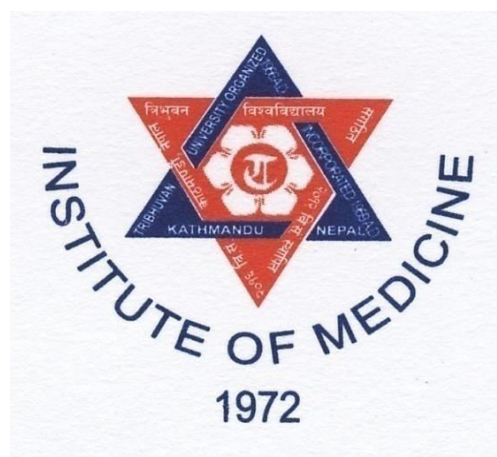


**Curriculum**  
**on**  
**Bachelor in Pharmacy**  
**(B. Pharm)**



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**2020 (2076)**

The first year consists of six-theory papers and three practical carrying a total load of 990 Teaching Hours (46) including both theory and practical. In the second year, there are six theory papers and six-practical carrying a total load of 1080 Teaching Hours (48). In the third year, there are seven theory papers and three practical carrying a total load of 900 Teaching Hours (48) and in the fourth year there will be four theory and one practical paper carrying a total load of 450 Teaching Hours (36). The course consists of total of 3420 Teaching Hours (178). Apart from these papers, a 3 months' period is allotted to Dissertation and a 2 months time is allotted to the in-plant training in the fourth year.

### 10. Curriculum structure of Bachelor of Pharmacy

| Code No.           | Name of the subject                                 | Hrs/<br>wk | Hrs/<br>yr | Credit    | Marks      |
|--------------------|---|------------|------------|-----------|------------|
| <b>FIRST YEAR</b>  |   |            |            |           |            |
| BP 401 A           | Anatomy, Physiology & Pathology-Theory              | 3          | 90         | 6         | 100        |
| BP 402 A           | Biochemistry- Theory                                | 3          | 90         | 6         | 100        |
| BP 402 B           | Biochemistry-Practical                              | 3          | 90         | 2         | 50         |
| BP 403 A           | Pharmaceutical Chemistry-Theory                     | 3          | 90         | 6         | 100        |
| BP 403 B           | Pharmaceutical Chemistry-Practical                  | 3          | 90         | 2         | 50         |
| BP 404 A           | Medicinal Chemistry I-Theory                        | 3          | 90         | 6         | 100        |
| BP 405 A           | Pharmacology I-Theory                               | 3          | 90         | 6         | 100        |
| BP 406 A           | Pharmaceutical Microbiology-Theory                  | 3          | 90         | 6         | 100        |
| BP 406 B           | Pharmaceutical Microbiology-Practical               | 3          | 90         | 2         | 50         |
|                    | <b>Total of First Year</b>                          | <b>33</b>  | <b>990</b> | <b>46</b> | <b>750</b> |
| <b>SECOND YEAR</b> |   |            |            |           |            |
| BP 501 A           | Pharmaceutics I (Physical Pharmacy)-Theory          | 3          | 90         | 6         | 100        |
| BP 501 B           | Pharmaceutics I (Physical Pharmacy)-<br>Practical   | 3          | 90         | 2         | 50         |
| BP 502 A           | Medicinal Chemistry II-Theory                       | 3          | 90         | 6         | 100        |
| BP 502 B           | Medicinal Chemistry II-Practical                    | 3          | 90         | 2         | 50         |
| BP 503 A           | Biopharmaceutics and Pharmacokinetics-<br>Theory    | 3          | 90         | 6         | 100        |
| BP 503 B           | Biopharmaceutics and Pharmacokinetics-<br>Practical | 3          | 90         | 2         | 50         |
| BP 504 A           | Pharmacognosy -Theory                               | 3          | 90         | 6         | 100        |
| BP 504 B           | Pharmacognosy –Practical                            | 3          | 90         | 2         | 50         |
| BP 505 A           | Pharmacology II-Theory                              | 3          | 90         | 6         | 100        |
| BP 505 B           | Pharmacology II-Practical                           | 3          | 90         | 2         | 50         |

