

Annexure I

ANDHRA MAHILA SABHA
Arts & Science College for Women
(Autonomous) NAAC Re-Accredited
Osmania University Campus, Hyderabad – 500007
Programme B.Sc (BZC)
Department of Botany

SCHEME OF INSTRUCTION AND EVALUATION 2025-2026

B.Sc (BZC) I year I Semester

Subject & Code	Subject	Hours / Week		Exam Duration	Marks			No Of Credits
		Theory	Practical		Sem	Internal	Total	
English Eng 101	General English	5Hrs		3 Hrs	80	20	100	5
Telugu / Hindi/Sanskrit Tel/Hin/San101	Telugu Hindi/ Sanskrit	5Hrs		3 Hrs	80	20	100	5
Botany Bot/Bio101	DSC 1 A	4 Hrs		3 Hrs	80	20	100	4
Zoology Zoo101	DSC 2A	4 Hrs		3 Hrs	80	20	100	4
Chemistry Che101	DSC 3A	4 Hrs		3 Hrs	80	20	100	4
Practicals								
Botany Bot/Bio131	DSC 1 A (Pra)	-	2 Hrs	3 Hrs	30	20	50	1
Zoology Zoo 131	DSC 2A (Pra)	-	2 Hrs	3 Hrs	30	20	50	1
Chemistry Che131	DSC 3A (Pra)	-	2 Hrs	3 Hrs	30	20	50	1
							Total: 25	

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Formula

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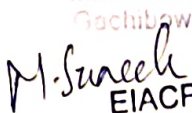
B.Sc (BZC) I year II Semester

Subject & Code	Subject	Hours / Week		Exam Duration	Marks			No Of Credits
		Theory	Practical		Sem	Internal	Total	
English Eng 151	General English	5Hrs		3	80	20	100	5
Telugu /Hindi Sanskrit Tel/Hin/San151	Telugu/Hindi/ Sanskrit	5Hrs		3	80	20	100	5
Botany Bot/Bio151	DSC 1B	4 Hrs		3	80	20	100	4
Zoology Zoo151	DSC 2B	4 Hrs		3	80	20	100	4
Chemistry Che151	DSC 3B	4 Hrs		3	80	20	100	4
Practicals								
Botany Bot/Bio181	DSC 1B(Pra)		2 Hrs	3 Hrs	30	20	50	1
Zoology Zoo 181	DSC 2B(Pra)		2 Hrs	3 Hrs	30	20	50	1
Chemistry Che181	DSC 3B (Pra)		2 Hrs	3 Hrs	30	20	50	1
							Total :	25


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B.Sc (BZC) Botany – I year
Semester –I Paper – I
Microbial Diversity and Early Land Plants

Theory Syllabus

Sub code: Bot 101

Instruction:	60Hrs (4 hrs./ week)
Duration of End Semester Examination:	3Hrs (80 M)
Duration of Sessional Examination: 1hr	(15 M)
Assignment	(05 M)
Credits	4

UNIT-I

(15 hours)

- 1) Brief account of Archaeobacteria, Actinomycetes and Mycoplasma with reference to little leaf of Brinjal and Papaya leaf curl.
- 2) Viruses: Structure, replication and transmission; plant diseases caused by viruses and their control with reference to Tobacco Mosaic and Rice Tungro.
- 3) Bacteria: Structure, nutrition and reproduction. Plant diseases caused by bacteria and their control with reference to Angular leaf spot of cotton and Bacterial blight of Rice.

UNIT-II

(15 hours)

- 4) General characters, structure, reproduction and classification of Algae (Fritsch)
- 5) Cyanobacteria: General characters, cell structure their significance as biofertilizers with special reference to Oscillatoria, Nostoc and Anabaena.

- 6) Structure, reproduction and life cycle of the following:

- a) Chlorophyceae – Volvox and Chara
- b) Phaeophyceae – Ectocarpus
- c) Rhodophyceae- Polysiphonia

UNIT-III

(15 hours)

- 7) General characters and classification of Fungi (Ainsworth)
- 8) Structure, reproduction and life cycle of the following

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- (a) Mastigimycotina- Albugo
- (b) Zygomycotina- Mucor
- (c) Ascomycotina- Penicillium.
- (d) Basidiomycotina- Puccinia
- (e) Deuteromycotina- Cercospora.

9) Economic importance of Lichens

UNIT-IV

- 10) Bryophytes: Structure, reproduction, life cycle and systematic position of Marchantia, and Polytrichum, Evolution of Sporophyte in Bryophytes.
- 11) Pteridophytes: Structure, reproduction, life cycle and systematic position of Rhynia, Equisetum and Marsilea.
- 12) Stelar evolution, heterospory and seed habit in Pteridophytes.

