Allied II – Botany (Offered by the Department of Botany to B.Sc. Zoology Students)		
III SEMESTER		
AII 1	PLANT DIVERSITY & PLANT PATHOLOGY	15UBTA31
Hrs/Week: 3	Hrs/Sem: 3x15=45 Hrs./UNIT: 9	Credit: 4

Objectives

To enable the students

- To have a general understanding about the diverse group of plants and observe the variations among the plants.
- To identify the different plants by morphological and anatomical studies.
- To have a comprehensive knowledge of Algae, Fungi, Bryophyte, Pteridophyte, Gymnosperm and Angiosperm and to identify the plant diseases.

UNIT I Algae & Fungi

Algae – Salient features of algae: Caulerpa – Distribution, structure, reproduction & life cycle. Economic importance of algae – Benefecial role (Agriculture, Industry & Medicine). Fungi – Salient features of fungi: Agaricus – Distribution, structure, reproduction & life cycle. Economic importance of fungi.

UNIT II Lichens & Bryophytes

Lichen – Salient features of lichen – Types – Crustose, Foliose, Fruiticose – Economic importance of lichen. Bryophytes – Salient features of Bryophyte. Marchantia – Distribution, structure reproduction & life history.

UNIT III Pteridophytes & Gymnosperms Hrs: 9hrs

Pteridophytes – Salient features Pteridophyte. Marsellia – Structure, reproduction & life cycle.(Sporocarp structure only). Gymnosperms – Salient features gymnosperm. Pinus – Structure, reproduction & life cycle. Economic importance of gymnosperms.

UNIT IV Taxonomy Hrs: 9hrs

Brief account on Artificial, Natural & Phylogenetic Classifications. Study of the following families – Caesalpiniaceae, Apocyanaceae, Euphorbiaceae.

Plant Pathology Hrs: 9hrs 20%

Introduction to Plant Pathology – Classification of plant diseases
d its importance. Tikka disease of groundnut, Citrus Canker &
nchy top of banana – Causal organism, Symptoms, Disease cycle
d Control Measures.

FERENCE BOOKS:

Pandey B.P. 2001. College Botany Vol. I: Algae, Fungi, Lichens, Bacteria, Viruses, Plant Pathology, Industrial Microbiology and Bryophyta. S. Chand & Company Ltd, New Delhi.

Parihar. N. S.2001. Bryophyta – Central Book Depot Publications in Botany, Allahabad

Vashista. B R .1997, The Algae, S. Chand & Co. Ltd., New Delhi

Pandey.B.P.1997 – Taxonomy of Angiosperms – S. Chand & Co., New Delhi.

Sangulee, Das & Datta, College Botany Vol I, 1986, new central book gency, Calcutta.

porne K.R. 1991. The Morphology of Pteridophytes. B.I Publishing Pvt. :d. Bombay.

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shishta P.C., A.R. Sinha, Anil Kumar. 2006. Gymnosperms. S.Chand.

shishta P.C. 2006. Pteridophytes. S. Chand.

arma, O. P. (1986). Textbook of Algae. Tata McGraw Hill, New Delhi.

ith, G. M. (1976). Cryptogamic Botany. Vol. I. Algae and Fungi. Tata Graw-Hill, New Delhi.

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ishta, B. R. and Sinha, A. K. (2007). Botany for Degree Students – gi. S. Chand and Co. Ltd., New Delhi.

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le, J. S. (1933). Flora of the Presidency of Madras. Botanical y of India, Calcutta.

Allied II – Botany (Offered by the Department of Botany to B.Sc. Zoology Students)		
IV SEMESTER		
AII 2	PLANT PHYSIOLOGY & BIOCHEMISTRY	15UBTA41
Hrs/Week: 3	Hrs/Sem: 3x15=45 Hrs./UNIT: 9	Credit: 4

Objectives

To enable the students

- To understand the metabolic activities of plants.
- To know about the various concepts and mechanisms of functions of plant.
- To understand the basic concept of biochemical analysis.

UNIT I

Plant water relations: Absorption of water – Diffusion, Imbibition, Osmosis & Plasmolysis. Mechanism of water absorption – Active and Passive. Ascent of sap – Path and Mechanism. Cohesion and Transpiration pull theory only. Transpiration – Types – cuticular, stomatal, lenticular – guttation. Mechanism of Stomatal Transpiration. (Theories not needed). Antitranspirant, significance of transpiration.

UNIT II

Photosynthesis – Ultra Structure of Chloroplast. Pigment systems. 'Z' scheme of electron transport – Van Neil hypothesis – Calvin cycle, Factors affecting photosynthesis.

UNIT III

Respiration – Ultra Structure of Mitochondria. Types – Aerobic & Anaerobic, Glycolysis – Krebs's cycle & Terminal Oxidation. Growth Hormones & their Physiological role of Auxins and Gibberellin.

UNIT IV

Plant biochemistry – Introduction – biomolecules – Structure and Properties of Carbohydrate (Glucose, Maltose & Cellulose) and Proteins.

P.T.O →

UNIT V

Techniques in Biochemistry – Colorimetry, PH metry and Paper Chromatography (Ascending).