|                    |  |            |             |            |             |
|--------------------|--|------------|-------------|------------|-------------|
| BP 506 A           | Pharmaceutical analysis and quality assurance<br>I-Theory      | 3          | 90          | 6          | 100         |
| BP 506 B           | Pharmaceutical analysis and quality assurance<br>I- Practical  | 3          | 90          | 2          | 50          |
|                    | <b>Total of Second Year</b>                                    | <b>36</b>  | <b>1080</b> | <b>48</b>  | <b>900</b>  |
| <b>THIRD YEAR</b>  |  |            |             |            |             |
| BP 601 A           | Pharmaceutical Engineering-Theory                              | 3          | 90          | 6          | 100         |
| BP 602 A           | Pharmaceutics II (Dosage Forms and<br>Formulation) -Theory     | 3          | 90          | 6          | 100         |
| BP 602 B           | Pharmaceutics II (Dosage Forms and<br>Formulation)-Practical   | 3          | 90          | 2          | 50          |
| BP 603 A           | Pharmaceutical analysis and quality assurance<br>II- Theory    | 3          | 90          | 6          | 100         |
| BP 603 B           | Pharmaceutical analysis and quality assurance<br>II- Practical | 3          | 90          | 2          | 50          |
| BP 604 A           | Ayurvedic and Herbal Technology-Theory                         | 3          | 90          | 6          | 100         |
| BP 604 B           | Ayurvedic and Herbal Technology-Practical                      | 3          | 90          | 2          | 50          |
| BP 605 A           | Biostatistics & Research Methodology-Theory                    | 3          | 90          | 6          | 100         |
| BP 606 A           | Pharmaceutical Jurisprudence-Theory                            | 3          | 90          | 6          | 100         |
| BP 607 A           | Community Pharmacy and First Aid-Theory                        | 3          | 90          | 6          | 100         |
|                    | <b>Total of Third Year</b>                                     | <b>30</b>  | <b>900</b>  | <b>48</b>  | <b>850</b>  |
| <b>FOURTH YEAR</b> |  |            |             |            |             |
| BP 701 A           | Clinical and Hospital Pharmacy-Theory                          | 3          | 90          | 6          | 100         |
| BP 701 B           | Clinical and Hospital Pharmacy-Practical                       | 3          | 90          | 2          | 50          |
| BP 702 A           | Pharmaceutical Management-Theory                               | 3          | 90          | 6          | 100         |
| BP 703 A           | Pharmaceutics III (Industrial Pharmacy) –<br>Theory            | 3          | 90          | 6          | 100         |
| BP 704 A           | Pharmacotherapeutics-Theory                                    | 3          | 90          | 6          | 100         |
| BP 705 DT          | Dissertation   |            |             | 6          | 100         |
| BP 706 IP          | In-plant Training in Hospital +Industry<br>(4 weeks each)      |            |             | 4          | 100         |
|                    | <b>Total of Fourth Year</b>                                    | <b>15</b>  | <b>450</b>  | <b>36</b>  | <b>650</b>  |
|                    | <b>Grand Total</b>   | <b>114</b> | <b>3420</b> | <b>178</b> | <b>3150</b> |

For the dissertation work, each student should develop a thesis topic, which will be carried out under the guidance of teachers. The students should submit a thesis and defend it.

Recognizing the need to develop the ability to translate theory into practice, students are placed for in-plant training in pharmaceutical manufacturing units, hospitals, drug stores as a part of curriculum at the beginning of 4<sup>th</sup> year.

