A.D.M. COLLEGE FOR WOMEN

(AUTONOMOUS)

Nationally Accredited with "A" Grade by NAAC - 3rd Cycle

(Affiliated to Bharathidasan University, Thiruchirappalli)

No.1, College Road, Velippalayam,

Nagapattinam – 611 001, Tamil Nadu, India

DEPARTMENT OF BOTANY

UG SYLLABUS

2021 – 2022 ONWARDS

A.D.M COLLEGE FOR WOMEN (AUTONOMOUS),
Nagapattinam

UG Programme

(For the candidates admitted from 2021 – 2022 onwards)

Bloom's Taxonomy Based Assessment Pattern

Knowledge Level

K1 – Recalling	**K2** – Understanding	**K3** – Applying	**K4** – Analyzing	**K5** – Evaluating	**K6** – Creating

1. Part I, II and III

Theory (External + Internal = 75 + 25 = 100 marks)

External/Internal					
Knowledge Level	**Section**	**Marks**	**Hrs.**	**Total**	**Passing Mark**
K1-K3	A (Answer all)	10 × 2 = 20	3	75	30
K3-K6	B (Either or pattern)	5 × 5 = 25			
K3-K6	C (Answer 3 out of 5)	3 × 10 = 30			

Semester-I / I.B.Sc., Zoology Allied Course-I	**AC- ALLIED COURSE I – ALLIED BOTANY PAPER - I**	Course Code: **WUA1**
Instruction Hours: 4	Credits: 3	Exam Hours: 3
Internal Marks -25	External Marks-75	Total Marks: 100

Cognitive Level	**K1 -Recalling** **K2 -Understanding** **K3 -Applying** **K4 - Analyzing** **K5 - Evaluating** **K6 - Creating**	
Course Objectives	• To expose the diversity of plant kingdom and their salient features • To acquire skills for engaging themselves in self-employment especially in the broad field of Mushroom Culture. • To expose various avenues of opportunities in the field of plant biotechnology considering its recognition, importance and utility value.	
UNIT	**CONTENT**	**HOURS**
Unit I	**Algae and Fungi** **Algae**: General characteristics of algae and its importance. Structure, reproduction and life cycle of *Nostoc, Chlorella, Oedogonium, Ectocarpus* and *Polysiphonia.* **Fungi:** General characteristics of fungi and its importance. Structure of *Albugo* and *Penicillium*.	**12 hrs**
Unit II	**Bryophytes, Pteridophytes and Gymnosperms** **Bryophytes**: General characteristics of bryophytes. Structure, reproduction and life cycle of *Riccia* and *Polytrichium*. **Pteridophytes:** General characteristics of pteridophytes. Structure, reproduction and life cycle of *Lycopodium.* **Gymnosperms:** General characteristics of gymnosperms and its importance. Structure, reproduction and life cycle of *Cycas.*	**12 hrs**
Unit III	**Plant Physiology** Absorption of water. Photosynthesis – Light and dark reaction (C3 cycle only). Respiration. Plant movements.	**12 hrs**

Unit IV	**Mushroom Technology** Mushroom: Introduction, nutritive value and importance of mushrooms. Cultivation of Oyster mushroom - spawn preparation, preservation of mushrooms, and mushrooms recipes.	**12 hrs**
Unit V	**Plant Biotechnology** Plant tissue culture - basic principles, M.S. medium preparation, Callus culture and regeneration	**12 hrs**

Text Book:

1. Ganguly A.K. (1971). General Botany, Vol. I. The New Book Stall, Calcutta.
2. Ignacimuthu, S. (1997). *Plant Biotechnology.* Oxford & IBM Publishing Co., New Delhi.
3. Jain, V.K. (1990). *Fundamentals of Plant Physiology*. S. Chand & Co., New Delhi.
4. Suman B.C. and Sharma V.P. (1990). Mushroom Cultivation and Uses. Agrobios (India), Jodhpur.Tripathi, D.P. 2005. *Mushroom Cultivation*. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.

Reference Books:

1. Bold, H.C. and Wynne, M.J., (1978). Introduction of Algae-structure and reproduction, Prentice Hall, New Jersey.
2. Suman, (2005). Mushroom Cultivation Processing and Uses, M/s. IBD Publishers and Distributors, New Delhi.
3. Sharma, OP. 1989. Text Book of fungi. Tata Mc Graw Hill, New York.
4. Sharma, OP. 1992. Text Book of Algae. Tata Mc Graw Hill, New Delhi.
5. Sporne, KR.1967. The Morphology of Gymnosperms, Hutchinson & Co., London.
6. Sporne, KR.1975. The Morphology of Pteridophytes, Hutchinson & Co., London.
7. Vanderpooren, A. & Gogginet, B. 2009. Introduction to Bryophytes. Cambridge University Press.

