ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯ

ಸ್ಥಾಪನೆ–2023

ಹೇಮಗಂಗೋತ್ರಿ ಹಾಸನ–573226

ವಿಶ್ವವಿದ್ಯಾಲಯ ಕಾರ್ಯಾಲಯ

ದೂರವಾಣಿ ಸಂಖ್ಯೆ :–08172–220015 ಇ–ಮೇಲ್ :reg.hassan.uni@gmail.com

ಕಡತ ಸಂಖ್ಯೆ : ಸಿ ಆರ್–05/ಬಿ.ಒ.ಎಸ್/2026-27 ದಿನಾಂಕ: 21.07.2026

ಅಧಿಸೂಚನೆ

ವಿಷಯ:2026–27ನೇ ಶೈಕ್ಷಣಿಕ ಸಾಲಿನ ಸ್ನಾತಕ ಪದವಿಯ ಒಂದು ಮತ್ತು ಎರಡನೇ ಸೆಮಿಸ್ಟರ್‌ನ Botany & EVS ವಿಷಯದ ಪಠ್ಯಕ್ರಮವನ್ನು ಪರಿಷ್ಕರಿಸಿರುವ ಬಗ್ಗೆ

ಉಲ್ಲೇಖ:1.ದಿನಾಂಕ. 22.06.2026 ರಂದು ಜರುಗಿದ Botany & EVS ಅಧ್ಯಯನ ಮಂಡಳಿ ಸಭೆಯ ತೀರ್ಮಾನ.

2.ದಿನಾಂಕ 16.07.2026 ರಂದು ಜರುಗಿದ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯ ತೀರ್ಮಾನ.

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ದಿನಾಂಕ 22.06.2026 ರಂದು ನಡೆದ Botany & EVS ಅಧ್ಯಯನ ಮಂಡಳಿಯು ಸ್ನಾತಕ ಪದವಿಯ ಒಂದು ಮತ್ತು ಎರಡನೇ ಸೆಮಿಸ್ಟರ್‌ನ Botany & EVS ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ಪರಿಷ್ಕೃತ ಪಠ್ಯಕ್ರಮವನ್ನು 2026–27ನೇ ಶೈಕ್ಷಣಿಕ ವರ್ಷದಿಂದ ಜಾರಿಗೊಳಿಸಲು ಶಿಫಾರಸ್ಸು ಮಾಡಿರುತ್ತದೆ.

ಉಲ್ಲೇಖಿತ 1 ಮತ್ತು 2ರಲ್ಲಿ ಸೂಚಿಸಿರುವಂತೆ ದಿನಾಂಕ 22.06.2026 ಮತ್ತು 16.07.2026 ರಂದು ನಡೆದ ವಿದ್ಯಾವಿಷಯಕ ಪರಿಷತ್ ಸಭೆಯಲ್ಲಿ ಮೇಲಿನ ಪ್ರಸ್ತಾವನೆಗಳನ್ನು ಅನುಮೋದಿಸಿರುವ ಹಿನ್ನಲೆಯಲ್ಲಿ ಅಧಿಸೂಚನೆಯನ್ನು ಪ್ರಕಟಿಸಲಾಗಿದೆ.

Botany & EVS ಅಧ್ಯಯನ (ಸ್ನಾತಕ) ವಿಷಯದ ಪಠ್ಯಕ್ರಮಗಳನ್ನು ವಿಶ್ವವಿದ್ಯಾಲಯದ ವೆಬ್‌ಸೈಟ್ (hassanuniversity.ac.in) ನಿಂದ ಪಡೆಯಬಹುದಾಗಿದೆ.