## COURSE OF FIRST YEAR

### ANATOMY, PHYSIOLOGY AND PATHOLOGY

|                 |                          |                |
|-----------------|--------------------------|----------------|
| Subject: Theory | Year: First              | Code: BP 401 A |
| Full Marks: 100 | Total Teaching hours: 90 | Credit Hrs: 6  |

**Total teaching hours (Subject-wise):** (Anatomy: 20 Hrs. Physiology: 50 Hrs. Pathology: 20 Hrs)

#### Marks distribution

| Subject    | Total marks(100) | Internal assessment (20) | Final assessment (80) |
|------------|------------------|--------------------------|-----------------------|
| Anatomy    | 25               | 5                        | 20                    |
| Physiology | 50               | 10                       | 40                    |
| Pathology  | 25               | 5                        | 20                    |

#### A. ANATOMY

**Total teaching hours: 25 Hrs**

**Course description:** The course is designed to provide fundamental knowledge of human anatomy to the pharmacy students and professionals.

**General objectives:** At the end of this course, student will be able to:

- a. Recognize anatomical structures and explain the main physiological functions of body systems.
- b. Use anatomical knowledge to predict physiological consequences
- c. Synthesize ideas to make connections between anatomy and physiology and real-world situations
- d. Understand the effects of alterations in structures and functions of as whole.
- e. Apply the knowledge of anatomy and physiology in the practice of Pharmacy

#### Specific objectives:

##### Unit 1: Basic anatomical terminologies:

After the completion of unit, students will be able to:

- a. Define Plane, Position, Movements, Tissue in general (Epithelial, Connective)[1Hrs]

##### Unit 2: Skin and integumentary system: [1 Hrs]

After the completion of course, students are able to:

- a Identify different layers of skin
- b List appendages of skin

### **Unit 3: Musculoskeletal system [3 Hrs]**

After the completion of course, students will be able to:

- a Discuss general histology of muscles, bones, cartilage
- b Classify bones and joints
- c Classify lymphatic tissue. Explain major lymphatic vessels.
- d Classify muscles: skeletal, smooth and cardiac muscles
- e Describe the structure of skeletal muscle: Actin and Myosin filaments

### **Unit 4: Respiratory system [2 Hrs]**

After the completion of course, students will be able to:

- a Discuss general anatomy of respiratory organs
- b List the subdivisions and components of respiratory tract

### **Unit 5: Cardiovascular system [2 Hrs]**

After the completion of course, students will be able to:

- a. Discuss general anatomy of heart and pericardium
- b. Explain types of blood vessels. Difference between arteries and vein
- c. Identify main arteries and veins of the bodies and their principal functions

### **Unit 6: Nervous system [3 Hrs]**

After the completion of course, students will be able to:

- a Describe the structure of synapse
- b Discuss general anatomy of functional areas of cerebrum
- c Discuss general anatomy of cerebellum
- d Discuss general anatomy of mid brain, pons and medulla oblongata

### **Unit 7: Special senses [3Hrs]**

After the completion of course, students will be able to:

- a Describe structure of retina: macula, fovea centralis, optic disc, physiological blind spot
- b Describe the structure of external and internal ear.

### **Unit 8: GI tract [2 Hrs]**

After the completion of course, students will be able to:

- a. Explain the general architecture of GIT and peritoneum
- b. Describe the gross anatomy of GIT
- c. Describe the gross anatomy of hepatobiliary system

### **Unit 9: Reproductive system [1 Hrs]**

After the completion of course, students will be able to:

- a. Describe the organ of male reproductive system
- b. Describe the organ of female reproductive system

### **Unit 10: Endocrine system [1 Hrs]**

After the completion of course, students will be able to:

Describe the anatomy of pituitary gland, thyroid gland and suprarenal gland

### **Unit 11: Urinary system [1 Hrs]**

After the completion of course, students will be able to:

Describe the anatomy of urinary system

### **Reference books (Latest Editions)**

1. Waugh A, Grant A. Ross and Wilson's Anatomy and Physiology in Health and Illness. Churchill Livingstone, London.
2. Tortora G. J, Derrickson B. H. Principles of anatomy and physiology. John Wiley & Sons.

