BIOTECHNOLOGY AND SOCIETY

Course Code	19ES15501A	**Year**	III	**Semester**	I
Course Category	Open Elective-I	**Branch**	Common to All	**Course Type**	Theory
Credits	3	**L – T – P**	3 – 0 – 0	**Prerequisites**	Nil
Continuous Internal Evaluation	30	**Semester End Evaluation**	70	**Total Marks**	100

Course Outcomes		**Levels**
After successful completion of the course, the student will be able to		
CO1	Understanding the basic concepts of advanced and emerging issues in biotechnology (L2)	L2
CO2	Analyze, and evaluate social and ethical issues in the conduct of biological research and application of biological knowledge (L4)	L4
CO3	Apply knowledge and analytical approaches in several major domains of the biological sciences that reflects a breadth and depth of understanding (L3)	L3
CO4	Analyze the scientific method by formulating hypotheses, proposing testable predictions and then testing to reach supportable conclusions about biological processes and systems, and articulate the relevance of modern biology to society (L4)	L4
CO5	Apply responsibilities to promote societal health and safety, upholding the trust given to the profession by the society (L3)	L3

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3-High, 2: Medium, 1: Low)														
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO1**	**PSO2**
CO1	3													
CO2	3					3		3						
CO3	3					3								
CO4						3								
CO5						3	3							

Syllabus		
Unit No.	**Contents**	**Mapped COs**
I	History of Biotechnology, Genes (basic concepts), Genetic engineering, Tools for manipulation of genes (introduction to recombinant DNA technology), Vectors and expression systems (introduction)	CO1
II	Intellectual property rights (concepts related to drugs, genes and genomes) Recombinant DNA Debates, Biotechnology and Business, Patenting Life, Genetically Modified Foods: Risk, Regulation, and Our Food	CO2
III	Freezing, Banking, Crossing, Eugenics, The Human Genome Project, Genetic Testing, Disability, and Discrimination, Bioethics and Medicine, From the Pill to IVF, Cloning, Stem Cells.	CO3

IV	Drugs and Designer Bodies, Biotechnology and Race, Bioprospecting and Bio colonialism	CO4
V	Vaccines, Gene therapy, Clinical trials, Synthetic Biology and Bioterrorism, Use of biofertilizers and biopesticides for organic farming	CO5

Learning Recourse(s)

Text Books

1. Biotechnology and Society: An introduction. Hallam Stevens. University of Chicago Press. 2016. ISBN 022604615X, 978022604615

Reference Books

1. W. Godbey, An Introduction to Biotechnology, The Science, Technology and Medical
2. Applications, 1/e, Woodhead Publishing, 2014.
3. J.M. Walker and R. Rapley, Molecular Biology and Biotechnology, 5/e, Royal society of chemistry, 2009.
4. B.R.Glick, J.J.Pasternak, C.L.Patten. Molecular Biotechnology.ASM Press. 2009. ISBN-10:
5. 1555814980, ISBN-13: 978-1555814984s