ಬಿ.ಜಿ.ಜಗದೀಶ ಕೆ.ಎ.ಎಸ್
ಕುಲಸಚಿವರು (ಆಡಳಿತ)

ಇವರಿಗೆ:

1. ವಿಶ್ವವಿದ್ಯಾಲಯದ ಸಂಯೋಜನೆಗೊಳಪಟ್ಟ ಎಲ್ಲಾ ಕಾಲೇಜುಗಳ ಪ್ರಾಂಶುಪಾಲರುಗಳಿಗೆ–ಅಗತ್ಯ ಕ್ರಮಕ್ಕಾಗಿ.
2. ಕುಲಸಚಿವರು (ಮೌಲ್ಯಮಾಪನ) ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯ,ಹಾಸನ.
3. ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಎಲ್ಲಾ ವಿಭಾಗಗಳ ಡೀನರು, ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯ,ಹಾಸನ.
4. ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಎಲ್ಲಾ ಅಧ್ಯಯನ ಮಂಡಳಿಗಳ ಮುಖ್ಯಸ್ಥರು, ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯ,ಹಾಸನ.
5. ನಿರ್ದೇಶಕರು, ಕಾಲೇಜು ಅಭಿವೃದ್ಧಿ ಮಂಳಿ, ಹಾಸನ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಾಸನ.
6. ಕಛೇರಿ ಪ್ರತಿ.

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HASSAN UNIVERSITY

SYLLABUS FOR I AND II SEMESTER

(SUBJECT: BOTANY)

(2026-2027 ONWARDS)

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COURSE DETAILS

Semester No.: 1
No. of Credits: 3
Course Title: Diversity of Microbes, Algae, Fungi & Plant Pathology
Course Code: DSCB*-1.1

COURSE LEARNING OUTCOMES (CLOs)

After completing this course, students will be able to:

CLO 1: Explain microbial diversity, classification systems, and the structure and significance of major microbial groups.

CLO 2: Describe the characteristics, classification, structure, reproduction, and importance of algae, cyanobacteria, and lichens.

CLO 3: Analyze the classification, characteristics, and life cycles of fungi with their economic importance.

CLO 4: Evaluate plant diseases, their causes, symptoms, management, and key phytopathological concepts.

COURSE CONTENT:

Unit I: Microbial diversity A brief account of microbes in soil, air, food, and water. Brief account of five kingdom (Whittaker) and three domain (Carl Woese) system of classification.**Virology**: History, general characters, classification, ultrastructure, and multiplication of TMV and Bacteriophage (T4); Transmission of Viruses. **Viroids**: General characters and fine structure of PSTVd. **Prions**: General characteristics and diseases [Creutzfeldt-Jakob disease (CJD), Bovine spongiform encephalopathy (BSE)]. **Mycoplasma**: History and general characters. **Phytoplasma**: Introduction, classification, and diseases (Sandal spike disease). **Bacteriology**: Introduction, classification (based on nutrition); Ultrastructure and reproduction (Budding, fission, and endospore formation); Genetic recombination (Conjugation, transduction, and transformation), and economic importance.

Teaching hours: 16

Unit II:Algae and Lichens: Cyanobacteria: General characters and economic importance of Cyanobacteria. Type study: *Nostoc. Spirulina*.General characters, classification, and economic importance of algae. Type study: *Chlorella, Oedogonium, Caulerpa, Diatom* (Pennales), *Sargassum,* and*Polysiphonia*. **Lichens:** General characters, classification (based on morphology and fungal component), structure, reproduction, and Economic importance.

Teaching hours: 16

Unit III: Fungi and Plant Pathology: Fungi: General characters, classification (Ainsworth's), and economic importance. Type study: *Rhizopus, Albugo, Penicillium, Puccinia,* and *Fusarium*. **Phytopathology:** Introduction, classification (based on causal organism), and disease triangle. **Plant diseases**: Host, causal organism, symptoms, and management of Little leaf of brinjal, Tobacco mosaic disease, Citrus canker, Tikka disease of groundnut, Late blight of potato, Coffee rust, and Algal rust; Biopesticides.

