

PG Sem 1

Semester: 1				
Course : Major				
Paper Title: Inheritance Biology and Organogenesis				
Paper code: M2C4MB260132T/P			Credits: 6	
Hours/week : 7				
Category: Core/MDC/SEC/VAC : Core				
Theory / Practical / Composite : Composite				
No of Modules : No modules				
Course Overview: The course is focussed on the understanding basics of eukaryotic genetics. It statss the introduction to Mendelian genetics and extra chromosomal inheritance along with the understanding and analysis of linkage, recombination and linkage mapping . the course helps to understand human genetics, pedigree analysis and polygenic inheritance patterns . The course also provides the basic introduction to plant and animal developmental biology from embryonic stage till the formation of organs				
Course Outcome:				
1. Remember: To remember the basics of eukaryotic genetics				
2. Understand: To understand the introduction to Mendelian genetics and extra chromosomal inheritance.				
3. Apply: To Apply the analysis of linkage, recombination and linkage mapping				
4. Analyze: To analyse the human genetics, pedigree analysis and polygenic inheritance patterns				
5. Evaluate: To evaluate the basic plant and animal developmental biology from embryonic stage till the formation of organs				
6. Create: To apply the role of chromosome number and structure changes in inherited genetic disorders				
Prerequisites: <i>Basic knowledge about any prior course</i>				
SYLLABUS				
UNIT/Module	UNIT/Module	UNIT/Module	UNIT/Module	COGNITIVE LEVEL
I.				K1, K2, K3, K4, K5
II.				K2, K3, K4, K5, K6
III.				K1, K2, K3, K4, K5
IV.				K2, K3, K4, K5, K6
V.				
Vi.	Vi.	Vi.	Vi.	
Vii.	Vii.	Vii.	Vii.	
Viii.	Viii.	Viii.	Viii.	
ix.	ix.	ix.	ix.	

x.	x.	x.	x.	
xi.	xi.	xi.	xi.	
Text Books				
1. Gardner EJ, Simmons, Snustad- Principles of genetics Wiley-India 2. Weaver, Hedrick Genetics 3 rd Ed MacGraw-Hill Education 3. Griffith, Wessler, Lewontin, Carroll Introduction to Genetic Analysis WH Freeman and Co 4. Klug, Cummins, Spencer, Palladino, Concepts of Genetics 5. Developmental Biology (13th Edition) by Michael J.F. Barresi and Scott F. Gilbert. Oxford University Press 6. Principles of Development (7th Edition) by Lewis Wolpert, Cheryll Tickle, and Alfonso Martinez Arias				
Suggested readings				
2.				
3.				
4.				
Web Resources				
https://3billion.io/blog/what-is-pedigree-analysis-and-why-does-it-matter				
https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/chromosome-change				
Evaluation Theory Theory 60 (45+15) CIA-10+3+2; Practical 40 CA (38+2)				
Paper Structure for Theory Semester Exam Module : End semester Full Marks: 45 Short questions: 5 (each 1 mark) from 7 (5x1=5) Long questions: 4 (each 10 marks) from 6 (4x10=40)				

Course outcomes (COs) and Cognitive Level Mapping

COs	CO Description	Cognitive levels
CO1	Remember: To remember the role of microbial and plant cell components in relation to their physiological function.	K1

CO2	Understand: the stress response in bacteria and plants. and analyze, study the formation of bacterial biofilms and their significance.	K2
CO3	Apply: To Apply the concept of microbial and plant physiology in managing stress adaptation of microbes and plants.	K3
CO4	Analyze: To analyse the role of signalling systems in bacteria and plants in adaptating to environmental stress responses. To analyse the role of culture medium in propagating plants under tissue culture conditions.	K4
CO5	Evaluate: To evaluate the techniques of plant tissue culture techniques and apply them in the field of plant biotechnology. To evaluate the role of signaling system and its effect on the genetic control of microbes and plants.	K5
CO6	Create: To apply the role of signalling system in creating novel extremophilic bacterial cells, overcoming plant stress and production of transgenic plants.	K6