Course Title	Anatomy and Physiology	
First Year	First Semester	Course code BPH 101.1-AP
Credit Hours: 3	Full Mark: 100	Pass Mark: 50

Course Descriptions:

The course has been designed to impart basic concept and knowledge on structure and function of cell, tissues, organ, system under the subject of human Anatomy and Physiology.

Learning Objectives:

Upon the successful completion of course, students will be able to:

Explain the structures and functions of different systems of human body,

Describe structures and the function of the cells, tissues, organ system and type and their relation to each other and to the physiological homeostasis.

Course Contents

Existing	Micro-syllabus
Unit1: Anatomy 24 Hours	
• **General Introduction: 4 Hours** Define various important anatomical terminologies Anterior, posterior, superior, inferior, extension, flexion, abduction, adduction, distal, proximal sagital, (Coronal, Palmar, Dorsa and Ventral). Describe the structure and function of human cell, tissue and organ.	• Introduction to anatomical terminologies • Structure and function of cell tissue and organ
• **Musculo Skeletal 2 Hours** Bone- Composition and function Name and identification of appendicular and axial skeleton. Name of different types of joints and their characteristics.	• Introduction to musculo skeletal system(Bone) • Types of skeleton and joints with its characteristics
• **Neurosensory System 3 Hours** Mention Different components of nervous system. Identify different parts of the brain and coverings. Mention extent and covering of spinal cord.	• Introduction to nervous system • Brain and its parts • Parts of Spinal cord and cranial nerves

Existing	Micro-syllabus
Name main tracts of spinal cord. Name the cranial nerves and their area of supply.	
• **Respiratory System 3 Hours** Name different parts of respiratory system Identify Paranasal sinuses Extent of larynx, trachea and bronchi Identify different parts of lungs and pleura Mention different parts of bronchial tree.	• Introduction to Respiratory system • Parts of respiratory system • Lungs and its different parts
• **Blood and Cardiovascular System 3 Hours** Blood- Composition and function Name and identify parts, chambers and valves of heart. Name the extent and branches of abdominal aorta, external carotid artery and internal iliac artery. Name, identify and mention the extent of axillary artery, brachial artery, radial artery, ulnar artery, femoral artery, poplitial artery, anterior and posterior tibial arteries, dorsalis pedis. Name and identify superior venacava (SVC), Inferior Venacava (IVC), Dural Venus sinsues.	• Introduction to cardiovascular system • Blood and its composition • Branches of artery and vein
• **Lymphatic System 1 Hour** Mention area of drainage of thoracic ducts, axillary group of lymph nodes. Inguinal group of lymph nodes Pre and Paraortic lymph nodes.	• Introduction to Lymphatic system and its parts
• **Reproductive System 1 Hour** Name different parts, situation and extent of male and female genital organs.	• Introduction to Reproductive system with male and female genital organs
• **Urinary System 2 Hours** Name different parts Explain parts of kidney Mention different parts of nephron.	• Introduction to Urinary system with different parts

Existing	Micro-syllabus
Mention different parts of urinary bladder	• Different parts of nephron and urinary bladder
• **G.I. System 3 Hours** Name Different parts of Gastro Intestinal Tract Mention name, position of salivary glands and pancreas Mention position lobes and structure of liver Name and extent hepatic biliary appendages. Mention basic concept of peritoneal folds.	• Introduction to GI system with different parts • Salivary gland and pancreas • Hepato biliary appendages and peritoneal folds
• **Endocrine System 2 Hours** Enumerate different endocrine glands Mention their position, secretions and their functions.	• Introduction to endocrine system • Functions and secretions of endocrine system
Unit 2 : Physiology 24 Hours	
• **General Physiology 4 Hours** Name different components of human cell and their function. List different tissues of body and their characteristics Define body fluids and electrolyte balance, classify them and mention their composition.	• Introduction to Physiology • Tissue and their characteristics • Introdcution to body fluid and electrolyte balance • Composition of body fluid
• **Cardiovascular system and Blood 4 Hours** List the function of heart Explain pulmonary and systemic circulation cardiac cycle and heart sound. Define blood pressure and explain the mechanism of its regulation. Correlate physiological aspects of the Ischemic heart disease, hypertension, and arteriosclerosis. Mention composition and functions of blood. Define haemopoiesis and disorders of blood	• Introduction to cardiovascular system and Blood • Function of Heart and Physiology of and circulation system • Composition of blood • Blood grouping, coagulation and function of spleen

