



SRI VENKATESWARA UNIVERSITY, TIRUPATHI

4 -Year UG Honours in B.Sc. BOTANY: Major in Consonance with Curriculum Frame work w.e.f AY 2025-26 I Semester

COURSE STRUCTURE

SEMESTER-I

Year	Semester	Course	Title	No. Hrs./ Week	No. of Credits
I	I	1	Diversity of Microbes	3	3
			Diversity of Microbes -Practical	2	1
		2	Diversity of Thallophytes	3	3
			Diversity of Thallophytes -Practical	2	1

Signatures of the Board of Studies members

Sl No.	Designation	Name	Signature
1	BOS Chairman	Dr Mohano Behera, Department of Botany, Govt. Degree College, Pakala	
2	Member	Dr L. Md. Bakshu, Department of Botany, Dr YSR Govt. Degree College, Veduru Kuppam	
3	Member	Dr M. Hemalatha, Department of Botany, SVCR Govt. Degree College, Palamaner	
4	Member	Dr A. Sasikala, Department of Botany, SVCR Govt. Degree College, Palamaner	
5	Member	Smt. S. Padmavathi, Department of Botany, Govt. Degree College, Puttur	
6	Member	Dr P. Sujana, Department of Botany, Govt. Degree College, Puttur	

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COURSE 2: DIVERSITY OF THALLOPHYTES

Theory

Credits: 3

3 hrs/week

I. Learning Objectives: By the end of this course the learner has to:

1. Brief the general characters, classification and value of algae.
2. Discuss the morphology, reproduction and life cycles of some algae.
3. Tell the general characters, classification and value of fungi.
4. Discuss the morphology, reproduction and life cycles of some fungi.
5. Summarize the morphology, anatomy, reproduction and economic value of lichens.

II. Course Outcomes: On completion of this course students will be able to:

1. Compile the general characteristics of algae and their significance in nature.
2. Compare and contrast the characteristics of different groups of algae.
3. Summarize the important features of fungi and their economic value.
4. Distinguish different groups of fungi based on their characteristics.
5. Elaborate the features and significance of lichens.

III. Syllabus of Theory:

Unit-1: Introduction to Algae

8Hrs.

1. General characteristics of algae: occurrence and distribution, cell structure, pigments, flagella and reserve food material.
2. F.E.Fritsch (1935) classification of algae; thallus organization in algae.
3. Life cycles in algae; ecological and economic importance of algae.

Unit-2: Biology of selected Algae

10Hrs.

1. Occurrence, structure, reproduction and life cycle of:
(a) Chlorophyceae: *Spirogyra* (b) Phaeophyceae: *Ectocarpus* and
(c) Rhodophyceae: *Polysiphonia*
2. Culture and cultivation of *Chlorella*


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I Semester

Unit-3: Introduction to Fungi

8Hrs.

1. General characteristics of fungi; Ainsworth (1973) classification.
2. Thallus organization and nutrition in fungi.
3. Reproduction in fungi (asexual and sexual); heterothallism and para-sexuality.
4. Ecological and economic importance of fungi.

Unit-4: Biology of selected Fungi

10Hrs.

1. Occurrence, structure, reproduction and life cycle of:
(a) Zygomycotina: *Rhizopus* (b) Ascomycotina: *Penicillium* (c) Basidiomycotina: *Puccinia*

Unit-5: Lichens

7 Hrs.

1. Lichens: definition, phycobionts and mycobionts in lichens; morphology and internal structure of lichens; classification based on growth form, habitat and fungal partner.
2. Reproduction – vegetative, asexual and sexual methods.
3. Ecological and economic importance of lichens.

IV. Text Books:

1. Pandey, B.P. (2013) College Botany, Volume-I, S. Chand Publishing, New Delhi
2. Hait, G., K. Bhattacharya & A.K. Ghosh (2011) A Text Book of Botany, Volume-I, New Central Book Agency Pvt. Ltd., Kolkata

V. Reference Books:

1. Fritsch, F.E. (1945) The Structure & Reproduction of Algae (Vol. I & Vol. II) Cambridge University Press Cambridge, U.K.
2. Bold, H.C. & M. J. Wynne (1984) Introduction to the Algae, Prentice-Hall Inc., New Jersey
3. Robert Edward Lee (2008) Phycology. Cambridge University Press, New York
4. Van Den Hoek, C., D.G. Mann & H.M. Jahns (1996) Algae: An Introduction to Phycology. Cambridge University Press, New York.
5. Alexopoulos, C.J., C.W. Mims & M. Blackwell (2007) Introductory Mycology, Wiley & Sons, Inc., New York
6. Mehrotra, R.S. & K. R. Aneja (1990) An Introduction to Mycology. New Age International Publishers, New Delhi.
7. Kevin Kavanagh (2005) Fungi; Biology and Applications John Wiley & Sons, Ltd., West Sussex, England.
8. John Webster & R. W. S. Weber (2007) Introduction to Fungi, Cambridge University Press, New York.



