

## **NBT041: AGRICULTURE BIOTECHNOLOGY**

### **UNIT I**

**(6)**

Agriculture and Agricultural Biotechnology, Clonal Germplasm: Micro propagation, In vitro production of pathogen and contaminant free plants

### **UNIT II**

**(6)**

Biotechnology- Methods of Crop Improvement: Genetic Engineering of Crop Plants, Transgenic Plants, Molecular Markers, QTL Mapping

### **UNIT III**

**(12)**

Microbes in Agriculture and Food: Applied Microbiology in the future of mankind, moving frontiers of applied microbiology, microbial enzymes and their applications in food processing and agro-chemical industries, agro-waste utilization, biodegradable polymers and their applications, microbial polysaccharides; Production and utilization of essential amino-acids, chemicals from micro-algae.

### **UNIT IV**

**(8)**

Metabolite Production: Production of Secondary Metabolites, Production of foreign compounds in transgenic plant, Achievements and recent developments of genetic engineering in agriculture

### **UNIT V**

**(8)**

Biofertilizers and Bioremediation: Microbial Biopesticides, Biofungicides, Herbicides, and Agricultural antibiotic Biotechnology in Agriculture: Ethical Aspects and Public Acceptance, Animal farming

#### **Reference Books:**

1. Biotechnology by B.D.Singh, Kalyani Publication
2. Biotechnology – Fundamentals and applications by S.S.Purohit, Student Edition
3. Agricultural Biotechnology-Arie Altman, CRC Press
4. Biotechnology- An Introduction by Susan R. Barnum, Vikas Publishing House