## **B. PHYSIOLOGY**

**Total teaching hours: 50 Hrs**

### **Course description:**

The course is designed to provide fundamental knowledge of human physiology to the pharmacy students and professionals. This course is designed in a system specific manner and organized into various organ systems, namely general physiology, hematology, musculoskeletal, respiratory, cardiovascular, digestive, urinary, nervous, endocrine and reproductive systems.

**General objectives:** At the end of the course, the students will be able to

- a Explain the normal functioning of all the organ systems of the body and their interactions.
- b Narrate the contribution of each organ system to the maintenance of homeostasis.
- c Elucidate the physiological aspects of normal growth and development.
- d Describe the physiological response and adaptations to environmental stresses.
- e List the physiological principles underlying pathogenesis and treatment of disease.

### **Specific objectives:**

#### **Unit1. General physiology [4Hrs]**

After the completion of the course, students will be able to

- a. Define Physiology, branch and its importance.
- b. Describe functional organization of the human body. [**a+b =1 Hr**]
- c. Describe cell, cell membrane, membrane transport and cell organelles.
- d. Describe homeostasis, positive and negative feedback mechanisms. [**c+d=1 Hr**]
- e. Describe various body fluid compartments and their composition.
- f. Describe various transport processes across the cell: passive transport, active transport and vesicular transport. [**e+f = 1 Hr**]
- g. Physiology of aging, its principle and age related diseases. [**1 Hr**]

## **Unit 2. Blood, immune and lymphatic system [5Hrs]**

After the completion of the course, students will be to

- a. Describe composition of blood: plasma and formed elements; and list general functions of blood.
- b. Describe structure and functions of red blood cells (RBC), white blood cells (WBC) and platelets. **[a+b= 1Hr]**
- c. Describe major blood grouping systems: ABO and Rh; and describe their clinical importance.
- d. State clotting mechanisms and role of platelets in blood clotting. **[c+d=1 Hr]**
- e. Enumerate important tests of bleeding: bleeding time (BT), clotting time (CT), prothrombin time (PT).
- f. Discuss general principles of immunity: cell mediated immunity, antibody mediated immunity, active immunity and passive immunity. **[e+f = 1Hr]**
- g. List functions of the spleen.
- h. List the functions of lymph and lymphatic system. **[g+h = 1Hr]**
- i. Define the terms edema, lymphedema leukocytosis, thrombocytopenia.
- j. Describe the basic pathophysiology of anemia, polycythemia, hemophilia, dengue hemorrhagic fever, immunodeficiency in acquired immunodeficiency syndrome (AIDS). **[i+j = 1Hr]**

## **Unit 3: Musculoskeletal system [4Hrs]**

After the completion of the course, students will be to

- a. Classify muscles: skeletal, smooth and cardiac muscles.
- b. List the functions of different types of muscles. **[a+b = 1Hr]**
- c. Describe the structure of skeletal muscle: actin and myosin filaments. **[b+c = 1Hr]**
- d. Describe the process of neuromuscular transmission and explain mechanism of skeletal muscle contraction: sliding filament theory, isotonic and isometric contractions. **[1 Hr]**
- e. Define the terms atrophy, hypertrophy, rigor mortis, tetany.
- f. Describe the basic pathophysiology of myasthenia gravis, organophosphate poisoning, and muscular dystrophies. **[e+f = 1Hr]**

## **Unit 4: Respiratory system [4 Hrs]**

After the completion of the course, students will be to

- a. List the subdivisions and components of respiratory tract.
- b. Describe pulmonary ventilation and mechanism of breathing. **[a+b =1 Hr]**
- c. List lung volumes and capacities.
- d. List the functions of lungs. **[c+d = 1 Hr]**
- e. Explain the mechanism of gaseous exchange in lungs; transport of oxygen and carbon dioxide in blood.
- f. Explain the mechanisms of neural and chemical regulation of breathing. **[e+f =1 Hr]**
- g. Define the terms apnea, hypoxia, hypercapnea.
- h. Describe the basic pathophysiology of pneumonia, chronic obstructive pulmonary disease (COPD), bronchial asthma, respiratory failure, respiratory acidosis and respiratory alkalosis. **[g+h = 1 Hr]**