Suggested Readings:

1. Alexopolous, J. and W. M. Charles 10g8 Introduction to Mveology. Wiley Eastern, New Delhi 2) Mekane, L. and K. Judy, 1096. Microbiology Essentials and Applications. McGraw Hill, New York 3) Pandey, B. P. 2001. College Botany, Vol. Aleae, Funei, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi
2. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, CellBiology and Geneties
3. S. Chand & Company Utd, New Delhi.
4. Sambamurthy, A. V. S. S. 2006. A Textbook of Plant Pathology. 1. K. International Pvt Ltd. New Delhi
5. Sambamurthy, A. V. S. S. 2006. A Textbook of Algae. I. K. International Pvt. Ltd., NewDelhi.
6. Sharma, O. P. 1902. Textbook of Thallophyta. McGraw Hill Publishing Co, New Delhi
7. Thakur, A. K. and S. K. Bassi. 2008. A Textbook of Botany: Diversity of Microbes andCryptogams. S. Chand & Company Ltd, New Delhi.
8. Vashishta, B. R., A. K. Sinha and V. P. Singh, 2008, Botany for Degree Students: Algae. S.Chand& Company Ltd. New Delhi.
9. Vashishta, B. R. 1990. Botany for Degree Students: Fungi, S. Chand & Company Ltd, NewDelhi.
10. Dutta A.C. 2016, Botany for Degree Students. Oxford University Press.
11. Watson, E. V. 1974. The structure and life of Bryophytes, B. 1. Publications, New Delhi.
12. Pandey, B. P. 2006. College Botany, Vol. 1I: Pteridophyta, Gymnosperms and Paleobotany.
13. S. Chand & Company Ltd, New Delhi.

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14. Vashishta, P. C., A. K. Sinha and Anil Kumar, 2006, Botany Pteridophyta (Vascular Cryptogams).. Chand & Company Ltd, New Delhi,
15. Pandey, B. P. 2001. College Botany, Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. S. Chand & Company Ltd, New Delhi.
16. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Microbes, Cryptogams, Cell Biology and Genetics. S. Chand & Com Company Ltd, New Delhi.
17. Thakur, A. K. and S. K. Bassi, 2008. A Textbook of Botany: Diversity of Microbes and Cryptogams. S. Chand & Company Ltd, New Delhi,
18. Vashishta, B. R., A. K. Sinha and Adarsha Kumar, 200S, Botany for Degree Students: Bryophyta. S. Chand & Company Ltd, New Delhi,

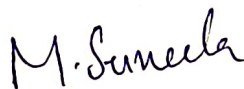

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Semester –I Paper – I
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B.Sc (BZC) Botany – I year
Semester –II Paper – II
Gymnosperms, Anatomy and Embryology of Angiosperms

Theory Syllabus

Sub code: Bot 151

Instruction:	60Hrs (4 hrs./ week)
Duration of End Semester Examination:	3Hrs (80 M)
Duration of Sessional Examination: 1hr	(15 M)
Assignment	(05 M)
Credits	4

UNIT-I

(15 hours)

1. Gymnosperms: Distribution, General characters, structure, reproduction and classification (Sporne, 1965) Economic importance of Gymnosperms.
2. Morphology of vegetative and reproductive parts, systematic position and life cycle of Pinus and Gnetum,
3. Introduction to Palaeobotany, Types of fossils and fossilization. Importance of fossils.

UNIT-II

(15 hours)

4. Meristems: Types, histological organization of shoot and root apices and theories.
5. Tissues and Tissue systems: Simple, complex and special tissues.
6. Leaf: Internal structure of dicot and monocot leaf. Stomata structure and types. Epidermal outgrowths.

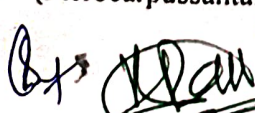

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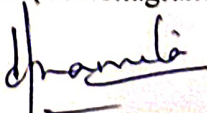
UNIT-III

(15 hours)

7. Secondary Growth: Vascular cambium – structure and function, Secondary Growth in root and stem, Wood (heartwood and sapwood).
8. Anomalous secondary growth of Stem – Achyranthes, Boerhaavia, Dracaena, Roperia.
9. Wood structure: General account of local timbers - Teak (Tectonagrandis), Red sanders (Pterocarpussantalinus) and Neem (Azadirachta indica).


