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**STATE EDUCATION POLICY-  
2024-25  
(SEP-2024)**


**BOTANY SYLLABUS  
of I to II Semester**

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Submitted

to

**Davangere University  
Davangere-577 007**


  
Chairman - RGS  
Department of Studies & Botany  
Davangere University  
Davangere-577 007

## Bachelor of Science (B.Sc.) Semester Scheme Curriculum Structure for Undergraduate Programme for 2024-25

Sl. No.	Course/ Paper Code	Title of the paper	Subject Category	Teaching Hours/week	Semester End Exam.	Internal Assessment	Total Marks	Credits	Exam Duration
Semester-I									
1.	MC-I	Diversity of Microorganisms and Thallophytes	MC-T	04	80	20	100	03	3 Hours
	Practical-I	Diversity of Microorganisms and Thallophytes	MC-P	04	40	10	50	02	3 Hours
	Total		08		120	30	150	05	---
Semester-II									
2.	MC-II	Diversity of Non-flowering Plants	MC-T	04	80	20	100	03	3 Hours
	Practical-II	Diversity of Non-flowering Plants	MC-P	04	40	10	50	02	3 Hours
	Total		08		120	30	150	05	---
Semester-III									
3.	MC-III	Histology, Plant Anatomy, Embryology and Palynology	MC-T	04	80	20	100	03	3 Hours
	Practical-III	Histology, Plant Anatomy, Embryology and Palynology	MC-P	04	40	10	50	02	3 Hours
	Elective/ Optional-I*		EL/OP-I	02	40	10	50	02	2 Hours
	Total		10		160	40	200	07	---
Semester-IV									
4.	MC-IV	Ecology and Environmental Biology	MC-T	04	80	20	100	03	3 Hours
	Practical-IV	Ecology and Environmental Biology	MC-P	04	40	10	50	02	3 Hours
	Elective/ Optional-II*		EL/OP-II	02	40	10	50	02	2 Hours
	Total		10		160	40	200	07	---
Semester-V									
5.	MC-VA	Morphology and Systematics of Angiosperms	MC-T	04	80	20	100	03	3 Hours
	MC-VB	Plant Breeding and Biotechnology	MC-T	04	80	20	100	03	3 Hours
	Practical-V	Histology, Systematics of Angiosperms,	MC-P	04	40	10	50	02	3 Hours


  
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**Dr. U.S. MAHABALESHWAR**  
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		Plant breeding and biotechnology						
		Total		12	200	50	250	08
		Semester-VI						---
6.	MC-VA	Cytology and Genetics	MC-T	04	80	20	100	03
	MC-VB	Plant Physiology	MC-T	04	80	20	100	03
	Practical-V	Cytology, Genetics and Plant Physiology	MC-P	04	40	10	50	02
		Total		12	200	50	250	08
		Grand Total		60	960	240	1200	40

MC: Major Course, MC-T: Major Course Theory, MC-P: Major Course Practical, EL/OP: Open Elective/Optional

  
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## **BOTANY COURSE OUTCOMES (COs):**

### **Semester I (A-1): Diversity of Microorganisms and Thallophytes**

1. Understand the fascinating diversity, evolution, and significance of microorganisms and thallophytes.
2. Comprehend the systematic position, structure, physiology and life cycles of microbes and thallophytes and their impact on humans and environment.
3. Gain laboratory skills such as microscopy, microbial cultures, staining, identification, preservation of microbes and thallophytes for their applications in research and industry.

### **Semester II (A-2): Diversity of Non- Flowering Plants**

1. Understand the diversity and affinities among Bryophytes, Pteridophytes and Gymnosperms.
2. Understand the morphology, anatomy, reproduction and life cycle across, Bryophytes, Pteridophytes and Gymnosperms, and their ecological and evolutionary significance.
3. Obtain laboratory skills/explore non-flowering plants for their commercial applications.



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## **PROGRAMME SPECIFIC OUTCOME OF B.Sc. BOTANY**

**PSO1:** Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

**PSO2:** Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

**PSO3:** Understanding of various interactions that exist among plants and microbes; to develop the curiosity on the dynamicity of nature.


