DEPARTMENT OF BOTANY
UNDERGRADUATE COURSE CURRICULUM 2023-24

PART-A: Introduction				
Program: *Diploma Course*		Class: B. Sc. Semester-IV	Year: 2023	Session: 2023-2024
1	Course Code	**BSC – 4T**		
2	Course Title	**Plant Taxonomy, Anatomy & Embryology**		
3	Course Type	**Discipline Specific Course (DSC)**		
4	Pre-requisite(if any)	As per Government norms / Institutional scheme		
5	Course Learning. Outcomes (CLO)	*After completion of this course, the students will be able to -* ➢ *- understand the concept, diversity and evolution of Angiosperm plants* ➢ *- learn basics of plant systematic and status of flora* ➢ *identification and preservation and herbarium preparation of flora* ➢ *-- become familiar with the internal structure of plant and concept of plant tissues with its evolutionary concept* ➢ *Understand the reproductive mystery of plats and its importance*		
6	CreditValue	**03** (Credit = 15 Hours Teaching-learning)		
7	Total Marks	**Max. Marks: 100**		**Min Passing Marks: 40**

PART -B: Content of the Course		
	Total No. of Teaching–learning - Hours– 45	
Unit	**Topics (Course contents)**	**No. of Hrs**
I	**Plant taxonomy:** Classification, Nomenclature. Functions of Herbarium, important herbaria and botanical gardens of the world and India. Principles and rules (ICN); Types of classification-artificial, natural and phylogenetic. Bentham & Hooker (upto series), Engler & Prantl (upto series) and Hutchinson system of classification with its merits and demerits. Modern trends of taxonomy and Numerical taxonomy.	**12Hours**
II	**Taxonomic Description:** Characteristics, systematics and economic importance of **Dicotyledonous** family- Brassicaceae, Malvaceae, Fabaceae (subfamily), Apiaceae, Rutaceae, Euphorbiaceae, Lamiaceae, Astraceae. And **Monocotyledonous** family – Orchidaceae, Lilliaceae, Cyperaceae and Poaceae. [Floral features, Floral formula and floral diagram are essential].	**11Hours**
III	**Anatomy:** Tissue system – features and function of different types of Meristematic and Permanent tissues. Internal Structure of dicot and monocot root stem and leaf. Root and shoot apex organization; Secondary meristem and Secondary growth in root and stem. Wood (heartwood and sapwood). Abnormal Secondary Growth (Achyranthus, Nyctanthus, Boerhavia, Dracaena).	**11Hours**
IV	**Embryology:** Structure of anther and pollen; Structure and types of ovules; Embryo sacs –types & typial, Pollination and Fertilization, Double fertilization; Endosperm types, structure and functions Development of embryo -Dicot and monocot embryo; Cocept of Apomixes and Polyembryony. Seed - structure appendages and dispersal mechanisms.	**11Hours**
Keywords	*Taxonomy, Systematic, Floral features, Anatomy, Tissue, Embryology*	

Signature of Convener & Members of BOS:

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PART– C (BSC – 4T)

Learning Resources: Text Books, Reference Books and Others

Text Books Recommended

1. Simpson, M.G. (2006). *Plant Systematics.* Elsevier Academic Press, San Diego, CA, U.S.A.
2. Singh, G. (2012). *Plant Systematics:* Theory and Practice. Oxford & IBH Pvt. Ltd., New Delhi.
3. Plant taxonomy by V. K. Jain
4. Bhojwani, S.S. &Bhatnagar, S.P. (2011). Embryology of Angiosperms. Vikas Publication House Pvt. Ltd. New Delhi. 5th edition.
5. Mauseth, J.D. (1988). Plant Anatomy. The Benjamin/Cummings Publisher, USA.
6. Pandey, B. P. (LatesEdt.). Plant Anatomy

Online Resources–

- **e-Resources / e-books and e-learning portals**

- https://www.amazon.in/Plant-Taxonomy-past-present-future-ebook/dp/B01602IQI4
- https://books.google.co.in/books/about/PLANT_TAXONOMY_2E.html?id=Roi0IwSXFnUC&redir_esc=y
- https://www.kobo.com/ww/en/ebook/a-textbook-of-plant-taxonomy
- https://examupdates.in/plant-anatomy-and-embryology-book/
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- **Use of following sites**
  - https://uou.ac.in/sites/default/files/slm/BSCBO-201.pdf
  - https://www.perlego.com/book/1975516/plant-taxonomy-and-biosystematics-classical-and-modern-methods-pdf
  - https://www.scribd.com/document/583581867/Plant-Systematics-By-Op-Sharma-Chapter-02
  - https://www.uou.ac.in/sites/default/files/slm/BSCBO-202.pdf
  - https://egyankosh.ac.in/bitstream/123456789/69535/1/Block-4.pdf
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Part - D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**100 Marks**
Continuous Comprehensive Evaluation (CCE):	**20 Marks**
Semester End Exam (SEE):	**80 Marks**

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Internal Test - 02 of 10 Marks each Assignment –01 of 10 Marks	The best obtained marks of both test exam and marks of Assignment shall be considered against 20 Marks
Semester End Exam (SEE):	Paper – **Two section – A & B** Section A: Objective and Short answer type questions – **10 + 30 = 40 Marks** **Objective-10 x 1=10; Short Answer Type Questions- 10 x 3=30** Section B: Descriptive answer type questions unit wise – **4 x 10 = 40 Marks**	

Name and Signature of Convener & Members of BOS:

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