Existing	Micro-syllabus
components. Define blood groups and mention its importance. List the clothing factors and explain the step the coagulation. List the function of spleen.	
• **Respiratory System 3 Hours** Function of the nose, paranasal sinuses, nasopharynx, trachea, bronchus and alveoli of the lungs. Surfactants of lungs. Gasses exchanges in the lungs. Lungs volume and change in volume in different respiratory activities. COPD, dyspnoea, PND and orthopnoea. Mechanism of coughing.	• Introduction of Respiratory system with function of its different parts • Physiology of gses exchange • Respiratory activities and its mechanism
• **GI System 3 Hours** Mechanism of mastication, deglutition, digestion, absorption, defecation and vomiting. Activation of different enzyme system on smell, ingestion and hunger. Function of different glands involved in digestion i.e. tonsils, salivary glands, gastric glands, pancreas, liver etc. Peristalsis and regurgitation.	• Physiology of GI system • Enzyme system • Physiological functions of different glands of GI system
• **Musculo Skeletal 3 Hours** Muscles contraction and excitation. Movement of different joints ie. Shoulder, hip, knee, ankle, elbow, wrist etc. Co-ordiantion of movement Cellular respiration. Cellular dehydration. Cellular contraction.	• Physiology of Musculo skeletal system • Different types of joints • Cellular respiration, dehydration and contraction
• **Nervous System 3 Hours** List the function of different parts of brain and spinal cord and its coverings. Mention the function of different cranial	• Physiology of nervous system • Functions of cranial nerves and other

Existing	Micro-syllabus
nerves. Mention the functions of special senses organs. Enumerate the functions of sympathetic and para-sympathetic nerves. Correlate physiological aspect of meningitis, encephalitis and epilepsy.	special organs • Physiology related to meningitis, encephalitis and epilepsy
• **Urinary System 2 Hours** List the function of different parts of kidney and urinary tract. Explain the mechanism of formation of urine and micturition Correlate the physiological aspects of polyuria and the renal stones.	• Physiology of urinary system with different its parts • Mechanism of urine formation and micturation • Physiology of polyuria and renal stone
• **Endocrine/Productive System 2 Hours** Enumerate the main function of different endocrine glands. Correlate the physiological aspects of goiter and diabetes mellitus. List the main function of male and female genital organs. Explain the physiological of menstruation. Explain the physiological basis of contraceptives.	• Physiology of Endocrine system with functions of endocrine glands • Functions of male and female genital organs • Physiology of menstruation and basis of contraceptives

Teaching Learning Methods

Lectures, group discussions, library study assignments, home assignments and demonstration

Teaching Material–poster, model, real material etc.

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References:

1. Anatomy & Physiology – Ross and Willison, Recent edition.
2. Anatomy & Physiology for Nurses, Recent edition.

3. Hamilton Systemic Anatomy, Recent edition.
4. Chaurasia: Handbook of Human Anatomy, CBS Publication. Current Edition.
5. Guyton AC & Hall JE: Guyton Human Physiology and Mechanisms of Disease, Hartcourt Publishers Limited, 1996.
6. Williams PL (Ed): Gray's Anatomy, Recent edition, Churchill Livingston, London. Recent edition

Course Title	**Pathophysiology, First Aid and Safety**	
First Year	**First Semester**	**Course code BPH 101.2-PFAS**
Credit Hours: 3	**Full Mark: 100**	**Pass Mark: 50**

Course Descriptions:

The course has been designed to impart the basic concepts and knowledge on safety education and first aid in emergency period of public health field. The course aims to develop the technical skills that skill to handle the critical situation of emergency period for providing the first aid treatment to the public as a primary prevention.

Learning Objectives: Upon the successful completion of course, students will be able to:

Explain the basic concepts and acquire the basic knowledge of safety education and first aid.

Identify the emergency situation in public health situation and its management.

Explain different life threatening casualty condition and apply first aid skills to save life and promote health and recovery of the patient.

Describe the basic clinical system related pathological, terminologies and basic pathological changes in the cells, tissues organs and the system of body.

Course Contents

Existing	Micro-syllabus
Unit1: Safety education and management - 6 hours	
• **Safety education:** • Introduction, importance • Need of learning about safety education for public health professionals	• What and how safety measures should be applied in public places to reduce accidental injuries. • Create awareness in community and school.
• **Management of Safety Measure in different areas** ○ Management at home	• Arrangement of sharp instruments in Kitchen.

