

Name of Faculty		Agricultural sciences					L:2 T:0 P: 1
Name of Course		B.Sc. (Hons.) Agriculture					Credits: 3
Subject/Paper		Green Biotechnology	Semester	IV	Paper Code	170100013	Marks: 100
Course Objectives:		After completion of this course the student will be able to meet the following learning objectives: <ol style="list-style-type: none"> 1. To learn innovations in plant and agricultural biotechnology 2. To develop technical skills of biotechnology applications in modern industry. 3. To develop skills of Bio-entrepreneurship Imparting transferable and Life Skills about biotechnology and its utility in horticulture and agriculture and to develop Bio- entrepreneurship skills.					
Course Coordinator							
Name:		Dr. Sonia Goel					
Contact:		09711817426			Class Time:		
Unit	Sub Units	Time (hrs)	Topic	Teaching Methodology	Assessment Method	Teaching Faculty	
Unit-I Agricultural Biotechnology	1.1	2	Biotechnology addition in agriculture	Practical Lab exercises	Single Response Answer Multiple Response Answer Assertion –Reasoning Group Discussion	Dr. Sonia Goel	
	1.2	2	Biofuels, biofertilizers	Field visits	Problem Based Question Interpretation Question	Dr. Sonia Goel	
	1.3	2	Genetically Modified	Interdepartmental visits	Group discussion	Dr. Sonia Goel	

	1.4	2	crops Need of another Green Revolution?	Class room teaching and discussion		Dr. Sonia Goel
Unit-II Plants & Industrial Bioproducts	2.1	2	Plants products	Field visits	Single Response Answer	Dr. Sonia Goel
	2.2	2	Scope and progress in the industry	Lab practical	Multiple Response Answer	Dr. Sonia Goel
	2.3	2	Scope of improvement	Student Interactive Session (SIS)	Assertion –Reasoning Group Discussion	Dr. Sonia Goel
	2.4	2	Indigenous prospects of plants bioproducts Industry	Student Seminar	Practicals	Dr. Sonia Goel
Unit-III Environmental Biotechnology	3.1	2	Environmental Issues & Bioremediation	Student Interactive Session	Single Response Answer Multiple Response Answer Assertion –Reasoning Group Discussion	Dr. Sonia Goel
	3.2	2	Success in bioremediation	Lab exercises	Practical assessments	Dr. Sonia Goel

	3.3	2	Industrial Impacts	Industry visit		Dr. Sonia Goel
	3.4	2	Future scope	On site learning		Dr. Sonia Goel
Unit-IV Bioentrepreneurship	4.1	2	Skills of Entrepreneurs.	Student Interactive Session	Problem Based Question Interpretation Question	Dr. Sonia Goel
	4.2	2	How to identify and meet a market need?	Class room teaching with discussion	Project development	Dr. Sonia Goel
	4.3	2	Industrial bioproducts and bioprocessing	Industry visit	Problem Based Question Interpretation Question	Dr. Sonia Goel
	4.4	2	Bio-products industry	Experts meets/lectures	Product development	Dr. Sonia Goel

Assessment: 50 Marks (10 marks Internal – 40 End Term)

Suggested Readings:

1. Nelson D L & Cox M M (2004) Lehninger Principles of Biochemistry, 4th Edition, WH Freeman and Company, New York, USA.
2. Hopkins W G and Huner P A (2008) Introduction to Plant Physiology. John Wiley and Sons.
3. Patel A H (1996) Industrial Microbiology. 1st edition, Macmillan India Limited.
4. Gupta C B & Khanka SS (2015) Entrepreneurship and Small Business Management:, Sultan Chand & Sons
5. Crueger W and Crueger A (2000) Biotechnology: A textbook of Industrial Microbiology. 2nd edition. Panima Publishing Co. New Delhi.
6. Wainwright M (1999) Introduction to Environmental Biotechnology, Kluwer Academic Publishers