### **Unit 5: Cardiovascular system [4 Hrs]**

After the completion of the course, students will be to

- a. List the properties of cardiac muscle
- b. Explain cardiac cycle along with its various phases; define end-diastolic volume, end-systolic volume, stroke volume and ejection fraction[**a+b= 1 Hr**]
- c. Define heart rate, pulse rate, cardiac output and venous return
- d. Define the terms bradycardia, tachycardia and list their causes[**c+d =1 Hr**]
- e. Define arterial blood pressure and explain the mechanism of its regulation
- f. Describe the components of normal electrocardiogram (ECG) and list its clinical uses  
[**e+f = 1 Hr**]
- g. Define the terms atherosclerosis, cardiac arrhythmias, angina pectoris, myocardial infarction (MI)
- h. Describe the basic pathophysiology of hypertension, hypotension, circulatory shock, congestive cardiac failure (CCF), rheumatic heart disease [**g+h = 1 Hr**]

### **Unit 6: Gastrointestinal (GI) system [4 Hrs]**

After the completion of the course, students will be to

- a. Enumerate functions of different parts of the GI tract: stomach, liver, small intestine and large intestine.
- b. Enumerate composition and functions of secretions of GI tract: saliva, gastric juice, pancreatic juice, bile and intestinal juice. [**a+b = 1 Hr**]
- c. Explain the process of digestion and absorption of carbohydrates, proteins and fats
- d. Describe the intestinal movements. [**c+d = 1 Hr**]
- e. List the functions of liver and describe liver function tests.
- f. Define the terms vomiting, constipation, jaundice, ascites, steatorrhoea. [**e+f = 1 Hr**]
- g. Describe the basic pathophysiology of peptic ulcer, diarrhea, cirrhosis, alcoholic liver disease, gastroenteritis, irritable bowel disease. [**1 Hr**]

### **Unit 7: Renal and electrolyte system [4 Hrs]**

After the completion of the course, students will be to

- a. List the functions of kidneys and describe their role as homeostatic organs.
- b. Describe the mechanism of urine formation: glomerular filtration, tubular reabsorption and tubular secretion; define glomerular filtration rate (GFR) and its regulation.  
[**a+b = 1 Hr**]
- c. Describe the structure and functions of juxtaglomerular apparatus.
- d. Explain micturition and micturition reflex. [**c+d = 1 Hr**]
- e. Describe water, acid-base and electrolyte balance.
- f. Describe normal volume and composition of urine.[**e +f = 1 Hr**]
- g. Define the terms oliguria, anuria, hemodialysis.
- h. Describe the basic pathophysiology of urinary tract infection, renal calculi, glomerulonephritis, renal failure, benign prostatic hyperplasia (BPH).  
[**g+h = 1 Hr**]

### **Unit 8: Nervous system [9Hrs]**

After the completion of the course, students will be to



- a. Classify nervous system; define and list properties of a neuron.
- b. Describe resting membrane potential, local potential and action potential of a neuron. **[a+b = 1 Hr]**
- c. Describe the structure of synapse and process of synaptic transmission.
- d. Describe reflex and reflex arc. **[c+d = 1 Hr]**
- e. Classify receptors involved in neuronal transmission.
- f. List the ascending tracts and name the sensations carried by them: dorsal column-lemniscal system and anterolateral system. **[e+f = 1 Hr]**
- g. List the functions of descending tracts: pyramidal (corticospinal) tracts.
- h. List functions of cerebrum, cerebellum, basal ganglia, thalamus, hypothalamus, midbrain, pons, medulla and reticular formation. **[g+h = 1 Hr]**
- i. Describe functions of cerebrospinal fluid (CSF), meninges.
- j. List cranial nerves and their functions. **[i+j= 1 Hr]**
- k. Describe functions of autonomic nervous system; list their effects on various organ systems. **[1 Hr]**
- l. Explain the mechanism of maintenance of body temperature **[1 Hr]**
- m. Define the terms paralysis, paresis, fever, tetanus, upper and lower motor neuron type disease **[1 Hr]**
- n. Describe the basic pathophysiology of meningitis, encephalitis, cerebellar disease, Parkinson's disease, epilepsy, schizophrenia, depression, mania, stroke. **[1 Hr]**