○ Management at school ○ Management on road ○ Management in play ground ○ Management in work place ○ Management in Public place	• Safety on Floor of Bathroom, ladder, etc. • Safety at public and commercial building ladder and floor. • Emergency management after accident.
• **Unit 2: First Aid 20 Hours**	
• **Introduction to first Aid** Define first aid and describe objectives, scope, responsibility, principle and important of first aid. Describe the qualification of first aid care provider and his/her ending responsibility. Define artificial respiration; describe importance, types, steps and process of cardio-pulmonary resuscitation .	Definition of First Aid with objectives, scope, responsibility, principle and importance. Qualifications of first aid care Artificial Respiration, importance, types, steps and process in cardio-pulmonary resuscitation.
• **Definition, its type, sign and symptoms and first aid management of the following emergency condition** ○ Shock ○ Poisoning (insecticides, rodenticides, drugs, alcohols, plants, animal bites and sting. ○ Snake bite ○ Foreign body in ear, nose, throat and eyes ○ Injury ○ Haemorrhage ○ Burns ○ Frostbite ○ Fracture and dislocations ○ Heatstroke ○ Rabid animal bites ○ Drowning ○ Acute mountain sickness	○ Introduction of sign symptoms and management of first aid in terms of Public Health emergency condition like ○ Shock ○ Poisoning (insecticides, rodenticides, drugs, alcohols, plants, animal bites and sting. ○ Snake bite ○ Foreign body in ear, nose, throat and eyes ○ Injury ○ Haemorrhage ○ Burns ○ Frostbite ○ Fracture and dislocations ○ Heatstroke ○ Rabid animal bites ○ Drowning

○ Epistaxis	○ Acute mountain sickness Epistaxis in your community.
Unit 3: Patho-physiology 22 Hours	
• **Explain the pathophysiology of the following condition 3 Hours** ○ Concepts of necrosis, inflammation, thrombosis, embolism, wound healing, shock, oedema, neoplasia, antigen and antibody reaction.	Definition, pathologic change and types.
• **Musculo skeletal system 2 Hours** ○ Basic concepts of fractures, arthritics, oesteomyelitis, leprosy.	Definition, clinical features, Emergency management, and national protocol
• **Cardiovascular System 4 Hours** ○ Basic concepts of rheumatrid carditis, myocardial, infraction, hypertension, arteriosclerosis, heart failure, anemia, leukemia, hemophilia, idiopathic thrombocytopenic purpura (ITP). ○ ***Explain immune deficiency disorders***. ○ Define hypersensitivity reactions.	HIV/AIDS, post exposure prophylaxis
• **Respiratory System 2 Hours** ○ Basic concept of bronchitis, bronchial asthma, tuberculosis, COPD, Pneumonia, carcinoma lung.	Definition, clinical features, Management, and national protocol.
• **Gastrointestinal System 3 hours** ○ Concepts of gastritis, peptic ulcer, TB intestine, appendicitis, carcinoma stomach, hepatitis, cirrhosis, cholecystitis and cholelithiasis.	Definition, clinical features, and Management.
• **Neurosensary System and Special Senses 3 Hours** ○ Concepts of meningitis, epilepsy, encephalitis, conjunctivitis, trachoma, retinoblastoma, xerophthalmia, acute otitis	

media and CSOM.	
• **Renal electrolyte System 2 Hours** o Renal failure, nephritis, nephrotic syndrome, renal stones, UTI.	Definition, clinical features, prophylaxis, prevention and Management
Repoductive System and Endocrine System 3 Hours o DUB, abortions, ectopic pregnancy, benign enlarge prostate (BEP), carcinoma cervix. o Nodular goiter, diabetes mellitus. o Breast lump.	▪ Definition, types, clinical features, prevention and Management ▪ Role of FNAC

Teaching Learning Methods

Teaching learning methods of this course include didactic lectures, group work, and presentations review papers discussion in class room setting.

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References:

1. Medical laboratory manuals for developing countries Monica Ceesbrough (ELBS), recent edition.
2. R. D. Vade mecum (1998) published by Royal Drug Limited.
3. Baker FJ.:*Introduction to medical laboratory technology,* ELBS.
4. Cheesbrough M.: *Medical laboratory manuals for developing countries,* Vol. I & II, ELBS, 1996.
5. Robins, Colran and Kumar: *Pathologic basis of Disease*, 7th Edition, Churchill Livingston, 2002.
6. **Handbook of Pathology and First Aid**,Dr. Bal Krishna Shah (Makalu Publication) 2nd edition
7. Text books of First, aid. Recent edition

Course Title	**Biochemistry and Immunology**	
First Year	**First Semester**	**Course code BPH 101.3-BI**
Credit Hours: 3	**Full Mark: 100**	**Pass Mark: 50**

Course Descriptions:

The course has designed to impart the basic concepts and knowledge of Basic Sciences of Medicine particularly in Biochemistry and Immunology. The course aims to impart the basic mechanism for survival of living system along with basic laboratory skills in conducting chemical, biochemical and immunological tests.