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Teaching hours: 16

LEARNING RESOURCES

1) Alexopoulos, J. & Charles, W. M. 1988. *Introduction to Mycology*. Wiley Eastern, New Delhi.
2) Chopra, G. L. 1973. *Textbook of Algae*. S. Nagin and Co., Jalandhar.
3) Dube, H. C. 1983. *An Introduction to Fungi*. Vikas Publication House, New Delhi.
4) Dutta, A. C. 1998. *Botany for Degree Students*. Oxford University Press.
5) Ganguli, H. C., Das, K. S. & Datta, C. 1935. *College Botany (Vol. II)*. New Central Book Agency (P) Ltd.
6) Mehrotra, R. S. & Aneja, K. R. 1990. *An Introduction to Mycology*. Wiley Eastern Ltd.
7) Pandey, B. P. 2001. *College Botany Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta*. S. Chand and Company Ltd., New Delhi.
8) Pandey, B. P. 2007. *Botany for Degree Students: Diversity of Microbes, Cryptograms, Cell Biology and Genetics*. S. Chand and Company Ltd., New Delhi.
9) Pelczar, M. J. 2001. *Microbiology*, 5th edition. Tata McGraw-Hill Co., New Delhi.
10) Prescott, L., Harley, J. & Klein, D. 2005. *Microbiology*, 6th edition. Tata McGraw-Hill Co., New Delhi.
11) Sambamurthy, A. V. S. S. 2006. *A Textbook of Algae*. I. K. International Pvt. Ltd., New Delhi.
12) Sambamurthy, A. V. S. S. 2006. *A Textbook of Plant Pathology*. I. K. International Pvt. Ltd., New Delhi.
13) Sharma, O. P. 2006. *A Textbook of Thallophyta*. McGraw-Hill Publishing Co., New Delhi.
14) Singh, R. S. 1984. *Introduction to Principles of Plant Pathology*. Oxford & IBH Publication Co. Pvt. Ltd., New Delhi.
15) Singh, V., Pande, P. C. & Jain, D. K. 2006. *A Textbook of Botany*. Rastogi Publications, Meerut.
16) Smith, G. M. 1955. *Cryptogamic Botany: Algae, Fungi and Lichens, Vol. I*. McGraw-Hill Book Co., New York.
17) Srivastava, H. N. 1993. *Fungi*. Pradeep Publications, Allahabad.
18) Srivastava, H. N. 1998. *Algae*. Pradeep Publications, Jalandhar.
19) Sundarajan, S. 1998. *College Microbiology, Vol. I*. Vardhana Publications, Bangalore.
20) Sundararajan, S. 1993. *College Botany, Vols. I & II*. Himalaya Publishing Company, Bangalore.
21) Vashishta, B. R., Sinha, A. K. & Singh, V. P. 2008. *Botany for Degree Students: Algae*. S. Chand and Company Ltd., New Delhi.

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Scheme of Question Paper (2026-27onwards)
(Theory)
B.Sc. Degree I Semester Examination
Diversity of Microbes, Algae, Fungi and Plant pathology
Code:

Time: 3 hours **Max. Marks: 80**

I. Define/Explain any EIGHT the following 8X1=08
- 5 From Unit I
- 3 From Unit II
- 2 From Unit III

II. Write short notes on any FIVE of the following 5X3=15
- 2 From Unit I
- 3 From Unit II
- 2 From Unit III

III. Answer any FIVE of the following 5X5=25
- 2 From Unit I
- 2 From Unit II
- 3 From Unit III

IV. Describe any FOUR of the following in detail 4X8=32
- 2 From Unit I
- 2 From Unit II
- 2 From Unit III

Unit	1Mark	3 Marks	5 Marks	8 Marks	Total
I	1X5=5	3X2=6	5X2=10	8X2=16	37
II	1X3=3	3X3=9	5X2=10	8X2=16	38
III	1X2=2	3X2=6	5X3=15	8X2=16	39

Assessment method

Assessment		Marks
C1	Assignment	10
C2	Test	10
C3	Semester-end exam	80

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Theory Model Question Paper (2026-27onwards)
I Semester-Paper I (DSCB 1.1)
Diversity of Microbes, Algae, Fungi and Plant pathology
Code:

Time: 3 Hrs. **Max. Marks: 80**

Instruction: Draw neat, labelled diagrams wherever necessary

I. Define/Explain any EIGHT of the following **8X1= 8**

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

II. Write short notes on any FIVE of the following **5X3=15**

11.
12.
13.
14.
15.
16.
17.

