**Plant Diversity and Systematics**

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Course Outcome for Plant Diversity and Systematics:

Unit I: Plant Kingdom
1. Evaluate the evolutionary trends in algae by analyzing the chloroplast ultrastructure, pigments, and reproductive strategies.
2. Compare and contrast the evolutionary position of Fungi and analyze the salient features of major fungal groups.
3. Analyze the evolutionary trends and life cycle patterns of Bryophytes, Pteridophytes, and Gymnosperms.
4. Assess the biotechnological and economic importance of algae, fungi, bryophytes, pteridophytes, and gymnosperms.

Unit II: Morphology and Taxonomy of Angiosperms
1. Evaluate the important morphological peculiarities of roots, phyllotaxy, inflorescences, flower characters, and pollination syndromes in Angiosperms.
2. Analyze the fundamentals of plant systematics and classification systems, including numerical taxonomy, molecular taxonomy, chemotaxonomy, and serotaxonomy.
3. Compare and contrast the salient features of dicotyledons and monocotyledons, with examples, and analyze the use of image processing techniques for plant taxonomy.

Unit III: Plant Cytogenetics
1. Analyze the evolutionary significance of Karyotype studies and distinguish between symmetrical and asymmetrical karyotypes.
2. Evaluate the applications of spectral karyotyping and other molecular cytogenetic markers in plant cytogenetics.

Practical Skills:
1. Identify vegetative and reproductive structures of algae, fungi, bryophytes, and pteridophytes from temporary and permanent mounts.
2. Estimate the Mitotic index using the “Allium test” to analyze cell division.
3. Study different Meiotic stages from permanent mounts to understand the process of genetic recombination in plants.