GPBR 311 - PRINCIPLES OF PLANT BIOTECHNOLOGY (2+1)

Concepts of Plant Biotechnology, History of Plant Tissue Culture and Plant Genetic Engineering, Scope and importance in Crop Improvement, Totipotency and Morphogenesis, Nutritional requirements of *in-vitro* cultures, Techniques of In-vitro cultures, Micro propogation, Anther culture, Pollen culture, Ovule culture, Embryo culture, Test tube fertilization, Endosperm culture, Factors affecting above i*n-vitro* culture, Applications and Achievements, Somaclonal variation, Types, Reasons, Somatic embryogenesis and synthetic seed production technology, Protoplast isolation, Culture, Manipulation and Fusion, Products of somatic hybrids and cybrids, Applications in crop improvement, Genetic engineering, Restriction enzymes, Vectors for gene transfer, Gene cloning, Direct and indirect method of gene transfer, Transgenic plants and their applications, Blotting techniques, DNA finger printing, DNA based markers – RFLP, AFLP, RAPD, SSR and DNA Probes, Mapping QTL – Future prospects, MAS, and its application in crop improvement.