III. Answer any FIVE of the following **5X5=25**

18.
19.
20.
21.
22.
23.
24.

IV. Describe any FOUR of the following in detail **4X8=32**

25.
26.
27.
28.
29.
30.

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Practical Syllabus (2026-27onwards)
I Semester-Paper I (DSCB 1.1)
Diversity of Microbes, Algae, Fungi and Plant pathology
Code:

Time-64 Hrs (1 Practical of 4 Hrs/ week: 2 Credits)

1. Equipments used in Microbiology lab: Study of microscope, Inoculation loop & needle, Incubator, Pressure cooker,
2. Hot air oven, Laminar air flow chamber, Hemocytometer, Colony counter,
3. Photographs/Charts of Microbiologists and their contribution.(Louis Pasteur, Jenner)
4. Staining of bacteria: Simple (positive and negative)
5. Gram staining.
6. Structure and reproduction of *Nostoc* and *Chlorella*
7. Structure and reproduction of *Oedogonium*
8. Structure and reproduction of *Caulerpa* andPennate Diatom
9. Structure and reproduction of *Sargassum*
10. Structure and reproduction of *Polysiphonia*
11. Structure and reproduction of *Rhizopus, Albugo*
12. Structure and reproduction of *Penicillium* and *Puccinia,*
13. Structure and reproduction of Lichens
14. Host, causal organism, symptoms, and management of Sandal spike, TMV, Citrus canker, Algal rust (Avocado).
15. Tikka disease of Groundnut, Late blight of Potato, and Coffee rust
16. Biopesticides (Neem, *Trichoderma, Bacillus subtilis,* NPV)

Assessment method

Assessment		Marks
C1	Continuous assessment (CA)	05
C2	Submission	05
C3	Semester-end exam	40

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Practical Question Paper Scheme (2026-27onwards)
I Semester-Practical I (DSCB 1.1)
Diversity of Microbes, Algae, Fungi, and Plant pathology
Code:

Time: 3 Hrs **Max. Marks: 40**

I.	Perform experiment A and leave for evaluation	07
II.	Prepare a temporary stained slide of the materials B & C, sketch, label, and identify with reasons. Leave the preparation for evaluation	08
III.	Write a critical comment on the materials D, E &F	12
IV.	Identify the slides G, H & I with reason	08
V.	Record	05

Practical Question Paper Scheme (SEB)
I Semester-Practical I (DSCB 1.1)
Diversity of Microbes, Algae, Fungi, and Plant pathology
Code:

Time: 3 Hrs **Max. Marks: 40**

I.	**Perform experiment A and leave for evaluation** [Simple staining (positive and negative)/ differential staining] (Principle-1; Procedure- 2; Performance with result- 4)	07
II.	**Prepare a temporary stained slide of the materials B &C, sketch, label, and identify with reasons. Leave the preparation for evaluation.** (1 from Cyanobacteria/ Algae,1 from Fungi) (Identification-1; Preparation- 2; Reasons with labelled diagram- 2)	08
III.	**Write a critical comment on the materials D, E & F** (1 each from Fungi, Virus / Bacteria/ Mycoplasma disease, and Algae/Lichen) (Identification- 1, Causal organism- 1, Symptoms and Management- 2)	12
IV.	**Identify the slides / charts G, H I &J with reason** (1 Laboratory Instrument 1each from Algae/ Cyanobacteria, Fungi/ Lichen and scientist charts) (Identification- 1; Reasons with labeled diagram/ contribution of scientist1)	08
V.	Record	05

Note: Each student shall bring the practical record to the practical Examination for evaluation, without which he/ she shall not be allowed to appear for the practical examination.

