5th Semester	RBT5C002	Developmental Biology	L-T-P 3-0-0	3 Credits

Module I: **(10 hours)**

Gametogenesis and Fertilization Definition, scope & historical perspective of development Biology, Gametogenesis Spermatogenesis, Oogenesis Fertilization Definition, mechanism, types of fertilization. Different types of eggs on the basis of yolk.

Module II: **(6 hours)**

Early embryonic development Cleavage: Definition, types & patterns, Mechanism of Blastulation: Process, types, Mechanism of Gastrulatio, Morphogenetic movements epiboly, emboly, extension, invagination, convergence, de-lamination. Formation & differentiation of primary germ layers.

Module III: **(8 hours)**

Embryonic Differentiation: Cell commitment and determination- the epigenetic landscape: a model of determination and differentiation, control of differentiation at the level of genome, transcription and post-translation level.

Module IV: **(8 hours)**

Metamorphosis (insect and amphibians), regeneration and tetrapod

Module V: **(8 hours)**

Concept of organizer**,**Neurulation, notogenesis, development of vertebrate eye. Fate of different primary, germlayers Development of behaviour: constancy & plasticity, Extra embryonic membranes, placenta in Mammals.

Books:

[1] Developmental Biology by Scott F. Gilbert

[2]An Introduction to Embryobrology by B.I Balinsky and B.C. Fabian

Digital Learning Resources:

Course Name:	Introduction to Developmental Biology
Course Link:	https://nptel.ac.in/courses/102/106/102106084/
Course Instructor:	Prof. Subramaniam K, IIT Madras