VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
(Autonomous Institution, Affiliated to Anna University, Chennai)
Elayampalayam, Tiruchengode – 637 205

DEPARTMENT OF BIOTECHNOLOGY

Course Code / Name : U13BT739- ANIMAL BIOTECHNOLOGY

Class (Year / Programme / Department / Section): IV/ B.TECH/ BT

UNIT-1 ANIMAL CELL CULTURE

S.No	Topics To Be Covered	Duration in Minutes	Teaching Aid	Books Referred
1.	Media for culturing cells and tissues	45	BB	T1
2.	Chemically defined and serum free media for cell culture; Sterilization of various equipments and apparatus	45	PPT	T2,R1
3.	Cell culture substrates – Animal cell culture	45	BB	T2
4.	Types and methods - Development of cell lines	45	BB	T1
5.	Development, Maintenance, Preservation and Characterization of animal cells,Scaling up of animal cell cultures	45	PPT	T2,R2
6.	Cell culture as source of valuable products	45	BB	R2
7.	Protein production by genetically engineered mammalian cell lines	45	PPT	T1,R2
8.	Stem cells and their applications	45	BB	T2

UNIT-II-GENE TRANSFER METHODS

	Topics To Be Covered	Duration in Minutes	Teaching Aid	Books Referred
9.	Gene transfer methods	45	BB	T1,R1
10.	Virus mediated methods; Biology and Construction of viral vectors like SV40	45	PPT	T2,R1

11.	Adenovirus, lentivirus, vaccinia virus	45	BB	T2,R1
12.	Herpes virus, and adeno associated virus	45	PPT	T1
13.	Baculovirus , Transfection methods	45	BB	T2,R2
14.	Stable and transient methods.	45	bb	R2
15.	Gene Transfer methods –A Case Study	45	PPT	T1,R2
16.	Ouiz test for 1st and 2ndlesson	45	PPT	T2

UNIT-III MICROMANIPULATION OF EMBRYO AND EMBRYO TRANSFER

	Topics To Be Covered	**Duration in Minutes**	**Teaching Aid**	**Books Referred**
17.	Micromanipulation technology	45	PPT	T1
18.	Artificial insemination	45	BB	T2,R1
19.	Superovulation	45	PPT	T2
20.	Embryo transfer, Invitro fertilization	45	BB	T1
21.	Pregnancy diagnosis	45	PPT	T2,R2
22.	Sexing of embryos, Embryo splitting	45	BB	R2
23.	Cryopreservation of embryo	45	PPT	T1,R2
24.	Cloning and SCNT	45	PPT	T2
25.	Breeding of farm animals	45	BB	T2,R2
26.	Case Study about embryo technology in animals	45	BB	T1

UNIT-IV TRANSGENIC ANIMALS

	Topics To Be Covered	**Durationin Minutes**	**Teaching Aid**	**Books Referred**
27.	Concepts of transgenic animal technology	45	BB	T1
28.	Various strategies for the production of transgenic animals	45	BB	T2,R1

29.	Transgenic animals importance in biotechnology	45	PPT	T2
30.	pronuclear microinjection	45	BB	T1
31.	embryonic stem cells nuclear transfer in the production of transgenic animals.	45	BB	T2,R2
32.	somatic cell nuclear transfer in the production of transgenic animals.	45	PPT	R2
33.	Transgenic animals as bioreactors for producing pharmaceutically important compounds and therapeutics etc	45	BB	T1,R2
34.	Role of gene knock out in mice model for studying human genetic disorder.	45	BB	T2
35.	Role of gene knock in mice model for studying human genetic disorder.	45	PPT	R2
36.	Genome editing techniques	45	BB	R1
UNIT-V BIOTECHNOLOGY IN ANIMAL PRODUCTION				
	Topics To Be Covered	**Duration in Minutes**	**Teaching Aid**	**Books Referred**
37.	Manipulation of Growth hormone	45	BB	T1
38.	Somatotropic hormone and Thyroid hormone	45	BB	T2,R1
39.	Probiotics as growth promoters	45	BB	T2
40.	Ideal characteristics of probiotics	45	BB	T1
41.	Mode of action and uses of probiotics	45	PPT	T2,R2
42.	Manipulation of lactation	45	BB	R2
43.	Lactogenesis	45	PPT	T1,R2
44.	Galactopoiesis,wool growth	45	BB	T2
45.	rumenmicrobial digestive system	45	PPT	T2,R2

TEXT BOOK:

1) Ramadoss, P., Animal Biotechnology: Recent Concepts and Developments, MJb Publishers, Chennai, 1st Edition, 2008

2) Davis, D., Animal Biotechnology, National Academic Press, Washington, 1st Edition, 2002.

REFERENCE:

1) Freshney, R. I., Culture of Animal Cells: A manual of Basic technique, John ,Wiley and sons, 6th Edition, 2010.

2) Masters, J.R.W., Animal Cell Culture: Practical Approach, Oxford University Press, New York, 3rd Edition, 2000.