteria and Rhizobium from root nodules.
4. Demonstration of VAM in roots / VAM photographs and Khuns fermentation.
5. Study of vegetative and reproductive structure of Nostoc, Oscillatoria
6. Study of vegetative and reproductive structure of Oedogonium,
7. Study of vegetative and reproductive structure of Chara,
8. Study of vegetative and reproductive structure of Ectocarpus and Batrachospermum
9. Study of vegetative and reproductive structure of Albugo, Rhizopus,
10. Study of vegetative and reproductive structure of Aspergillus, Cercospora.
11. Study of vegetative and reproductive structure of Puccinia,
12. Study of vegetative and reproductive structure of Crustose, Foliose and Fruticose Lichen

SEMESTER 1

CORE COURSE: BOTANY

CORE SUBJECT CODE: 2A1BOTM01L

DIVERSITY OF VIRUSES, MICROBES, ALGAE, FUNGI AND THEIR APPLICATIONS) PRACTICAL

Time: 03Hours

Max.Marks:40 Marks

Question Paper Pattern

Q.1.	Identify and classify the given specimen A,B, and C giving reasons	12 marks
Q.2.	Make a temporary slide and stain the given specimen D and show the preparation to the examiner (No written answer is expected).	03 marks
Q.3.	Identify the given specimen/slide/ photograph E, F and G giving reasons.	12 marks
Q.4.	Identify the given specimen/Photograph H giving reasons.	03 marks
	Viva-voce	05 Marks
	Practical Record (Journal)	05 Marks

Instructions to the Examiner

- Q.1. One Specimen each from Cyanobacteria, Algae, Fungi.
- Q.2. Simple/Differential/ Rhizobium / VAM
- Q.3. One specimen/slide / Photograph, Cyanobacteria, Algae, Fungi.
- Q.5. One specimen/slide/Electron Micrograph of Viruses or Bacteria.

Books recommended:

1. Ashok Bendre and Ashok Kumar (2009) A textbook of practical botany, Rostakge Publications.
2. Sharma, O.P., and Sharma, K. D. (2017) Practical Botany-I, Pragathi Prakashan, Meerut.
3. Raghuram, M, and Rao, M. V. (2018) B. Sc. Practical Book of Botany First Year, Technical Publishers.
4. Verghese, N., Joy, P.P. Microbiology Laboratory Manual, Kerala Agricultural University.

B.Sc. Semester – II

Course Title: - Diversity and Applications of Bryophytes, Pteriophytes, Gymnosperms and Paleo botany
Course Code: 2A2BOTM02T

Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative Assessment Marks	Total Marks
Major	Theory	03	03	40 hrs.	3hrs.	20	80	100

Course Outcomes (COs):

At the end of the course students will be able to:

- CO1:** Demonstrate an understanding of Bryophytes, Pteridophytes, and Gymnosperms.
- CO2:** Develop a critical understanding of morphology, anatomy, and reproduction of Bryophytes, Pteridophytes, and Gymnosperms.
- CO3:** Understanding of plant evolution and their transition to land habitat.
- CO4:** Demonstrate proficiency in the experimental techniques and methods of appropriate analysis of Bryophytes, Pteridophytes, Gymnosperms
- CO 5:** Economic importance of Bryophytes, Pteridophytes, Gymnosperms

Unit	Title: Diversity of Bryophytes, Pteriophytes and Gymnosperms Paleobotany	40 hrs/sem
Unit I	Bryophytes: General account, classification, (According to G.M. Smith) distribution. Structure and reproduction in <i>Riccia</i> , <i>Marchantia</i> <i>Anthoceros</i> , and <i>Funaria</i> . Evolutionary significance of Bryophytes. Evolution of Gametophyte and Sporophyte in Bryophytes	10 hrs
Unit II	Pteriophytes: Origin, general account distribution and classification. (According to G.M. Smith) Structure and reproduction of <i>Psilotum</i> , <i>Lycopodium</i> , <i>Selaginella</i> , <i>Equisetum</i> , and <i>Marsilea</i> . Stelar evolution; Heterospory and Seed Habit in Pteridophytes.	10hrs
Unit III	Gymnosperms: General account, classification (According to G.M. Smith and distribution. Structure and reproduction of <i>Cycas</i> , <i>Pinus</i> and <i>Gnetum</i> ,	10 hrs
Unit IV	Paleobotany: Geological time scale, fossilization and study of fossil types – <i>Rhynia</i> , <i>Lepidodendron</i> , <i>Lepidocarpon</i> , <i>Calamites</i> and <i>Lyginopteris</i> . Economic importance of Bryophytes, Pteridophytes and Gymnosperms.	10hrs