**PSO4:** Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

**PSO5:** Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

**PSO6:** Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

**PSO7:** Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research in all branches of Botany.

**PSO8:** Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

  
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I BSc, I Semester, Paper I  
Practical Syllabus  
**Paper I: Diversity of Microorganisms and Thallophytes**  
Duration of practical: 4 hours

Syllabus based on theory paper syllabus


1. Study of virus types and its plant diseases
2. Study of bacteria and its disease
3. Study of fungi and its types
4. Study of plant diseases as per in theory syllabus
5. Study of lichens and its types
6. Collection or photographs of any 05 specimens and their submission.

I BSc, I Semester, Paper I  
Practical Internal Assessment (10 Marks)  
**Paper II: Diversity of Microorganisms and Thallophytes**  
Practical Attendance: 05 Marks  
Practical Record: 05 Marks

I BSc, I Semester, Paper I  
Practical Question Paper  
**Paper I: Diversity of Microorganisms and Thallophytes**  
Duration of practical: 3 hours  
Max Marks: 40

Q1	Identify the specimen A, B, and C sketch label and give reason	09 Marks
Q2	Write notes on D and E (Macroscopic)	04 Marks
Q3	Write the pathological aspects of F, G and H	09 Marks
Q4	Identify the slides I, J, K and L	08 Marks
Q5	Viva and Submission	10 Marks


\*Collection or photographs of any 05 specimens

  
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Subject	<b>Diversity of Microorganisms and Thallophytes</b>	Semester	I
Number hr/week	4hours	Total hours	56
Duration of the exam	3 hours	Credits	4

Unit	Content	Hours
I	<b>Microbial Diversity:</b> Brief account on microbial diversity, Mycoplasma, Viruses, General characters and properties of TMV, bacteriophage T4, Plant diseases TMV/BMV and sandal spike. <b>Bacteria:</b> General characteristics, reproduction, classification based on morphology and flagellation, ultrastructure, economic importance, bacterial diseases viz., citrus canker, leaf blight of paddy.	14
II	<b>Cyanobacteria:</b> General characteristics, types study of Nostoc and Spirulina. Economic importance of cyanobacteria. <b>Algae:</b> General characteristics, FE Fritsch system of classification, economic importance, types study of Oedogonium, Chara, Diatoms, Saragassum, Batrachospermum	14
III	<b>Fungi:</b> General characteristics, classification based on Alexopoulos type, economic importance, type study of Phycomycetes (Albugo), Zygomycetes (Rhizopus), Ascomycetes (Penicillium), Basidiomycetes (Agaricus), Deuteromycetes (Cercospora).	14
IV	<b>Plant Pathology:</b> Brief history of plant pathology (Bengal and Irish famine) Causal agent, transmission, symptoms and controlling measures of following diseases white rust of mustard, root rot of arecanut (koleroga), stem rust of wheat, powdery mildew of cucurbits, tikka disease of ground nut. <b>Lichens:</b> occurrence, classification (crustose, foliose, fruticose), internal structure of thallus, structure of apothecium and economic importance	14

\*Filed visit and specimen collection is mandatory.

  
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I BSc, II Semester, Paper II  
Practical Syllabus  
Paper II: **Diversity of Non-Flowering Plants**

Duration of practical:

4 hours

Syllabus based on theory paper syllabus

Study of morphology, anatomy, and reproductive structure of the following types

1. Bryophytes- Marchantia, Anthoceros and Funaria
2. Pteridophytes- Psilotum, Lycopodium, Selaginella, Equisetum and Marsilea
3. Gymnosperms- Cycas, Pinus and Gnetum
4. Fossil plants- Rhynia, Lepidodendron, Calamites and Cycadeoidea

I BSc, II Semester, Paper II  
Practical Internal Assessment (10 Marks)  
Paper II: **Diversity of Non-Flowering Plants**

Practical Attendance: 05 Marks  
05 Marks

Practical Record:


I BSc, II Semester, Paper I  
Practical Question Paper  
Paper II: **Diversity of Non-Flowering Plants**

Duration of practical: 3 hours  
40

Max Marks:

Q1	Identify the specimen A, B, and C sketch label and give reason	09 Marks
Q2	Write notes on D, E and F (Macroscopic)	09 Marks
Q3	Write the pathological aspects of G, H and I	06 Marks
Q4	Prepare a temporary stained mount of J, identify, sketch and label with reasons. Leave it for observation	06 Marks
Q5	Viva and Submission	10 Marks