e- Resources:

file:///C:/Users/LIBRARY%20RETURN/Downloads/Encyclopedia%20of%20Plant%20and%20Crop%20Science%20(Print)%20(ENCYCLOPEDIA%20OF%20PLANT%20&%20CROP%20SCIENCE)%20(%20PDFDrive%20).pdf

file:///C:/Users/LIBRARY%20RETURN/Downloads/A%20Textbook%20of%20Practical%20Botany%20II%20(%20PDFDrive%20).pdf

file:///C:/Users/LIBRARY%20RETURN/Downloads/Desktop/A%20text%20book%20of%20practical%20botany%201%20%7BAshok%20Bendre%7D%20[8171339239]%20(1984).pdf

Course Outcomes:

On completion of the course the learner will be able to

CO 1:	To enable the students to understand the character and life cycle of Algae
CO 2:	Understand the various forms of Fungi
CO 3:	To get knowledge about classification, mode of reproduction, stelar evolution of pteridophytes and detailed study of some genera.
CO 4:	Basic understanding of the physiological mechanisms of plants.
CO 5:	To understand the factors influencing the mushroom cultivation and post harvesting methods.

Semester-I & II/ I.B.Sc., Zoology Allied Course-II	**AC- Allied Course II – Allied Botany Paper – II (Practical)**	Course Code: WUA2Y
Instruction Hours: 3	Credits: 3	Exam Hours: 3
Internal Marks -40	External Marks-60	Total Marks: 100

(One Allied practical for subjects included in Allied Botany – Paper I & III)

PLANT DIVERSITY AND PHYSIOLOGY, MUSHROOM TECHNOLOGY AND PLANT BIOTECHNOLOGY & MORPHOLOGY, TAXONOMY, ANATOMY, EMBRYOLOGY AND HORTICULTURE

1. Micro preparations of algae, fungi, bryophytes, pteridophytes, gymnosperms and demonstrating their description and identity included in the syllabus.
2. Micro preparations of stem, root and leaf of dicot and their identification.
3. Micro preparation of anther and observation of ovules (permanent slides).
4. Description of the plants and salient features of the families included in the syllabus.
5. Dissection flower and construction of floral diagram.
6. Comment on simple experimental setups in plant physiology included in the syllabus.
7. Demonstration of mushroom cultivation.
8. Propagation techniques.
9. Horticultural implements /tools.
10. Bonsai

Semester-III/ I.B.Sc., Zoology Allied Course-III	**AC- Allied Course III – Allied Botany Paper - III**	Course Code: WUA3
Instruction Hours: 4	Credits: 3	Exam Hours: 3
Internal Marks -25	External Marks-75	Total Marks: 100

Cognitive Level	**K1 -Recalling** **K2 -Understanding** **K3 -Applying** **K4 - Analyzing** **K5 - Evaluating** **K6 - Creating**	
Course Objectives	1. To make the students aware of basic concepts in morphology, taxonomy, anatomy and embryology. 2. To help students for acquiring skills to engage themselves in self-employment through horticulture and landscaping.	
UNIT	**CONTENT**	**HOURS**
Unit I	**Morphology** Inflorescence types - racemose, cymose, and mixed – special types, cyathium, hypanthodium, verticillaster and thyrsus. Technical description of flower and floral diagram.	**12 hrs**
Unit II	**Plant** T**axonomy** General outline of Bentham and Hooker's system of classification. Study of the range of characters and economic importance of Annonaceae, Rutaceae, Rubiaceae, Solanaceae, Euphorbiaceae, and Poaceae.	**12 hrs**
Unit III	**Plant Anatomy** Tissues – simple and complex. Primary structure of dicot stem, root and leaf. Secondary thickening in dicot stem.	**12 hrs**
Unit IV	**Embryology** Structure of mature anther, pollen grain, development of male gametophyte, structure of mature ovule, development of female gametophyte (*Polygonum* type only), and fertilization.	**12 hrs**
Unit V	**Horticulture** Horticulture: scope and importance, propagation methods – cutting, layering and grafting techniques), gardening and landscaping, irrigation methods, manures, lawns, indoor plants, bonsai techniques.	**12 hrs**

Text Book:

1. Lawrence, G.H.M. (1955). An Introduction to Plant Taxonomy. The Central Book Depot, Allahabad.

2. Cutter, E.G. (1978). *Plant Anatomy Part-I: Cells and Tissues* (2nd Edn.), *Plant Anatomy Part-II: Experiments and Interpretations*. Edward Arnold, London.

