

**Course Objective:**

Plant Bioinformatics studies pave the way to understand plant evolution, and use this knowledge to improve crops. Plant Bioinformatics carries benefits for plant researchers. It can aid in plant breeding and genetic engineering, and allow plant scientists to produce better crops for the future.

**Courses Outcome:-s**

1. Outline importance of plant bioinformatics, protein and Gene Information Resources PIR, SWISSPROT, PDB, genebank
2. Describe plant specific genomic data and resources like HarvEST, TARI database, legume resources, GrainGenes, Maize GDB, Gramene
3. Find software used to discover phylogenies their use and status of specimen data, also learning the current priorities in biodiversity informatics its challenges and future prospect
4. Explain KEGG Bioinformatic Resource for Plant Genomic Research its tools, Resources and management system
5. Apply annotation gene ontology, manual and computational annotation on plants using several plant GDB resources

S.No.	Content	Contact Hours
1	<b>Introduction to Plant Bioinformatics: Importance of plant bioinformatics</b> , biological databases, Protein and Gene Information Resources – PIR, SWISSPROT, PDB, genebank.	8
2	<b>Plant specific Genomic Data and Resources:</b> HarvEST, TARI Database, Legume Resources, GrainGenes, Maize GDB, Gramene	8
3	<b>Phylogenetic data and phylogenies</b> Software used to discover phylogenies, use and status of specimen data, species distribution, Current priorities in biodiversity informatics, challenges and future prospect	9
4	<b>KEGG Bioinformatic Resource for Plant Genomic Research:</b> KEGG tools and Resources, Germplasm Data Management Arlet Portugal, Ranjan Balachand	9
5	<b>Gene Structure Annotation at Plant GDB:</b> PlantGDB Resources, Gene Ontology Annotation, Manual Annotations, Computational Annotation Methods	8
<b>Total</b>		<b>42</b>

**Books: -**

S.No.	Name of Books/ Author/Publisher
1.	Plant Genomics: Methods and Protocols, Daryl J. Somers, Peter Langridge and J. Perry Gustafson, Humana Press, 2009.
2.	Plant Genomics and Proteomics, CHRISTOPHER A. CULLIS, John Wiley & Sons, Inc. 2004s
3.	Plant Bioinformatics: Methods and Protocols, David Edwards, Humana Press, 2007.