\*Collection or photographs of any 05 specimens


  
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Subject	<b>Diversity of Non-Flowering Plants</b>	Semester	II
Number hr/week	4hours	Total hours	56
Duration of the exam	3 hours	Credits	4

Unit	Content	Hours
I	<b>Bryophyta:</b> Introduction, general characteristics, classification, structure and reproduction of Hepaticopsida (Marchantia), Antheceropsida (Anthoceros), Bryopsida (Polytrichum). Brief account on evolution of sporophytes in bryophytes and economic importance.	14
II	<b>Pteridophyta:</b> Introduction, general characteristics, classification, structure and reproduction of Psilopsida (Psilotum), Lycopsida (Lycopodium and Selaginella), Sphenopsida (Equisetum), Pteridopsida (Marselia). Brief account on stellar evolution in pteridophytes and economic importance.	14
III	<b>Gymnosperms:</b> Introduction, general characteristics, classification, structure and reproduction of Cycadopsida (Cycas), Gnetopsida (Gnetum), Coniferopsida (Pinus). Economic importance.	14
IV	<b>Paleobotany:</b> Introduction, geological time scale, process of fossilization, types of plant fossils, radiocarbon dating. Fossil taxa: Rhynia, Lepidodendron, Calamites, Cycadeoidea. Birbal Sahani Institute of paleosciences.	14

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<b>Prof Govindappa M</b> Chairman-BOS-UG	<a href="mailto:govindappa.dubot@gmail.com">govindappa.dubot@gmail.com</a> <a href="mailto:dravidateja07@gmail.com">dravidateja07@gmail.com</a> 7338601980
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No. DUD/DOB-BOS-UG/ 2024-25

12 June 2024

**UG- BOS Proceedings**

The UG-BOS meeting was conducted on 12 June 2024 in the Department of Studies in Botany, Davangere University, Shivagangotri at 11 am to discuss and finalize SEP-2024 BSc Botany syllabus and the following BOS members were present as follows;

Sl. No.	Members		Signature
1	Prof Govindappa M	Chairman	
2	Dr Kotresha D	Internal member	
3	Mrs Nagashree B	Internal member	
4	Dr T. Vasanth Naik	Internal member	
5	Prof Prabhavathi S. Horadi	Internal member	
6	Dr Siddalinga Murthy	External member	

The UG-BOS Botany chairman welcomed the members and briefed the agendas of the following,

- All the members approved the 1<sup>st</sup> and 2<sup>nd</sup> semester SEP syllabus and approved.
- The question paper pattern was discussed (made according to SEP-2024 format) and approved.
- The allocations of credits and internal marks verified and approved.
- The practical class syllabus, internal marks was discussed and approved the same.
- The practical internal marks verified (attendance-05 and record-05) and approved. The practical exam should be conducted for 3 hours.
- The BSc faculty gradation list was prepared and approved copy is appended.
- Dr Vasanth Naik submitted the vote of thanks.



**(Prof Govindappa M)**

Chairman-BOS-UG

Department of Studies in Botany

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B Sc I Semester Degree Examination, 2024-25  
(Semester Scheme, New Syllabus: 2024-25)

Subject: **Botany**

Paper: **Diversity of Microorganisms and Thallophytes**

Paper Code:

Time : 3 Hours

Max Marks: 80

Instructions to the Students

1. All sections are compulsory
2. Draw neat and labeled diagrams wherever necessary

**SECTION-A**

1. Answer **ALL** the following questions (2 x 10= 20)
  - a)
  - b)
  - c)
  - d)
  - e)
  - f)
  - g)
  - h)
  - i)
  - j)


**SECTION-B**

- Answer any **SIX** of the following (5 x 6= 30)
- 2.
  - 3.
  - 4.
  - 5.
  - 6.
  - 7.
  - 8.
  - 9.

**SECTION-C**

- Answer any **THREE** of the following (10 x 3= 30)
- 10.
  - 11.
  - 12.
  - 13.

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- Dr Vasanth Naik submitted the vote of thanks.

**(Prof Govindappa M)**

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