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COURSE DETAILS

Semester No.: 2
Course No.: 1
No. of Credits: 3
Course Title: **Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany & Anatomy of Angiosperms**
Course Code: **DSCB*- 2.1**

COURSE LEARNING OUTCOMES (CLOs)

After completing this course, students will be able to:

CLO 1: Summarize the characteristics, classification, and importance of bryophytes and key paleobotanical concepts.

CLO 2: Explain the features, classification, stelar evolution, and representative types of pteridophytes.

CLO 3: Describe the characteristics, classification, and significance of gymnosperms.

CLO 4: Analyze plant tissue structure and anatomy of roots, stems, and leaves, including secondary growth and anomalies.

COURSE CONTENT:

Unit I:Bryophytes: General characters, classification, and economic importance of Bryophytes. Type Study *Marchantia, Anthoceros,* and *Polytrichum* (Developmental details not required).

Paleobotany: Geological timescale, fossils and fossilization; Types of fossils. Type study: *Rhynia*and *Cycadeoidea*. **Teaching hours: 16**

Unit II: Pteridophytes: General characters, classification, and economic importance. Stealar Evolution. Type study: *Psilotum, Selaginella, Equisetum, Pteris,* and *Marsilea* (Developmental details not required); Heterospory and seed habit (Brief account). **Teaching hours: 16**

Unit III: Gymnosperms: General characters, classification, and economic importance of Gymnosperms. Type study: *Cycas, Pinus,* and *Gnetum.*

Anatomy of Angiosperms: Meristematic tissues, simple and complex tissues. Secretory tissue (Laticiferous tissues). Vascular bundles, types of vascular bundles. Anatomy of monocot and dicot root, stem, and leaf. Secondary growth in the dicot stem and Anomalous secondary growth in the *Boerhavia stem*. **Teaching hours: 16**

LEARNING RESOURCES

1) Andrews, H. N. (1961). *Studies in Paleobotany*. John Wiley, New York.
2) Bhatnagar, S. P., & Mitra, A. (1966). *Gymnosperms*. New Age International (P) Ltd., Publishers.
3) Bierhorst, D. W. (1971). *Morphology of Vascular Plants*. The MacMillan Co., New York; Collier-MacMillan Ltd., London.
4) Chamberlain, C. J. (1935). *Gymnosperms: Structure and Evolution*. Chicago Press.

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5) Chestor, A. A. (1947). *Introduction to Palaeobotany*. McGraw-Hill, London.
6) Coulter, J. M., & Chamberlain, C. J. (1964). *Morphology of Gymnosperms*. Central Book Depot, Allahabad.
7) Dutta, A. C. (1998). *Botany for Degree Students*. Oxford University Press.
8) Dutta, S. C. (1966). *An Introduction to Gymnosperms*. Asia Publications House, Mumbai.
9) Eames, A. J. (1936). *Morphology of Vascular Plants (Lower Groups)*. McGraw-Hill, New York.
10) Esau, K. (1979). *Anatomy of Seed Plants*. Wiley Eastern Ltd., New Delhi.
11) Fahn, A. (1969). *Plant Anatomy* (2nd ed.). Wiley, New York.
12) Frank, C. (1990). *The Inter-relationships of the Bryophytes*. New Phytologist; Today and Tomorrow's Printers and Publishers.
13) Gangulee, H. C., & Kumar, A. (1982). *College Botany, Vol. II*. Central Book Agency, Calcutta.
14) Pandey, S. N., & Chadha, A. (2009). *Plant Anatomy and Embryology*. Vikas Publishing House Pvt. Ltd.
15) Pandey, S. N., Mishra, S. P., & Trivedi, P. S. (2007). *A Textbook of Botany, Vol. II*. Rastogi Publications, Meerut.
16) Rashid, A. (1999). *An Introduction to Pteridophyta*. MKM Publisher Pvt. Ltd.
17) Shripad, N. A. (1995). *Paleobotany*. Oxford & IBH, New Delhi.
18) Singh, V., Pande, P. C., & Jain, D. K. (2005). *Diversity and Systematics of Seed Plants*. Rastogi Publications, Meerut.
19) Singh, V., Pande, P. C., & Jain, D. K. (2006). *A Textbook of Botany*. Rastogi Publications, Meerut.
20) Sporne, K. R. (1971). *The Morphology of Gymnosperms: The Structure and Evolution of Primitive Seed Plants*. Hutchinson University Library, London.
21) Sporne, K. R. (1974). *Morphology of Pteridophytes*. Hutchinson & Co., London.
22) Tayal, M. S. (2004). *Plant Anatomy*. Rastogi Publications.
23) Vashishta, P. C. (1982). *Pteridophyta*. S. Chand & Co. Ltd., New Delhi.

