



# AMITY UNIVERSITY

— UTTAR PRADESH —

**Course Title:** Basic Biotechnology

**Course Code:** BIOT

**Credit Units:** 02

L	T	P/S	Lab	TOTAL CREDIT UNITS
2	-	-	-	2

**Course Objectives:**

The course aims to make the students understand the basic techniques and application of Plant and Animal Biotechnology and its commercial applications.

**Pre-requisites: General**

**Student Learning Outcomes:**

At the end of this course the student will be able to have

- Knowledge about plant tissue culture and animal tissue culture techniques and their applications in biotechnology.

**Course Contents/Syllabus- Theory:**

	Weightage (%)
<b>Module I</b>	<b>25</b>
Fundamentals of plant tissue culture in theory and practice. Embryogenesis and organogenesis their practical applications Micropropagation and its application. Somaclonal variation and applications. Haploids and their applications. Endosperm culture, production of triploids and their applications	
<b>Module II</b>	<b>25</b>
Protoplast isolation and fusion and its applications. Regeneration of protoplasts. Somatic hybridization and its applications. Use of plant cell, protoplasts and tissue culture for genetic manipulation of plants Introduction to A. tumefaciens. Practical application of genetic transformation	

<b>Module III</b>	<b>25</b>
Introduction to Animal Tissue culture and its applications. Types of Animal Tissue culture: Cell Culture, Tissue Culture, Organ Culture. Culture Substrates. Subculture and Culture techniques. Tissue Culture Media. Natural and Artificial Media. Cell Lines. Cryopreservation.	
<b>Module IV</b>	<b>25</b>
Gene Transfer Methods in Animal cells. Transgenic Animals, Applications and Examples. Bioethical Issues related to Animal Biotechnology.	

**Pedagogy for Course Delivery:**

Lectures: 27  
Presentation/ Seminar: 2  
Class Test: 1  
Total: 30

**Theory Assessment (L&T):**

**Assessment/ Examination Scheme:**

Theory L/T (%)	Lab/Practical/Studio (%)	Total
<b>100</b>	<b>0</b>	<b>100</b>

Components (Drop down)	Class Test	Home Assignment	Attendance	External
<b>Weightage (%)</b>	15	10	5	70

**Text & References:**

- An Introduction to Plant Tissue Culture, 2006 , 2nd 9 (Ed.) M.K. Razdan, Oxford and IBH Publishing ISBN 13: 9788120415713
- Plant Tissue Culture: Theory & Practice,1996, 2nd (Ed) S.S. Bhojwani and M.K. Razdan, Elsevier ISBN 13: 9780080539096
- Animal Biotechnology by M.M. Ranga 2008 3rd (Ed) ISBN 13:978-81-7754-309-4