### **Unit 9: Special senses [4Hrs]**

After the completion of the course, students will be to

- a. Describe structure of retina: macula, fovea centralis, optic disc, physiological blind spot.
- b. Name the photoreceptors and their functions; and trace the visual pathway. **[a +b = 1 Hr]**
- c. Describe the functions of external, middle and inner ear and trace the pathway of hearing. **[1 Hr]**
- d. Describe the taste buds, list the primary taste sensations and trace the pathway of taste.
- e. Describe the olfactory cell and olfactory membrane; and trace the pathway of smell. **[d+e = 1 Hr]**
- f. Define the terms myopia, hypermetropia, astigmatism, presbyopia, anosmia, deafness. **[1 Hr]**

### **Unit 10: Endocrine system [3Hrs]**

After the completion of the course, students will be to

- a. Name major endocrine glands, list their hormones and functions **[1 Hr]**
- b. List the functions of growth hormone, thyroid hormone, parathyroid hormone, insulin, glucagon, cortisol and aldosterone. **[1 Hr]**
- c. Describe the basic pathophysiology of dwarfism, gigantism, acromegaly, goiter, hyperthyroidism, hypothyroidism, hyperparathyroidism, diabetes mellitus, Cushing's disease. **[1 Hr]**

### **Unit 11: Reproductive system [5Hrs]**

After the completion of course, students will be to:

- a. Describe the functions of male and female genital organs.
- b. List the pubertal changes in males and females. [**a +b = 1 Hr**]
- c. Describe the process of spermatogenesis and oogenesis.
- d. Describe uterine and ovarian events in menstrual cycle; and hormones responsible; define menarche, amenorrhoea and menopause. [**c+d = 1 Hr**]
- e. List the functions of testosterone and estrogen hormones.
- f. List physiological changes in females during pregnancy. [**e +f = 1 Hr**]
- g. Describe mechanism of lactation and lactation reflex.
- h. Give physiological basis of contraceptives. [**g +h = 1 Hr**]
- i. Define the terms azoospermia, subfertility, abortion, dysfunctional uterine bleeding (DUB).[**1 Hr**]

#### **PRACTICAL DEMONSTRATION (Observation only)**

After the completion of course, students will be to

- a Collect blood samples: by capillary puncture and venipuncture.
- b Determine blood group: ABO and Rh.
- c Examine visual acuity, field of vision and colour vision.
- d Perform tuning fork tests: Rinne's and Weber's hearing tests, vibration sensation.
- e Record body temperature from various sites of body.
- f Perform pulmonary function test: measurement of vital capacity by spirometry.
- g Examine of pulse at different sites of body.
- h Test motor and sensory function.
- i Measure blood pressure by sphygmomanometry:  
(a) Mercury (b) Aneroid sphygmomanometer

#### **Reference books (Latest Editions)**

1. Widmaier H. R, Kevin T. S.Vander's Human Physiology: The Mechanisms of Body Function. Eric. New York. McGraw-Hill Education.
2. Guyton A C, Hall J. E. Textbook of Medical Physiology. WB Sannders Company.
3. Barrett S. M, Barman S. B, Heddwen B. Ganong's Review of Medical Physiology. Kim E. McGraw-Hill Education.
4. Mahotra N. Textbook of Pathophysiology. Kathmandu. Samiksha Publications.

