

## **BTPC2007 – Developmental Biology**

**Discipline:** B.Tech in Biotechnology

**Semester:** 4th

**No. of Days/Week:** 3

**No. of Weeks:** 15

**Faculty Name:** Dr. Susmita Mahapatra

<b>Week</b>	<b>Class Day</b>	<b>Topics</b>
1st	1st	Introduction to Developmental Biology
	2nd	Gametogenesis – Spermatogenesis and Oogenesis
	3rd	Fertilization: types and mechanisms
2nd	1st	Classification of eggs
	2nd	Cleavage: types and patterns
	3rd	Blastulation process and mechanisms
3rd	1st	Gastrulation and germ layer formation
	2nd	Morpho-genetic movements
	3rd	Fate maps and early embryo
4th	1st	Cell commitment and determination
	2nd	Epigenetic landscape model
	3rd	Transcriptional and post-transcriptional control
5th	1st	Axis formation in Drosophila
	2nd	Morphogen gradient and eye lens induction
	3rd	Metamorphosis in insects and amphibians
6th	1st	Regeneration concepts
	2nd	Tetrapod limb development
	3rd	Neurulation and notogenesis
7th	1st	Organizer concept in development

	2nd	Development of vertebrate eye
	3rd	Extraembryonic membranes and placenta
8th	1st	Behavioral development: plasticity and constancy
	2nd	Stem cells and differentiation
	3rd	Experimental techniques in embryology
9th	1st	Case studies: regeneration & stem cell research
	2nd	Ethics in developmental biology
	3rd	Digital learning and NPTEL recap
10th	1st	Student presentations
	2nd	Recap with models/charts
	3rd	Practical correlations
11th	1st	Revision of Modules I–III
	2nd	Quiz and discussion
	3rd	Class Test 1
12th	1st	Revision of Modules IV–V
	2nd	Mock Questions and case-based learning
	3rd	Assignments and feedback
13th	1st	CO Mapping
	2nd	Previous Year Questions
	3rd	Final assessment prep
14th	1st	Internal Assessment
	2nd	Final Quiz
	3rd	Course wrap-up and student feedback
15th	1st	Viva / Recap

	2nd	Project discussion
	3rd	Closure