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VI. Suggested activities and evaluation methods:

Unit-1: Activity: Algae specimen collection from any water bodies in their locality, recording the characteristics, identification and classifying them according to Fritsch system.

Evaluation method: Evaluating the presentation or report summarizing findings.

Unit-2: Activity: Microscopic observations and recording distinguishing characters of any six algal forms excluding the genera in the syllabus.

Evaluation method: Conducting a Quiz or an exam/ evaluating the chart or drawings or summarized data on similarities and differences.

Unit-3: Activity: Collection of economically valuable fungal products.

Evaluation method: Evaluating the collections made and awarding grade.

Unit-4: Activity: Group discussion/quiz/JAM on characteristics of various groups of algae.

Evaluation method: Assessment of the performance of individual/group of students based on a rubric.

Unit-5: Activity: Microscopic observations and summarizing the salient features of the fungal genera and lichen forms in the syllabus.

Evaluation method: Conducting a Quiz or an exam/ evaluating the chart or drawings or concise data on similarities and differences.


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COURSE 2: DIVERSITY OF THALLOPHYTES

Practical

Credits: 1

2 hrs/week

I. Course Outcomes: On successful completion of this practical course, student shall be able to:

1. Identify some algal and fungal species based on the structure of thalli and reproductive organs.
2. Decipher the lichens based on morphological, anatomical and reproductive features.
3. Realize the value of algal, fungal and lichen products available in markets.

II. Laboratory/field exercises:

1. Study/ microscopic observation of vegetative, sectional/anatomical and reproductive structures of the following using temporary or permanent slides/ specimens/ mounts:
2. **Algae:** *Spirogyra*, *Ectocarpus*, *Vaucheria* and *Polysiphonia*; a centric and a pennate diatom.
3. Demonstration of culture and cultivation of *Chlorella*
4. Identification of some algal products available in local market.
5. **Fungi:** *Rhizopus*, *Penicillium* and *Puccinia*
6. Identification of some fungal products available in the local market.
7. **Lichens:** Crustose, foliose and fruticose
8. Identification of some lichen products available in the local market.

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Frame work w.e.f AY 2025-26**

I Semester

Course 2: Diversity of Thallophytes

Suggested Model Paper for Practical Examination

Max Time: 3 Hrs

Max. Marks: 50

1. Identify any two **Algae** from the mixture.(material 'A') and make comments on their identification. 15 M
2. Take the T.S. of the given material 'B' (**Fungi**), prepare a temporary mount, and write comments on its identification. 10 M
3. Identify the following with specific reasons (Spotters) 3 X 5 = 15 M
 - C. Algae
 - D. Fungi
 - E. Lichen
4. Record 7 M
5. Viva-voce 3 M

Key; A: *Spirogyra*, *Ectocarpus*, *Vaucheria* and *Polysiphonia*

B: *Rhizopus*, *Penicillium* and *Puccinia*

C: Reproductive structures, of *Spirogyra* *Ectocarpus*, *Vaucheria* and *Polysiphonia*

D. Reproductive structures of *Rhizopus*, *Penicillium* and *Puccinia*

E. Lichens: Crustose, foliose and fruticose


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Model question paper- Semester: I
Subject: .BOTANY Major
Single major program wef: 2025- 26

COURSE 2: DIVERSITY OF THALLOPHYTES

Max. time: 3 hrs

Max. marks: 75

Section: A

Answer any 5 of the following 10 questions. Each question carries 3 marks
(2 questions should be given from each unit) 5 QX 3 M = 15 M

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Section: B

Answer 5 of the following 10 questions following internal choice. Each question carries 12 marks (2 questions should be given from each unit) 5 QX 12 M = 60 M

Two questions (a,b) will be given from each unit in the syllabus, providing internal choice (a or b) within each unit. Students must answer a total of five questions, selecting one question from each unit.

11. Questions 11 & 12 from unit 1. One should be answered.
- 12.
13. Question 13 & 14 from unit 2. One should be answered
- 14.
15. Question 15 & 16 from unit 3. One should be answered
- 16.
17. Question 17 & 18 from unit 4. One should be answered
- 18.
19. Question 19 & 20 from unit 5. One should be answered
- 20.

Note: Questions should be framed to test the students' understanding, analytical, and creative skills. All questions must be set strictly within the prescribed syllabus framework.


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