

Lesson Plan for Course: ANATOMY AND PHYSIOLOGY OF CELL, TISSUE Code: DS1, DSP1 Credit: 3 + 2

- Course coordinator: AAHANA SINGHA
- Course Outcome
 - ✓ CO1: This course provides the comprehensive knowledge about the structures and purposes of the basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes and organelles
 - ✓ CO2: Students will understand the cellular components and mechanisms underlying mitotic and meiotic cell division.
 - ✓ CO3: Students will be able to apply their knowledge of cell biology to selected examples of changes or losses in cell function.
 - ✓ CO4: This course will provide knowledge about environmental and physiological changes or alterations of cell function brought about by mutations.
 - ✓ CO5: Students will get a brief idea about cell signaling.
 - ✓ CO6: Students will gain complete idea about body position, directional terms, body planes, body cavities etc.
 - ✓ This course will provide knowledge about the anatomy of heart, lungs, skin, kidney etc.

Course planner

Sl	Course Topic	Teacher	Class-hour	Remarks*
Jul	Elementary idea about body position, directional terms, body planes and body cavities etc.	SDC	6	Theoretical
	Anatomy of heart, lungs.	SDC	6	Theoretical
	Anatomy of skin and kidney.	SDC	6	Theoretical
	Structure, classification & functions of tissues & cells.	TS	6	Theoretical
	Functional morphology of cell: Structure and function of cell membrane, mitochondria, lysosomes, peroxisomes, centrosomes, nucleus, endoplasmic reticulum, ribosomes, golgi apparatus.	TS	8	Theoretical
	Cytoskeleton structure, lipid bilayer, fluid mosaic model, cell adhesion molecules.	TS	6	Theoretical
	Intercellular connections: Tight junctions, Desmosomes, Gap junctions.	TS	4	Theoretical
	Transport across cell membrane: Exocytosis, Endocytosis.	TS	6	Theoretical
	Simple and facilitated diffusion	TS	6	Theoretical
Aug	Active and passive transport, Uniport, symport & antiport. Na ⁺ -K ⁺ pump.	TS	6	Theoretical
	Cell cycle. Cell division: mitosis & meiosis.	AS	6	Theoretical
	Cell signalling: G-proteins, G-protein coupled receptors.	AS	4	Theoretical
	Calcium, IP ₃ & DAG, cAMP, cGMP as second messengers.	AS	6	Theoretical
	JAK-STAT pathway, RAS pathway. MAP kinase pathway. PI3 kinase pathway.	TS	6	Theoretical

Semester: I Department of Physiology, Basirhat College Session: JULY TO DECEMBER 2023

	Study & identification of stained sections of different mammalian tissues & organs : Bone, Cartilage, Trachea, Lungs ,Spleen, Lymph gland.	TS	2	Practical
Sep	Study & identification of stained sections of different mammalian tissues & organs : Esophagus, Stomach, Duodenum, Ileum & Jejunum.	TS	2	Practical
	Study & identification of stained sections of different mammalian tissues & organs : Large Intestine, Liver, Salivary glands.	TS	2	Practical
	Study & identification of stained sections of different mammalian tissues & organs : Kidney, Ureter, Pancreas, Adrenal gland, Thyroid gland.	AS	2	Practical
Oct	Study & identification of stained sections of different mammalian tissues & organs : Testes, Ovary, Spinal Cord, Cerebral cortex Cerebellum.	AS	2	Practical
Nov	Study & identification of stained sections of different mammalian tissues & organs : Skin, Cardiac muscle, Skeletal muscle, Smooth muscle.	AS	2	Practical
	Study & identification of stained sections of different mammalian tissues & organs : Artery, Vein, Tongue, Uterus.	AS	2	Practical
Dec	Revision of practical	TS	5	Practical
	Revision of practical	AS	4	Practical
	Assessment: End-term Test		Total: 105 Hrs	

Resources:

- Books: Best and Taylor's Physiological basis of Medical Practices, by B.K. Brobecks. The William and Wilkins Co.

Review of Medical Physiology, by W.F. Ganong, Lange Medical Book. Pretices- Hall International. Mc Graw Hill.

Text book of Medical Physiology, by A.C. Guyton. W.B. Saunders Co.

- Other resources:

*Remarks will specify

- The nature of the class-topic (viz. Theoretical, Practical, and Tutorial).
- Methodology of teaching (whether using ICT, engaging students in group discussion, quiz etc. etc.)
- Different modes of assessment. (Please check UGC evaluation reforms).

