

DEPARTMENT OF BOTANY
Teaching Plan 2020 (Sem V)

Dr. Pawan Kumar

B.Sc. (Hons) Botany, Sem V (Theory):

Name of Paper Code DSE 1 : (Analytical techniques in plant sciences)	Allocation of Lectures	Month wise schedule
Unit 1: Imaging and related techniques Principles of microscopy; Light microscopy; Fluorescence microscopy; Confocal microscopy	4	August
Unit 1: Imaging and related techniques Transmission and Scanning electron microscopy – sample preparation for electron microscopy, cryofixation, negative staining, shadow casting, freeze fracture, freeze etching	4	August
Unit 1: Imaging and related techniques Use of fluorochromes: (a) Flow cytometry (FACS); (b) Applications of fluorescence microscopy.	4	September
Unit 1: Imaging and related techniques Chromosome banding, FISH, chromosome painting	3	September
Unit 1: Imaging and related techniques FISH, chromosome painting	4	October
Unit 7: Biostatistics Introduction to Biostatistics	3	October
Unit 7: Biostatistics Measures of dispersion: Range, mean deviation,	4	November
Unit 7: Biostatistics variation, standard deviation;	4	November
Unit 7: Biostatistics Chi-square test for goodness of fit.	4	December

B.Sc. (Hons) Botany, Sem V (Practicals)
Analytical techniques in plant sciences

Name of Paper & Code DSE 1 : (Analytical techniques in plant sciences)	Allocation of Lectures	Month wise Schedule
1. Study of Blotting techniques: Southern, Northern and Western, DNA fingerprinting, DNA sequencing, PCR through photographs.	4	August
2. Demonstration of ELISA.	4	August
3. To separate nitrogenous bases by paper chromatography.	4	September
4. To separate sugars by thin layer chromatography.	4	September
5. Isolation of chloroplasts by differential centrifugation.	4	September
6. To separate chloroplast pigments by column chromatography.	4	September
7. To estimate protein concentration through Lowry's methods.	4	October
8. To separate proteins using PAGE.	4	October
9. To separation DNA (marker) using AGE.	4	October
10. Study of different microscopic techniques using photographs/micrographs (freeze fracture, freeze etching, negative staining, positive staining, fluorescence and FISH).	4	October
11. Preparation of permanent slides (double staining).	4	November
12. Revision (Mock Exam)	6	November

Suggested readings:

1. Plummer, D.T. (1996). An Introduction to Practical Biochemistry. Tata McGraw-Hill Publishing Co. Ltd. New Delhi. 3rd edition.
2. Ruzin, S.E. (1999). Plant Microtechnique and Microscopy, Oxford University Press, New York. U.S.A.