



Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore
Shri Vaishnav Institute of Agriculture
VII semester
GENERIC ELECTIVE

Syllabus

AGGE112: INTRODUCTION TO PLANT BIOTECHNOLOGY (4+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*			
AGGE112	Introduction to Plant Biotechnology	60	20	20	00	00	4	0	4

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., Gruissem, 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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