EVEN Semester Lecture Plan (PRACTICAL)

Name of the college: Government College of Arts, Science and Commerce, Sanquelim Goa

Name of Faculty: Dr. Nisha Kevat	**Subject:** Fundamentals of Botany
Paper code: BOT 100	**Program/Course: F.Y B.Sc.**
Division: - --	
Academic year: 2025 - 2026	**Semester: II**
Total Lectures: 30 Hours (Practical)	

Course Objectives:

- This course is designed to provide an overview of how cellular structure and function arise as a result of the properties of cellular macromolecules.
- The practical component of the study deals with experiments supporting cell structure and functioning principles as well as applications of bio-analytical techniques

Course Learning Outcome:

- Gain knowledge about the various cell organelles and their role in cell functioning. Understand the chemical structure and properties of biomolecules and their role in living organisms.
- Develop skills in various techniques used in cell biology studies.
- Be proficient in handling various instruments used in biochemistry related experiments.

Month	Practicals/Labs Scheduled Date	No. of Practicals/Labs planned	Topic, Subtopic to be covered	List of Experiments	Reference books
December (1st Week)	06/12//2025	2 h	Study of different types of fossils as mentioned in theory	Study of different types of fossils as mentioned in theory	• Arnold CA (2018). An introduction to Paleobotany. Surjeet Publications, Delhi.
December (2nd) Week)	13/12/2025	2 h	To study different types of stem and root	To study different types of stem and root	

December (3rd Week)	20/07/2025	2 h	To study different characters of leaves with respect to: a. phyllotaxy – Alternate, spiral, opposite, whorled; shapes of leaves, leaf types - compound, simple. leaf margins, leaf apex, leaf venation - parallel and reticulate, vernation	To study different characters of leaves with respect to: a. phyllotaxy – Alternate, spiral, opposite, whorled; shapes of leaves, leaf types - compound, simple. leaf margins, leaf apex, leaf venation - parallel and reticulate, vernation	• Bhojwani, SS, Bhatnagar, SP, Dantu, PK (2015). The embryology of Angiosperms. 6th Edition. Vikas Publishing House Pvt. Ltd., New Delhi. • Davis, PH and Heywood, VH (1963). Principles of Angiosperm Taxonomy. Oliver & Boyd, London. • Gangulee, SC, Das, KS, Dutta, CD. and Kar, AK (1968). College Botany Vol. I, II and III. Central Education Enterprises. • Gifford, EM and Foster, AS (1988). Morphology and Evolution of Vascular Plants, W.H. Freeman & Company, New York. • Gurumani, N (2006). Research methodology for biological sciences. MJP Publishers, Chennai. • Hopkins, WG and Huner, NP (2009). Introduction to Plant Physiology. 4th edition. John Wiley & Sons, U.S.A. • Jain, VK (2017). Fundamentals of
December			**CHRISTMAS BREAK (23rd December, 2025 to 1st January, 2026)**		
January (4th Week)	03/01/2026	2 h	To study various parts of the flower, types of inflorescences and fruits.	To study various parts of the flower, types of inflorescences and fruits.	
January (5th Week)	10/01/2026	2 h	To study type of seeds and germination in seeds of Riccinus and Cucurbita.	To study type of seeds and germination in seeds of Riccinus and Cucurbita.	
January (6th Week)	17/01/2026	2 h	To study types of tissues as mentioned in theory with the help of permanent slides.	To study types of tissues as mentioned in theory with the help of permanent slides.	
January (7th Week)	24/01/2026	2 h	Demonstration of tropic responses in plants - phototropism, geotropism, chemotropism, hydrotropism and thigmotropism.	Demonstration of tropic responses in plants - phototropism, geotropism, chemotropism, hydrotropism and thigmotropism.	
January (8th Week)	31/02/2026	2 h	To demonstrate leaf movements as mentioned in theory.	To demonstrate leaf movements as mentioned in theory.	
February	7/02/2026	2 h	Photosynthesis and Respiration: a. To demonstrate that oxygen is evolved during	Photosynthesis and Respiration: a. To demonstrate that oxygen is evolved during photosynthesis using inverted	

(9th Week)			photosynthesis using inverted funnel method Demonstration of respiration in germinating seeds by phenol red method	funnel method Demonstration of respiration in germinating seeds by phenol red method	Plant Physiology. 19th edition. S. Chand Company Ltd. New Delhi. • Lawrence, GHM (1951). Taxonomy of Vascular Plants. MacMillan, New York. • Pandey, BP (2014). Plant Anatomy. S. Chand & Company Pvt. Ltd., New Delhi. Sambamurty AVSS (2006). • A Textbook of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany. I.K. International publication, New Delhi. • Sharma VK (1991). Techniques in microscopy and cell biology. Tata McGraw-Hill, New Delhi. • Singh, G. (2012). Plant Systematics. Theory and Practice. 3rd edition. Oxford & IBH Pvt. Ltd., New Delhi. • Singh, V, Pandey, PC and Jain, DK (2017). Anatomy of Angiosperms, Rastogi Publication, Meerut. • Steward, WM (2010). Paleobotany
February (10th Week)	14/02/2026	2 h	Demonstration of process of Osmosis and Imbibition in plants	Demonstration of process of Osmosis and Imbibition in plants	
February (11th Week)	21/02/2026	2 h	Demonstration of process of Diffusion and Transpiration in plants.	Demonstration of process of Diffusion and Transpiration in plants.	
February (12th Week)	28/02/2026	2 h	Study of basic instruments used in botanical studies: a. Dissection microscope, light microscope, distillation unit, spectrophotometer, Autoclave (1P)	Study of basic instruments used in botanical studies: a. Dissection microscope, light microscope, distillation unit, spectrophotometer, Autoclave (1P)	
March (13th Week)	7/03/2026	2 h	Laminar air flow unit, centrifuge, orbital shaker, micrometres (stage and ocular), pH meter (1P)	Laminar air flow unit, centrifuge, orbital shaker, micrometres (stage and ocular), pH meter (1P)	
March (14th Week)	14/03/2026	2 h	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)	
March (15th Week)	21/03/2026	2h	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)	Field visit to observe the plant diversity (Algae, bryophytes, pteridophytes, gymnosperms, angiosperms)	
March (16th Week)	28/03/2026	2h	Extra practical sessions		

					and the Evolution of Plants. Cambridge University Press, Cambridge.

*****Note: Data filled in the above form is sample data.