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Theory Question Paper Scheme (2026-27onwards)
II Semester-Paper II (DSCB 2.1)
Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany and Anatomy of Angiosperms
Code:

Time: 3 Hrs **Max. Marks: 80**

Instruction: Draw neat, labelled diagrams wherever necessary

I. Define/Explain any EIGHT of the following **8X1=08**

2 from Unit I
3 from Unit II
2 from Unit III
2 from Anatomy

II. Write short notes on any FIVE of the following **5X3=15**

2 from Unit I
2 from Unit II
2 from Unit III
1 from Anatomy

III. Answer any FIVE of the following **5X5=25**

2 from Unit I
2 from Unit II
2 from Unit III
1 from Anatomy

IV. Describe any FOUR of the following in detail **4X8=32**

2 from Unit I
2 from Unit II
2 from Unit III

Unit	1Mark	3 Marks	5 Marks	8 Marks	Total
I	1X5=5	3X2=6	5X2=10	8X2=16	37
II	1X3=3	3X3=9	5X2=10	8X2=16	38
III	1X2=2	3X2=6	5X3=15	8X2=16	39

Assessment method

Assessment		Marks
C1	Assignment	10
C2	Test	10
C3	Semester-end exam	80

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Theory Model Question Paper (2026-27onwards)

II Semester-Paper I (DSCB 2.1)

Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany and Anatomy of Angiosperms Code:

Time: 3 Hrs **MaxMarks:80**

Instruction: Draw neat, labelled diagrams wherever necessary

I. Define/ Explain any EIGHT of the following **8X1=8**

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

II. Write short notes on any FIVE of the following **5X3=15**

11.
12.
13.
14.
15.
16.
17.

III. Answer any FIVE of the following **5X5=25**

18.
19.
20.
21.
22.
23.
24.

IV. Describe any FOUR of the following in detail **4X8=32**

25.
26.
27.
28.
29.
30.

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Practical Syllabus (2026-26 onwards)
II Semester-Practical II (DSCB 2.1)
Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany and Anatomy of Angiosperms
Code:

Time: 64 Hrs. (1 practical of 4 Hrs/ week)

2 Credits

1. Meristems, simple and complex tissues
2. Study of trichomes, stomata
3. Anatomy of monocot and dicot root.
4. Anatomy of monocot and dicot stem, anomalous secondary growth in Boerhavia stem
5. Anatomy of monocot and dicot leaf.
6. Morphology, anatomy, and reproduction of *Marchantia.*
7. Morphology, anatomy, and reproduction of *Anthoceros* and *Polytrichum.*
8. Morphology, anatomy, and reproduction of *Psilotum* and *Rhynia.*
9. Morphology, anatomy, and reproduction of *Selaginella*
10. Morphology, anatomy and reproduction of *Equisetum.*
11. Morphology, anatomy, and reproduction of *Pteris*
12. Morphology, anatomy and reproduction of *Marsilea.*
13. Morphology, anatomy, and reproduction of *Cycas and Cycadioidea.*
14. Morphology, anatomy, and reproduction of *Pinus.*
15. Morphology, anatomy, and reproduction of *Gnetum.*
16. Visit to a Geology Museum/ Fernarium.