Preservation Techniques		
Determination of Hemoglobin and Students	Skill Development Program	28.02.2020

UNIT-V 20%

Techniques in Biochemistry - Colorimetry, PH metry, Paper Chromatography (Ascending).

16-17 - Even
17-18 - Even.

IV SEMESTER		
SBE 2	MEDICINAL BOTANY AND HORTICULTURE	15UZOS41
Hrs/Week: 3 Hrs/Sem: 3x15=45	Hrs./UNIT: 9	Credit: 2

Objectives:

- To know about the values of ethnomedicine.
- To identify and classify the common medicinal plants.
- To enable the students to know about the latest Horticultural Techniques and to enrich themselves on the modern developments in ornamental garden.

UNIT I

Introduction to Herbal Medicine. Traditional systems of medicines: Ayurvedic, Homeopathy, Siddha and Unani. Traditional knowledge on medicinal plants and conservation of medicinal plants.

UNIT II

Classification of medicinal plants – Based on Morphology of plant parts used, Active Principles and Tehrapeutic Values. 10/.

UNIT III

Study of the following medicinal plants with reference to morphology of the plants – Botanical name, Common name, Active Principle and its Therapeutic Value – Ginger, Fenugreek, Coleus, Vetiver, Phyllantus and Asafoetida. 10/.

UNIT IV

Introduction to horticulture – Importance and Division. propagation of horticultural crops – cutting, Grafting, Budding and Layering.

UNIT V

Importance, Principles and designs of ornamental garden – layout and components of ornamental garden – Lawn, Indoor gardening and rockeries, Bonsai and Hanging pots, Flower arrangement.

REFERENCE BOOKS:

1. Craker, Lyle. E, 1988, Herbs, Spices & Medicinal plants: Recent advances in Botany, Oryx Press, Phoenix, Arizonal.
2. Vijay Verma 2008, Dictionary of medicinal plants, Anmol publication. New Delhi.
3. M.I.H. Farooqi, 2004, Medicinal plants in the traditions of prophet Mohamed: Scientific study of prophetic medicine, Vedoms Books (P) Ltd. Sidrab Pub. Lucknow.
4. Walter H. Lewis et al. 2003, Medical botany plants affecting human health 2nd Edition, Wiley publishers, New York.
5. Kokate. C.K., Purohit, A.P. Gokhale, S.B, 2007; Pharmacognsy, Nirali Prakashan Publishers, Pune.
6. Jyothiprakash E.J, 2006, Medicinal botany and pharmacognosy, Emkay publishers, New Delhi.
7. Edmund Senn, Andrew, Halfacre, 1977, Fundamentals of horticulture, Tata McGraw-Hill, New Delhi.
8. Manibhusan Rao, K, 1991, Text book of Horticulture, McMillan India, New Delhi.
9. Kumar, 1987, Introduction to Horticulture, Rohini Agencies, New Delhi.

III & IV SEMESTERS		
AII P	ALLIED BOTANY PRACTICAL *	15UBTA4P
Hrs/Week: 3	Hrs/Sem: 3 x 15 = 45	Credit: 2

*** Examination at the end of IV Semester**

Objectives

To enable the students

1. To study plant materials of anatomical & morphological interest for identification.
2. To identify various groups of flowering & non flowering plants.
3. To learn the Physiology & Biochemistry of plants.

DIVERSITY OF PLANT LIFE PRACTICAL

1. Micro preparation of specimens prescribed in the syllabus.
2. Identification of Permanent slides :
   Marchantia – Antheridiophore,Archegoniophore & Sporophyte.
   Marselia – Sporocarp(V.S).
   Pinus – L.S of male cone & female cone.
3. Botanical name, family, floral formula, floral diagram and Technical description of the plants from the families prescribed in the theory syllabus.
4. Identification of plant diseases.

PLANT PHYSIOLOGY & BIOCHEMISTRY PRACTICAL

Plant Physiology

To demonstrate simple set up in Plant Physiology.

1. Osmosis – Potato Osmoscope.
2. To demonstrate Plasmolysis by using Tradescantia leaf.
3. Transpiration Ganong's Potometer Experiment.
4. Demonstration of Suction Pressure due to Transpiration.
5. Ganong's light screen.
6. Evolution of oxygen during photosynthesis – Test tube & Funnel experiment.
7. Ganong's respiroscope – Respiration.
8. Anaerobic respiration – Kuhne's Vessel.
9. Separation of plant pigments – paper chromatography.
10. Demonstration and usage of PH meter & Colorimeter.
11. Field trip and Industrial visit is necessary.

REFERENCES:

1. Pandey, B.P. 2010, Modern Practical Botany Vol II. S.Chand & Company Ltd. New Delhi.
2. Santra. S.C. et al., 2005, College Botany Practical Vol. I. New Central book agency (P) Ltd, Kolkatta, India.
3. Pandey, B.P. 2009,Plant Pathology ,Pathogen and Plant disease, S.Chand & Company Ltd, New Delhi.
4. Pandey, B.P. 2010, Modern Practical Botany Vol III. S.Chand & Company Ltd. New Delhi