



**Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore**  
**Shri Vaishnav Institute of Agriculture**  
**B. Sc (Hons.) Agriculture, III semester**  
**GENERIC ELECTIVE**

**Syllabus**

**AGGEBT301: INTRODUCTION TO PLANT BIOTECHNOLOGY (3+0)**

Course code	Course Name	TEACHING & EVALUATION SCHEME							
		THEORY			PRACTICAL		L	P	CREDITS
		End Sem University Exam	Mid Term Exam	Teachers Assessment*	End Sem University Exam	Teachers Assessment*			
GUAGRIBT 301	Introduction to Plant Biotechnology	60	40	00	00	00	3	0	3

**Legends: L - Lecture; P – Practical;**

\*Teacher Assessment shall be based on following components: Quiz / Assignment / Project / Participation in Class etc.

**Objective**

- To provide in-depth knowledge of recent developments of Plant Biotechnology and applications
- To acquaint students with various fields of Biotechnology and their applications

**Course outcomes**

- It deals with understanding traditional and modern biotechnology.
- It also helps in understanding gene transfer techniques.
- It helps in understanding the ethical and socio-economic impacts of transgenic crops.

**Theory**

**Unit I**

History & Introduction to Biotechnology, Scope of Biotechnology, Application of biotechnology in Agriculture, Definition of Biotechnology, Traditional and Modern Biotechnology, Branches of Biotechnology

**Unit II**

Cell cycle and cell division, Double helical structure of DNA (Watson-Crick model), various forms of DNA and RNA. DNA as genetic material, Definition and Types of Mutations, classification of mutation

**Unit III**

Overview of transgenic plants and their significance in agriculture, Techniques for introducing foreign genes into plants: Agrobacterium-mediated transformation, Transgenic and its importance in crop improvement,

**Unit IV**

PCR techniques and its applications, Molecular markers like RFLP, RAPD, SSR and its application, DNA Replication- Semi-conservative DNA replication

**UNIT V**

Tissue culture techniques in crop improvement, Ethical and socio-economic impacts of transgenic crops. : Introduction and meaning of intellectual property, types of Intellectual Property and legislations covering IPR in India:-Patents, Copyrights, Trademark, Industrial design, Geographical indications, Trade secrets.



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**Suggested Readings**

- Buchanan, B.B., Grussem, W. and Jones R. 2015. Biochemistry and Molecular Biology of Plants, 2nd edition, Wiley and Blackwell Publications.
- Chawla H S (2002) Introduction to Plant Biotechnology. 2nd Edition, Oxford IBH publishing New Delhi.
- Purohit S S (2004) Biotechnology: Fundamentals and Applications 3rd Edition, Student Edition, Jodhpur.
- Slater, A., Scott, N.W., and Fowler, M.R. 2003. The Genetic Manipulation of Plants. Plant Biotechnology Oxford, England: Oxford University Press.
- Walker, J.M., Rapley, R. 2008. Plant Biotechnology and Genetics: Principles, Techniques and Applications.



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(Prof. Vinod Dhar)  
Chairperson - Board of Studies  
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