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Assessment method

Assessment		Marks
C1	Continuous assessment (CA)	05
C2	Submission/Assignment	05
C3	Semester-end exam	40

Practical Question Paper (2026-27onwards)
II Semester-Practical II (DSCB 2.1)
Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany and Anatomy of Angiosperms
Code:

Time: 3 Hrs
Max. Marks: 40

I. Identify the specimens A, B and C with reasons09
II. Prepare a temporary stained slide of the material D sketch, label and identify with reasons. Leave the preparation for evaluation.05
III. Comment on the materials E, F and G09
IV. Identify the slides/ Chart H, I, J and K with reasons12
VI. Record **05**

Practical Question Paper Scheme (2025-26 onwards)
II Semester- Practical II (DSCB 2.1)
Bryophytes, Pteridophytes, Gymnosperms, Palaeobotany and Anatomy of Angiosperms
Code:

Time: 3 Hrs
Max. Marks: 40

I. **Identify the specimens A, B and C with reasons.** 09
(1 each from Bryophytes, Pteridophytes and Gymnosperms)
(Identification -1; Reasons with labeled diagram- 2)

II. **Prepare a temporary stained slide of the material D, sketch, label, and identify with reasons. Leave the preparation for evaluation.** 05
(1 From Anatomy)
(Mounting-3; Identification- 1; Reasons with labelled diagram- 1)

III. **Comment on the materials/Chart E, F and G.** 09
(1each from Bryophytes, Pteridophytes and Gymnosperms/ Paleobotany)
(Identification- 1; Reasons with labeled diagram- 2)

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IV.	**Identify the slides H, I, J and K with reasons** (1 each from Bryophytes, Pteridophytes, Gymnosperms and Anatomy of Angiosperms) (Identification- 1; Reasons with labelled diagram- 2)	12
V.	Record	05

Note: Each student shall bring the practical record to the practical examination, without which he/she shall not be allowed to appear for the practical examination.

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ALLOCATION OF CREDITS FOR FIRST AND SECOND SEMESTER

Sem	Course Code	Practical / Theory	TITLE OF THE COURSE (COMPULSORY)	Hrs./ Week L:T:P	Credits	Max marks
I	DSCB*-1.1	Theory	Diversity of Microbes, Algae, Fungi & Plant pathology	3 Hrs.	3	80+20
		Practical	Diversity of Microbes, Algae, Fungi & Plant pathology	4 Hrs.	2	40+10
II	DSCB*-2.1	Theory	Bryophytes, Pteridophytes, Gymnosperms, Paleobotany & Anatomy of Angiosperms	3 Hrs.	3	80+20
		Practical	Bryophytes, Pteridophytes, Gymnosperms, Paleobotany & Anatomy of Angiosperms	4 Hrs.	2	40+10

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Date: 06.07.2026

From:
Dr. P. Sharanappa
Chairman, BOS in Botany and Environment Science (UG)
Department of Botany
Hassan University
Hassan.

To:
The Registrar
Hassan University
Hassan.

Dear Sir,

Sub: Submission of BOS proceedings and syllabus copy
Ref:NO. CR-05/BOS/2026-27 dated11.05.2026

With reference to the above subject and reference I have enclosed BOS proceedings, syllabus for Botany subject of first and second semester (UG) and compulsory paper Environmental Studies for further needful.