3. Kumar, N. (1997). *Introduction to Horticulture*. Rajalakshmi Publications, Nagercoil.

Reference Books:

1. Bhojwani, SS. & Bhatnagar, SP. 1994. Embryology of Angiosperms, Vikas Publishing House (P) Ltd., New Delhi.

2. Cuttler, EG. 1969. Plant Anatomy - Part I Cells & Tissue. Edward Arnold Ltd., London.

3. Jain V.K. 2000. Fundamentals of Plant Physiology, 5 th edition. S Chand & Co Ltd; New Delhi.

4. Chawla, H.S. 2002. Plant biotechnology, 2nd Ed, Oxford IBH Publishing Co. Pvt. Ltd., New Delh.

e- Resources:

file:///C:/Users/LIBRARY%20RETURN/Downloads/Plant%20form_%20an%20illustrated%20guide%20to%20flowering%20plant%20morphology%20%20%20(%20PDFDrive%20).pdf

file:///C:/Users/LIBRARY%20RETURN/Downloads/Botany%20Illustrated_%20Introduction%20to%20Plants,%20Major%20Groups,%20Flowering%20Plant%20Families%20(%20PDFDrive%20)%20(1).pdf

Course Outcomes:

On completion of the course the learner will be able to

CO 1:	Understand the classification of Bentham and Hooker‟s system.
CO 2:	Underst and morphological and reproductive characters different plant families.
CO 3:	Plant anatomy and embryology are much awaited subject to study the internal structures and function of reproductive organs in plants.
CO 4:	To understand the role of cell structure in plant development
CO 5:	To understand the basic principles and applications of horticulture

Semester-I/ Extra credit course	**HERBAL TECHNOLOGY - I** **ETHNO MEDICINE**	Course Code:-------
Instruction Hours: 3	Credits: 2	Exam Hours: 3
Internal Marks -25	External Marks-75	Total Marks: 100

Cognitive Level	**K1 -Recalling** **K2 -Understanding** **K3 -Applying** **K4 - Analyzing** **K5 - Evaluating** **K6 - Creating**	
Course Objectives	1. To make the students aware of basic concepts in morphology, taxonomy, anatomy and embryology. 2. To help students for acquiring skills to engage themselves in self-employment through horticulture and landscaping.	
UNIT	**CONTENT**	**HOURS**
Unit I	Ethnomedicine – definition, history and its scope – Inter disciplinary approaches in ethnobotany – Collection of ethnic information.	**6 hrs**
Unit II	Importance of medicinal plants – role in human health care – health and balanced diet (Role of proteins, carbohydrates, lipids and vitamins).	**6 hrs**
Unit III	Tribal medicine – methods of disease diagnosis and treatment – Plants in folk religion – *Aegle marmelos, Cyanodon dactylon* and *Sesamum indicum*.	**6 hrs**
Unit IV	Traditional knowledge and utility of some medicinal plants in Tamilnadu – *Solanum trilobatum*, *Adathoda vasica*, *Azadirachta indica* and *Eclipta alba.*	**6 hrs**
Unit V	Plants in day today life – *Ocimum sanctum* and *Centella asiatica* Nutritive and medicinal value of some fruits (Guava, Orange, Mango, Pomegranate) and vegetable - Green (*Moringa*).	**6 hrs**

References:

1. Ethnobiology – R.K.Sinha & Shweta Sinha. Surabhe Publications – Jaipur. 2001
2. Tribal medicine – D.C. Pal & S.K. Jain Naya Prakash, 206, Bidhan Sarani, Calcutta , 1998.
3. Contribution to Indian ethnobotany – S.K. Jain, 3rd edition, Scientific publishers, B.No. 91, Jodhpur, India. 2001
4. A Manual of Ethnobotany – S.K.Jain, 2nd edition,

Semester-II/ Extra credit course	**HERBAL TECHNOLOGY – II PHARMACOGNOSY**	Course Code:-------
Instruction Hours: 3	Credits: 2	Exam Hours: 3
Internal Marks -25	External Marks-75	Total Marks: 100

Cognitive Level	**K1 -Recalling K2 -Understanding K3 -Applying K4 - Analyzing K5 - Evaluating K6 - Creating**	
Course Objectives	1. To make the students aware of basic concepts in morphology, taxonomy, anatomy and embryology. 2. To help students for acquiring skills to engage themselves in self-employment through horticulture and landscaping.	
UNIT	**CONTENT**	**HOURS**
Unit I	History, Definition and scope of pharmacognosy; Systems of Indian Medicines – Siddha, Unani, Ayurveda, Homeopathy and Terminologies.	**6 hrs**
Unit II	Classification of Crude drugs – Taxonomical, Morphological and Pharmacological studies.	**6 hrs**
Unit III	Preparation of crude and commercial drugs. decoction, tincture, herbal syrups, ointments and herbal.	**6 hrs**
Unit IV	Organoleptic study of the following medicinal plants: Fruit – Amla, Bulb – Garlic, Rhizome – Ginger and Leaves – Neem,	**6 hrs**
Unit V	Analytical Pharmacognosy – drug adultration and detection. Biological testing of herbal drug.	**6 hrs**

References:

1. Pharmacognosy, S.B.Gokhale, Dr.C.K. Kokate, A.P. Purohit, Publisher: Nirali Prakasham, Pune, 2002
2. Herbs that Heal, Acharya Vipul Rao – Diamond Pocket Books, New Delhi, 2005
3. Practical Pharmacognosy. Dr.C.K. Kokate et al. 2003
4. An Introduction to Medicinal Botany and Pharmacognosy – N.C. Kumar, Emkay Publications, New Delhi, 2004.