# (B. Pharm)
# (Semester - I)

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| **Course Code** | **BP106RBT** |
| **Course Title** | **Remedial Biology – Theory** |

**Scope:**
To learn and understand the components of living world, structure and functional system of plant and animal kingdom.

**Objectives:**
Upon completion of the course, the student shall be able to
1. Know the classification and salient features of five kingdoms of life
2. Understand the basic components of anatomy & physiology of plant
3. Know and understand the basic components of anatomy & physiology of animal with special reference to human

**Course Learning Outcomes (CLO):**
At the end of the course, students will be able to –
1. Identify the five kingdoms of life and living world
2. Understand the morphology of flowering plants
3. Describe the anatomy and physiology of animals and human beings
4. Explain the various phases of plant growth and different plant tissues.
5. Illustrate the process of photosynthesis and plant nutrition

**Syllabus**: **Teaching hours**: **30 Hours**

**UNIT I** **7 Hours**

- **Living world:**
  Definition and characters of living organisms
  Diversity in the living world
  Binomial nomenclature
  Five kingdoms of life and basis of classification. Salient features of Monera, Protista, Fungi, Animalia and Plantae, Virus,
- **Morphology of Flowering plants:**
  Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed.
  General Anatomy of Root, stem, leaf of monocotyledons & Dicotyledons.

**UNIT II** **07 Hours**

- **Body fluids and circulation**
  Composition of blood, blood groups, coagulation of blood
  Composition and functions of lymph;
  Human circulatory system
  Structure of human heart and blood vessels
  Cardiac cycle, cardiac output and ECG

- **Digestion and Absorption**
  Human alimentary canal and digestive glands
  Role of digestive enzymes
  Digestion, absorption and assimilation of digested food
- **Breathing and respiration**
  Human respiratory system
  Mechanism of breathing and its regulation
  Exchange of gases, transport of gases and regulation of respiration
  Respiratory volumes

**Unit III** **07 Hours**

- **Excretory products and their elimination**
  Modes of excretion
  Human excretory system- structure and function
  Urine formation
  Rennin angiotensin system
- **Neural control and coordination**
  Definition and classification of nervous system
  Structure of a neuron
  Generation and conduction of nerve impulse
  Structure of brain and spinal cord
  Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata
- **Chemical coordination and regulation**
  Endocrine glands and their secretions
  Functions of hormones secreted by endocrine glands
- **Human reproduction**
  Parts of female reproductive system
  Parts of male reproductive system
  Spermatogenesis and Oogenesis
  Menstrual cycle

**UNIT IV** **05 Hours**

- **Plants and mineral nutrition:**
  Essential mineral, macro and micronutrients
  Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation
  **Photosynthesis**
  Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.

**UNIT V** **04 Hours**

**Plant respiration:**
Respiration, glycolysis, fermentation (anaerobic).
**Plant growth and development**
Phases and rate of plant growth, Condition of growth, Introduction to plant growth regulators
**Cell - The unit of life**
Structure and functions of cell and cell organelles.
Cell division
**Tissues**
Definition, types of tissues, location and functions.

**Suggested Readings^**: (Latest edition)


1. Gokhale, S.B. Text book of Pharmaceutical Biology, Pragati Books.
2. Thulajappa, S. A. & Seetaram. A Text book of Biology.
3. Naidu, S.B.V. A Text book of Biology.
4. Naidu, M. A. & Murthy. Text book of Biology.
5. Dutta, A.C. Botany for Degree students. Oxford University Press.
6. Ayyer, M.E. & Ananthakrishnan T.N. A Manual of Zoology.
7. Gokhale, S.B. & Kokate, C.K.. A Manual for Pharmaceutical Biology Practical. Nirali Prakashan.


L= Lecture, T= Tutorial, P= Practical, C= Credit
^ this is not an exhaustive list