Thanking you,

Yours sincerely,

Dr. P. SHARANAPPA
(Dr.P. Sharanappa)
Professor
Department of Botany
Hemagangothri, Hassan

B.O.S
27/07/2026

PROCEEDINGS OF BOS MEETING

Board of Studies meeting of Botany and Environmental Science (UG) conducted at Department of Botany, Hassan University, Hassan on **22.06.2026.** The meeting has been organized to discuss the framing of syllabus, credits pattern, Scheme and pattern of theory and practical examination required for B.Sc., Botany and Environmental Studies (Compulsory subject for Bachelor degree) of First and Second Semester. Board has approved the syllabus required for First and Second Semester B.Sc., Botany and Environmental Studies (Compulsory Subject). Board members have also requested to Hassan University to implement this syllabus from 2026-2027 onwards.

Members present:

Name	Designation	Signature
Dr. P. Sharanappa Professor, Department of Botany and EVS, Hemagangothri, Hassan	Chairman	
Dr. Dharmendra Professor, Department of Botany, GSC, Hassan	Member	22/6/26
Dr. Sandhyarani D Professor, Department of Botany, GSC, Hassan	Member	22/6/26.
Smt. Sowmya HK Department of Botany Associate Professor, Maharani Science College for Womens, Mysore	Member	22/6/2026
Dr. Suresh NS Professor, Department of Botany, GSC, Hassan.	Member	22/6/2026
Dr. Mangala Department of Botany AVK college for Women, Hassan	Special invitee	Mangala.K.G. 22.6.2026

Members Absent:

Nil

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Syllabus for Environmental Studies for Bachelor degree courses of HASSAN UNIVERSITY

Compulsory course :Environmental Studies(I/II Semester)

Credits: 02

Hours of Teaching per week: 03

Total Teaching hours: 45 hours

Unit 1 Introduction to Environmental Studies: Multidisciplinary nature of environmental studies Scope and importance; Concept of sustainability and sustainable development. [02 hours]

Unit 2 Ecosystems Ecosystem: Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession. Case studies of the following ecosystems: a) Forest ecosystem, b) Grassland ecosystem, c) Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries [06 hours]

Unit 3 Natural Resources: Renewable and Non-Renewable Resources Land resources and land-use change; Land degradation, soil erosion and desertification. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and non-renewable energy sources, use of alternate energy sources, growing energy needs, case studies. [07 hours]

Unit 4 Biodiversity and Conservation: Levels of biological diversity: Genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots. India as a mega-biodiversity nation; Endangered and endemic species of India. Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value. [08 hours]

Unit 5 Environmental Pollution : types, causes, effects and controls; Air, water, soil and noise pollution, Nuclear hazards and human health risks Solid waste

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management, Control measures of urban and industrial waste Pollution case studies. [07 hours]

Unit 6 Environmental Policies & Practices: Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities andagriculture. Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; Wildlife Protection Act; Forest Conservation Act. International agreements: Montreal and Kyoto protocols and Convention on Biological Diversity (CBD). Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context.[07 hours]

Unit 7 Human Communities and the Environment: Human population growth: Impacts on environment, human health and welfare. Resettlement and rehabilitation of project affected persons; case studies. Disaster management: floods, earthquake, cyclones and landslides. Environmental movements: Chipko, Silent valley, Bishnoi's of Rajasthan Environmental ethics: Role of Indian and other religions and cultures in environmental conservation Environmental communication and public awareness, case studies (e.g., CNG vehicles in Delhi). [06 hours]

Unit 8 Field work[02 hours]

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(MODEL QUESTION PAPER 1st / 2nd semester)

ENVIRONMENTAL STUDIES

(MARKS: 50 (C1:5 + C2:5 + C3:40)

Time: 2 hrs **Max. Marks: 40**

Note: 1. Answer all questions. Draw neat-labelled diagrams and give examples wherever necessary

SECTION A

Answer all the questions (8X 1 =8 marks)

I. Answer in one word or a sentence

1.
2.
3.
4.
5.
6.
7.
8.

SECTION B

II. Write short notes on any FOUR of the following: (4 X 3 = 12 Marks)

9.

10.

11.

12.

13.

SECTION C

III. Answer any TWO of the following: (2 x 10 = 20 Marks)

14.

15.

16.

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