Recommended books:

1. Smith, G.M. 1971. Cryptogamic Botany, Vol. II. Bryophytes and Pteridophytes. Tata McGraw Hill Publishing Co., New Delhi.
2. Sharma, O.P. 1990. Text Book of Pteridophyta. McMillan India, Ltd.
3. Puri, P. 1980. Bryophyta. Atma Ram & Sons, New Delhi.
4. Parihar, N.S. 1970. An Introduction to Embryophyta. Vol. 1. Bryophyta. Central Book Depot. Allahabad.
5. Sporne, K.R. 1966. Bryophytes.
6. Vashista, B.R. 1978. Bryophytes. S. Chand & Co., Ltd., New Delhi.
7. Bharnagar, S.P. and Moitra, A. 1966. Gymnosperms. New Age International Ltd., New Delhi.
8. Gifford, E.M. and Foster, A.S. 1988. Morphology and Evolution of vascular plants. W.H. Freeman and Co., New York.
9. Sporne, K.R. 1965. The Morphology of Gymnosperms. Hutchinson & Co., Ltd. London.
10. Stewart, W.M. 1983. Paleobotany and the Evolution of plants. Cambridge University press. Cambridge.
11. Agashe, S.N. 1995. Paleobotany. Plants of the past, their evolution, paleoenvironment and application in exploration of fossil fuels. Oxoford & IBH., New Delhi.
12. Parihar, N.S. 1977. The morphology of Pteridophytes. Central Book Depot. Allahabad.
13. Rashid, A. 1998. An Introduction to Pteridophyta. II Ed., Vikas Publishing House, New Delhi.
14. Sporne, K.R. 1966. The morphology of Pteridophytes. The structure of ferns and Allied plants. Hutchinson & Co., Ltd. London.

B.Sc. Semester – II
Discipline Specific Course (DSC)

Course Title: - Diversity And Applications of Bryophytes, Pteriophytes, Gymnosperms and Paleo botany

Course Code: 2A2BOTM02L

Type of Course	Theory / Practical	Credits	Instruction hour per week	Total No. of Lectures/Hours / Semester	Duration of Exam	Formative Assessment Marks	Summative assessment Marks	Total Marks
Major	Practical	02	04	40 hrs.	3hrs.	10	40	50

Course Outcomes (COs):

At the end of the course, students will be able to:

CO 1: Demonstrate an understanding of Bryophytes, Pteridophytes, and Gymnosperms.

CO 2: Develop a critical understanding of morphology, anatomy, and reproduction of Bryophytes, Pteridophytes, Gymnosperms.

CO 3: Understanding of plant evolution and their transition to land habitat.

CO4: Demonstrate proficiency in the experimental techniques and methods of appropriate analysis of Bryophytes, Pteridophytes, Gymnosperms

CO 5: Economic importance of Bryophytes, Pteridophytes, Gymnosperms

List of the Experiments, each will have 4rs / Week (Minimum 12 experiments)

1. Study of morphology, anatomy and reproductive structure of *Riccia*, *Marchantia* *Anthoceros*,
2. Study of morphology, anatomy and reproductive structure of *Funaria*
3. Study of morphology, anatomy and reproductive structure of *Psilotum*, *Lycopodium*,
4. Study of morphology, anatomy and reproductive structure of *Selaginella*, *Equisetum*,
5. Study of morphology, anatomy and reproductive structure of *Marsilea*.
6. Study of morphology, anatomy and reproductive structure of *Cycas*,
7. Study of morphology, anatomy and reproductive structure of *Pinus*
8. Study of morphology, anatomy and reproductive structure of *Gnetum*
9. Geological Time Scale
10. Observations of fossil impressions and slides of *Rhynia*, *Lepidodendron*, *Lepidocarpon*,
11. Observations of fossil impressions and slides of *Calamites* and *Lyginopteris*
12. *One day compulsory study tour to nearby forest area / pond. Tour report and field note book in the study tour should be submit during the practical examination*