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UNIT-IV

(15 hours)

10. Structure of Anther, Microsporogenesis and development of male gametophyte.
11. Ovule structure and types; Megasporogenesis and development of female gametophyte.
12. Pollination mechanisms, Pollen – pistil interaction; Double fertilization
13. Types of Endosperm. Embryo structure- Dicot and Monocot. Polyembryony and Apomixis – an outline.

Suggested Readings:

1. Watson, B. V, 1974, The structure and life of Bryophytes, B. I. Publications, New Delhi.
2. Pandey, B. P. 2006. College Botany, Vol. 11: Pteridophyta, Gymnosperms and Paleobotany. S, Chand & Company Ltd, New Delhi.
3. Sporne, K. R. 1965. Morphology of Gymnosperms. Hutehinson Co., Ltd., London.
4. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006, Botany – Pteridophyta (Vascular Cryptogams). Chand & Company Ltd, New Delhi.
5. Pandey, B. P. 2001. College Botany, Vol. 1: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.
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9. Vashishta, P. C., A. K. Sinha and Anil Kumar. 2006. Botany for Degree Students: Gymnosperms, Chand & Company Ltd, New Delhi.
10. Dutta A.C. 2016. Botany for Degree Students. Oxford University Press.
11. Pandey, B. P. 2007. Botany for Degree Students: Diversity of Seed Plants and their Systematics, Structure, Development and Reproduction in Flowering Plants. S. Chand & Company Ltd, New Delhi.
12. Bhattacharya et, al, 2007. A textbook of Palynology, Central, New Delhi.
13. Bhojwani, S. S. and S. P. Bhatnagar, gar, 2000. 2000. The The E Embryology of Angiosperms (4th Ed.), Vikas Publishing House, Delhi.
14. M.R.Saxena- A textbook of Palynology, 4. Vashista- A textbook of Anatomy.
15. P.K.K.Nair- A textbook of Palynology
16. Evert, R.F. (2006) Esau's Plant Anatomy: Meristems, Cells, and Tissues of the Plant Body: Their Structure, Function and Development. John Wiley and Sons Inc.
17. Esau, K. 1971. Anatomy of Seed Plants. John Wiley and Son, USA.

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19. Johri, B. M. 1984, Embryology of Angiosperms. Springer-Verleg, Berlin.
20. Kapil, R. P. 1986. Pollination Biology. Inter India Publishers, New Delhi.
21. Maheswari, P. 1971. An Introduction to Embryology of Angiosperms. McGraw Hill Book Co., London.
22. Dutta A.C, 2016. Botany for Degree Students. Oxford University Press.
23. Bhojwani, S.S. and Bhatnagar, S.P. (2011). The Embryology of Angiosperms, Vikas Publishing House. Delhi. 5th edition
24. Shivanna, K.R. (2003). Pollen Biology and Biotechnology. Oxford and IBH Publishing Co. Pvt. Ltd. Delhi. 25. Raghavan, V. (2000). Developmental Biology of Flowering plants, Springer, Netherlands. 4. Johri, B.M. 1 (1984). Embryology of Angiosperms, Springer-Verlag, Netherlands.

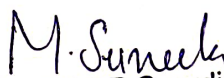

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Semester –II Paper – II
Gymnosperms, Anatomy and Embryology of Angiosperms

Practical Syllabus

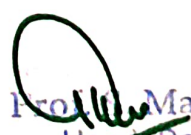
DSC-1B

Sub Code: Bot151

Credit1
(30 hours)

1. Study of Morphology (vegetative and reproductive structures) of the following taxa:
Gymnosperms – Pinus and Gnetum.
2. Study of Anatomical features of Pinus needle and Gnetum stem by preparing double stained permanent mounts.
3. Fossil forms using permanent slides / photographs: Cycadeoidea.
4. Demonstration of double staining technique.
5. Tissue organization in root and shoot apices using permanent slides.
6. Study of different tissue systems systems – Simple, complex and special tissues.
7. Preparation of double stained Permanent slides Primary structure: Root – Cicer, Canna, Stem – Tridax, Sorghum.
8. Secondary structure: Root – Tridax sp.; Stem –Pongamia
9. Anomalous secondary structure: Examples as given in theory syllabus.
10. Stomatal types using epidermal peels.
11. Structure of anther and microsporogenesis using permanent slides.
12. Structure of pollen grains using whole mounts – Hibiscus, Acacia and Grass)
13. Pollen viability test using Evans Blue
14. Study of ovule types and developmental stages of embryo sac.
15. Structure of endosperm (nuclear and cellular);
16. Developmental stages of dicot and monocot embryos using permanent slides.


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