**FIRST YEAR**

**Semester-II**

**HSc-201 Human Physiology**

 Theory: 4hrs/week

Practicals: 2 hrs./week

**Objectives**

1. To give knowledge about the structure and functioning of different systems of the human body.
2. To know about the diseases and disorders of endocrine glands.

**Unit- I:**

1. **Circulatory system :** Blood- Composition, functions, clotting of blood, blood groups, Rh factor , anaemia.
2. **Cardiovascular system:** Anatomy of the heart, heart rate, Cardiac cycle,

Blood Pressure, Factors maintaining blood pressure.

**Unit-II**

**(a) Digestive system:** Structure and functions-Liver and pancreas

**(b) Respiration**: Structure of respiratory organs; Mechanism and Chemistry of respiration. Abnormal types of respiration- anoxia, hypoxia, asphyxia and Artificial respiration

**Unit-III**

**Excretory system:** Structure and functions of Kidney, urine- composition volume, formation and micturition

**Unit-IV**

**Nervous system:** Structure of neuron, reflex action, spinal cord, brain and their membranes, autonomic nervous System. Central Nervous System

**Unit-V**

**(a). Endocrine glands :** Hormones, Secretion of hormones, and their influence on growth Metabolism & reproduction. Pituitary, thyroid, parathyroid and adrenal glands

**(b)Physiology of Reproduction**: Anatomy of male and female reproductive system.

**PRACTICALS**

**I. Slides**

1 .Types of epithelium -any three (columnar, ciliated, squamous,etc)

2 Types of muscle -any three (striated, non-striated, cardiac, etc.)

3. T..S of organs -any three (cartilage, bone, kidney, testes, ovary, etc.)

 **II. Experiments.**

4 Identification of Blood groups & Rh factor

5 Preparation of Blood smear.

6 Observation and recording of body temperature and pulse rate before and after exercise.

7 Estimation of Hb -.Demonstration

**Course Out Comes**:

1. Students understands Blood-its functions, composition and groups
2. Describes structure of heart, respiratory, digestive, excretory and reproductive organs.
3. Explains endocrine glands and its importance

**FIRST YEAR**

**Semester-II**

**HSc-202 Nutritional Biochemistry**

Theory: 4hrs/week

Practicals: 2 hrs./week

**Objectives:**

* To enable the students to know the metabolism of macronutrients.
* To impart knowledge regarding inter-relationship among nutrients.
* To know the water and electrolyte balance .
* To enhance knowledge about nutrition and infection.

**Unit I:**

**Metabolism of Carbohydrates:** Introduction, anabolism, catabolism, metabolism.

Glycogenesis, Glycogenolysis, Glycolysis, Kreb’s cycle, energy output, Homeostasis of blood sugar-role of hormones, Glucose Tolerance Test.

**Unit II:**

**Metabolism of lipids:**

Introduction, β-oxidation of fatty acids, Biosynthesis of fatty acids, Synthesis of triglycerides,

 Atherosclerosis (in brief)

**Unit III:**

**Metabolism of proteins:**

Dynamic equilibrium, nitrogen balance, Essential Amino Acids, glycogenic, ketogenic, and both glycogenic and ketogenic amino acids.

**Oxidation of amino acids**-(i) Transamination, (ii) Deamination- a.Oxidative, b. Non-oxidative, (iii) Decarboxylation.

**Unit IV:**

**(a).** Importance of water– functions, sources, requirement – effect of deficiency.

(b). Acid base balance.

**Unit V:**

(a). Interrelationship between nutrients

(b). Nutrition and Infection

**PRACTICAL:**

1. Estimation of reducing sugar by Benedict’s quantitative method

2. Estimation of ascorbic acid in limejuice

3. Estimation of iodine value of fat/ free fatty acid value (gingelly oil, groundnut oil, coconut oil)

**Demonstrations:**

Estimation of blood glucose (Glucose Tolerance Test)

Chromatographic separation of carbohydrates/ amino acids

Enzymes- ptyalin or salivary amylase action on boiled starch solution- spot plate

 testing with iodine.

**Course Outcomes:**

1. Students will gain knowledge regarding properties and functions of bio molecules and also metabolic process of nutrients, interrelationship between and nutrients and nutrition infection
2. Students gain skills in diet planning and counseling

**FIRST YEAR**

**Semester-II**

**HSc-203 General Psychology**

Theory: 4hrs/week

Practicals: 2 hrs./week

**Objectives:**

To understand the basic concepts and principles of Psychology

To develop knowledge and understanding about the theories of learning.

**THEORY**

**Unit-I:**

 **Introduction to Psychology:** Definitions, Branches of psychology -1.Pure psychology 2.Applied psychology

Methods of psychology – Introspection, Naturalistic observational, experimental method, clinical method and Normative survey methods.

**Unit-II:**

 **(a)Perception: Definition, meaning-** perceptual organization and its principles -perceptual constancies: shape, size, brightness, space, distance, direction, etc; perceptual organization and illusions

 **(b)Attention**-definition- types – determinants of attention. meaning of span of attention, shifting of attention, Division of attention, Distraction of attention

**Unit-III:**

**Learning and Remembering:**

**(a)Learning-** Definition – classical and operant conditioning- learning by imitation – cognitive learning.

**(b)Memory** – definition, Process of memorization, kinds of memory immediate, short term, and long term memory, the study of memory, Memorization techniques.

 **Forgetting**- definition and types, nature of forgetting – improving memory.

**Unit-IV:**

**(a)Motivation and Emotions:** definitions – psychological basis –Needs and Drives- classification – physiological, psychological and social motives, unconscious motivation.

(b) Definition of emotion and feelings- development of emotions. Theories - Some examples of adaptive and disruptive emotion.

**Unit –V:**

**(a)Definition of intelligence and its nature** – classification of intelligence, gifted, slow learners, and retarded and their characteristics, concept of I.Q, tests of intelligence,-verbal and nonverbal, .

**(b) Personality:** Definition- personality theories in brief, Personality tests- assessment of personality

 **PRACTICALS**

1. Muller lyre illusion – Perception.

2. Thurston’s Interest Schedule – Vocational Interest.

3. Bells Adjustment Inventory – Personality.

4. Raven’s progressive Matrices – Intelligence.

5. Memory tests – Memory.

6. Projective tests - Personality.

7. Interest record.

**Course Outcomes:**

Up on successful completion of this course student will be able to

* Differentiate among various subfields of psychology.
* Identify different methods used in psychology.
* Demonstrate knowledge of different topics.
* Critically evaluate the methods of assessment of personality and Intelligence.