SEMESTER II
CORE COURSE: BOTANY
CORE SUBJECT CODE: 2A2BOTM02L
PAPER II: DIVERSITY AND APPLICATIONS OF BRYOPHYTES, PTERIDOPHYTES AND GYMNOSPERMS

Time: 03Hours

Max.Marks:40 Marks

GENERAL INSTRUCTIONS TO EXAMINERS:

- Q1. Give specimen to take Morphology of vegetative/reproductive materials from Bryophytes, Pteridophytes, and Gymnosperms (A, B, and C)**
Q2. Give specimen to take internal structure from Bryophytes/Pteridophytes/ Gymnosperms (D, E and F)
Q3. Specimen or Slides from Bryophytes/Pteridophytes/Gymnosperms/fossil (G, H, I and J)
Q4. Viva
Q5. Journal
Q6. Study Tour Report

SCHEME OF PRACTICAL EXAMINATION (DISTRIBUTION OF MARKS):40 MARKS FOR THE SEMESTER END EXAMINATION

Q.1	Identify, classify and describe features observed in the given specimen A,B,C	09 Marks
Q.2	Describe the internal structures of the given specimen D,E & F	09 Marks
Q.3.	Identification of Specimen/slides/Impressive G,H,I,J	08 Marks
Q.4.	Viva-voce	04 Marks
Q.5.	Journal	05 Marks
Q.6.	Tour Report	05 Marks
	Total	40 Marks

Note: Same Scheme may be used for IA (Formative Assessment) examination and reduce to 10 marks

Books recommended:

1. Ashok Bendre and Ashok Kumar (2009) A textbook of practical botany, Rostakge Publications.
2. Sharma, O.P., and Sharma, K. D. (2017) Practical Botany-I, Pragathi Prakashan, Meerut.
3. Raghuram, M, and Rao, M. V. (2018) B. Sc. Practical Book of Botany First Year, Technical Publishers.
4. Verghese, N., Joy, P.P. Microbiology Laboratory Manual, Kerala Agricultural University.

ASSESSMENT METHODS

Formative Assessment for Theory

Evaluation Scheme for Internal Assessment: Continuous Internal Assessment (CIA)

Assessment Criteria for 20 marks		
1st Internal Assessment Test for 20 marks of 1 hour duration after 8 weeks and later marks should be reduced to 5	CIA : C1	5 Marks
2nd Internal Assessment Test for 40 marks 2 hours duration after 15 weeks and marks should be reduced to 10	CIA : C2	10 Marks
Assignment/ Activity	CIA : C3	05 Marks
Total		20 Marks

Summative Assessment for Theory:

SEMESTER END EXAM : SEE	C4	80 Marks
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Formative Assessment for Practical:

Assessment Criteria 10 marks		
Internal Test including basic understanding of the concept, Viva Voce, Journal. Test should be conducted for 50 marks and later it should be reduced for 10 marks	CIA : C1	10 Marks

Summative Assessment for Practical:

SEMESTER END EXAM : SEE	C2	40 Marks
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Instruction to set the question paper.

1. Question number 1 has 12 sub questions consisting of 3 questions from each unit. Each question carries two marks. Student has to answer any ten questions.
2. Question number 2 to 7 are from unit I to IV.
Each question carries five marks. Student has to answer any four questions
3. Question number 8 to 12 are from unit I to IV.
Each question carries ten marks. Student has to answer any four questions

Question Paper pattern

B.Sc. Degree Examination

BOTANY

Time: 3 hours

Max. Marks: 80

Part- A		
1.		Answer any <u>TEN</u> questions 10 x 2 = 20
	a)	
	b)	
	c)	
	d)	
	e)	
	f)	
	g)	
	h)	
	i)	
	j)	
	k)	
	l)	
Part-B		
		Answer any <u>Four</u> questions 4 x 5 = 20
	2	
	3	
	4	
	5	
	6	
	7	
Part-C		
		Answer any <u>FOUR</u> questions 4 X 10 = 40
	8	
	9	
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