

## **IDC 302 Introduction to Plant Tissue Culture 3(2-1)**

### **Course Objectives:**

The aim of this course is to provide students with a thorough understanding of the basic principles of Plant Tissue Culture Technology, importance of cell, tissue and organ culture.

### **Course Outline**

Introduction to plant tissue culture technique, cellular totipotency, differentiation and de-differentiation, requirements for in vitro cultures; aseptic techniques; culture facilities; tissue culture media components; Nutrient salts (nitrogen, phosphorus, potassium), vitamins, amino acids, carbohydrates, gelling agents, growth regulators (auxins, cytokinin), organic supplements and antioxidants; tissue culture media preparation and handling; micro-propagation; role of tissue culture in plant breeding.

### **Practical**

Laboratory organization of plant tissue culture, sterilization techniques, culture media preparation, explant preparation, callus formation.

### **Recommended Books:**

1. Dixon, R.A. and Gonzales, R.A. (2003). Plant Cell Culture. A Practical Approach. Oxford University Press, Oxford, New York.
2. Bhojwani, S.S. and Razdan, M.K. (2001). Plant Tissue Culture: Theory and Practice. Elsevier, Amsterdam, Oxford, New York.
3. Dodds, J.H. and Roberts, L.W. (2000). Experiments in Plant Tissue Culture. Cambridge University Press. Cambridge, London, New York.
4. Lanza et al., 2000. Principles of Tissue Engineering. 2nd Edition; Academic Press, California. Ignacimutu S, 1997. Plant Biotechnology. Oxford IBH Publisher.
5. Punia MS, 1999. Plant Biotechnology and Molecular Biology: A Laboratory Manual. Scientific Publishers