SYLLABUS FOR

THE FOUR-YEAR UNDERGRADUATE PROGRAMME (FYUGP)

As per provisions of NEP_2020 to be implemented from academic year 2022 onwards.

Semester: **VII**	Session: **2025-26**
Course Type: **GE**	Title: **Application and Importance of Biotechnology in Human Welfare**

Department of Biotechnology

GOVT. DIGVIJAY AUTONOMOUS POST GRADUATE COLLEGE, RAJNANDGAON (C.G.)

GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE, RAJNANDGAON (C.G.)

FYUGP (NEP 2020 Course)

Department: Biotechnology

Session: **2025-26**	Program: **B.Sc.**
Semester: **VII**	Subject: **Biotechnology**
Course Type: **GE**	Course Code: **.....**
Course Title: **Application and Importance of Biotechnology in Human Welfare**	
Credit: **4**	Lecture: **60**
M.M. 100 = **(ESE 80+IA 20)**	Minimum Passing Marks: **40%**

Title	**Calculus**
Course Learning Outcome:	After the present course student will be able to - (i) describe scope of biotechnology (ii) gain understanding of social applications of biotechnology (iii) read and analyse about biotechnology in health (iv) understand the concept of environmental biotechnology

Title	**Calculus**
Programme Specific Outcome:	Upon completion of this course student will be able to – (i) determine the types and history of biotechnology (ii) describe the plant biotechnology (iii) understand the concept of biotechnological products (iv) explain forensic and food biotechnology

Theory

Units	Lectures	Lectures	Credit
I	**15**	Introduction to Biotechnology – What is Biotechnology? Types of Biotechnology, Scope of Biotechnology, Biotechnology History,	1

		Biotechnology tools – bio materials, equipment's	
II	**15**	Biotechnology in agriculture – transfer of pest resistance genes to plants, Nitrogen fixating bacteria, biofertilizers – composting, and its byproduct – biogas Golden rice Plant biotechnology – Micropropagation, Production of virus free plants	1
III	**15**	Biotechnology in Environment – Biodegradation of pollutants Phytoremediation Biosorption of heavy metals Plastic degrading bacteria Biotechnology products – Citric acid, antibiotics, alcohols, enzymes	1
IV	**15**	Biotechnology in Health – Production of vaccine Gene therapy Production of Monoclonal antibody Stem cell therapy Forensic Biotechnology – DNA finger printing Food biotechnology – Canning, pasteurization	1

List of Books	• H.S. Chawla: Introduction to plant biotechnology. Oxford & IBH Publishing Co. (P) Ltd. • B.D. Singh, (2004) Biotechnology. Expending Horizons. First Edition. Kalyani Publishers, Ludhiana. • H Patel – Industrial Microbiology 4th Edition (2003). • KS Bilgrami and AK Pandey – Introduction to Biotechnology Edition 2nd (1998). • U Satayanarayan – Biotechnology, First Edition (2005) Books and Allied (P) Ltd. Kolkata.

Evaluation Scheme		
Exam Type	Mode of Exam	Marks
Theory	External	80
	Internal	20

Evaluation Scheme for Theory (External)					
Type of Question	No. of questions	Marks	Word Limit	Choice	Total Marks
Very Short Answer	08	02	30	No	16
Short Answer	04	06	75	Yes	24
Long Answer	04	10	150	Yes	40
Evaluation Scheme for Theory (Internal)					
Based on Mid-term Exam					20
Total					**100**

Approval of the Board of Studies

Date: 14/05/25

Name	Prof. S. K. Jadhav	Sabiha Naz	Dr. Shubha Diwan	Shri Sanjay Bhagwat	Ku. Varsha Meshram	Dr. Pramod Kumar Mahish
Designation	VC Nominee	Subject Expert	Subject Expert	Employment/ Industrial Member	Merit Alumni	Chairman/ HOD
Signature			Joined online	Joined online		