#### **C. PATHOLOGY**

**Total teaching hours: 20 Hrs**

**Course Description:** This course will provide basic concept of general and systemic pathology.

**General objectives:** At the end of the course, the students will be able to

- a Explain the concepts of cell injury and changes produced thereby in different tissues and organs and the body's capacity for healing.
- b Understand the normal homeostatic mechanisms, the derangements of these mechanism and the effects on human systems.

- c Understand the etiopathogenesis, the pathological effects and the clinico-pathological correlation of common infectious and non-infectious diseases.
- d Understand the common metabolic and haematological disorders.
- e Correlate normal and altered morphology of different organ systems in different diseases.

**Specific objectives:**

**Unit 1: General Pathology [10 Hrs]**

After the completion of the course, students will be to

- 1.1. Describe the concept of cell injury and various change produced by such injury and necrosis.[1Hr]
- 1.2. Describe basic terminologies. [1 Hr]
- 1.3. Describe important causes of inflammation and its types. Explain the mechanism of acute and chronic inflammation and its application.[1 Hr]
- 1.4. Explain the concept of wound healing. Describe steps of wound healing and factors that affect it. [1 Hr]
- 1.5. Describe the different types of thrombosis, embolism, ischemia, infarction, shock, edema, coagulation cascade. [2 Hrs]
- 1.6. Describe the disorders of tissue growth and enumerate predisposing factors of neoplasia, mechanism of spread and metastasis. Differentiate between Benign and Malignant tumours. [1 Hr]
- 1.7. Define antigen, antibody and complement. [1 Hr]
- 1.8. Describe different types of immunity and hypersensitivity.[1 Hr]
- 1.9. Discuss the pathogenesis, sign, symptoms and diagnosis of AIDS. [1 Hr]

**Unit 2: Systemic Pathology [10 Hrs]**

**2.1. Musculoskeletal system [1 Hrs]**

After the completion of the course, students will be able to

- a. List types of fractures and describe fracture healing
- b. Describe pathophysiology and morphology of osteoarthritis, Rheumatoid arthritis and Gouty arthritis.

**2.2. Cardiovascular system and Hematology [2 Hrs]**

After the completion of the course, students will be to

- a. Describe pathophysiology, sign and symptom of hypertension, myocardial infarction and Atherosclerosis
- b. Classify anemia and leukemia

**2.3. Respiratory system [1 Hr]**

After the completion of the course, students will be to

Explain pathophysiology of Tuberculosis, List its sign and symptoms and methods of diagnosis

**2.4. Endocrine System [1 Hr]**

After the completion of the course, students will be to

- a. Explain pathophysiology of Diabetes Mellitus, List its sign and symptoms and its complication
- b. List features of hypothyroidism and hyperthyroidism

### **2.5. Gastrointestinal system [2 Hr]**

After the completion of the course, students will be able to

- a. Describe pathogenesis, list sign and symptoms and diagnosis of gastritis and peptic ulcer
- b. Describe different types, sign, symptoms and diagnosis of Viral hepatitis
- c. Describe pathophysiology of alcoholic hepatitis

### **2.6. Female genital tract [1 Hr]**

After the completion of the course, students will be able to

- a. List causes of abortion. Describe sign and symptoms
- b. Describe sign and symptoms and morphology of fibroids
- c. List causes and diagnosis of cervical carcinoma and its precursor lesions

### **2.7. Renal system [2 Hrs]**

After the completion of the course, students will be able to

- a. List causes, sign and symptoms of renal failure
- b. Describe types, sign, symptoms and complication of renal calculi
- c. Describe and differentiate nephrotic and nephritic syndromes

### **Reference books (Latest Editions)**

1. Robbins S. L, Kumar V. Basic Pathology. W B Saunders Company.
2. Mohan H. Textbook of Pathology. Jaypee Brothers Medical Publishers (P) Ltd
3. Kamal V. Textbook of Pathology.