Learning Objectives:

- Upon the successful completion of the course, the students will be able to:
- Understand the basic knowledge of biochemistry and its applications in Medical Science especially in Public Health.
- Understand the role of non-living matters for development, growth and death of biological system.
- Understand the role of bio-molecule and their metabolism for survival of life
- Develop basic skills to conduct biochemical and Immunological laboratory tests.
- Understand the mechanism of developing diseases, prognosis and diagnosis.
- Analyze the problem developed during analysis, understanding and controlling disease.

Course Contents

Existing	Micro-syllabus
Unit1: Biochemistry 32 Hours	
• Definition, Scope and Application of Biochemistry in Public Health • Basic Concepts of Acid and Base (Arrhenius Concept, Bronsted Lowery Concept, • Lewis Concept), Salts- Definition and types	• Introdcution of Biochemistry with its application in Public Health • Concepts of Acid and Base.
• Water- Natural Water and its types, Properties of water (Physical, Chemical and Solvent Properties),Water Balance, Dehydration, Water Intoxication • Concept of pH and pH meter • Concepts of Buffer Solution (Definition, Types of buffers present in the body fluid and their significance)	• Water , its types and properties • PH and Introduction to Buffer
• Carbohydrates- Definition, Classification, Structure (Open Chain, Closed Chain, Haworth Projection Structure), Monosaccharide, Oligosaccharide, Disaccharide, Polysaccharide, MPS, • Physical and Chemical Properties of	• Classification of carbohydrates • Properties of carbohydrates • Mechanism of Glycolysis • Mechanism of blood glucose regulation

carbohydrates- Oxidation, Reduction, Dehydration, Reducing Properties, Osazone Formation- Glycoside, Amino Sugar, Deoxy Sugar • Digestion and Absorption of Carbohydrates, • Lactose Intolerance, • Glycolysis, • .Blood glucose regulation by Kidney, Muscle, Liver, Hormone	
• Proteins- Definition, Classification (by Structure, Solubility, Nutritional Requirement), • Structural Organization, Physical and Chemical Properties • Amino Acid- Definition, types (by Structure, Nutritional requirement, Metabolic Fate), • Essential and Non-Essential Amino Acids and their structures	• Introduction to Protein • Structure and properties of Protein • Types of Protein
• Lipid - Definition, Classification, Physical and Chemical Properties- (MP, Rancidity, Sap. Value, Acid Value, Iodine No.), Cholesterol and its significance in the body. • Fatty Acids- Definition, Classification, Properties-MP, Halogenation, Dehydrogenation, Saponification, Importance of PUFA	• Introduction to Lipid • Classification of Lipid • Fatty acid and its classification
• Enzymes- Definition, Properties, Terminology- Holo-enzyme, Apo-enzyme, Coenzymes, • Co-factor, Prosthetic group, Active Site, Iso-enzyme, IUB Classification, • Mechanism of their action, Factors affecting Enzymatic Reaction Rate, • Application of Enzyme	• Introduction to Enzymes and its types • Mechanism of Enzymatic rate reaction
• • Nucleic acid (DNA, RNA and their types, Watson and Crick Model of DNA)	• Introduction of Nucleic acid and parts of DNA and RNA
• Mineral-Introduction, Source, RDA, Biochemical Functions and Clinical Significance of Macro and	• Introduction of mineral and its

Micro Minerals i.e. Iron, Calcium, Phosphorus, Sodium, Potassium, Magnesium, Chlorine, Sulfur, Iodine, Fluorine, Manganese, Cobalt, Copper, Zinc, Selenium	types • Significance of Macro and micro minerals
• Vitamin-Introduction, Source, RDA, Biochemical Functions and Clinical Significance of Water Soluble and Fat Soluble Vitamin	• Introduction of Vitamin • Types of Vitamin
•	
Unit 2: Immunology 16 hours	
• Introduction to Immunology- Innate and Adoptive Immunity, Active and Passive immunity, Antigen- Complete and Incomplete Antigen, Antibodies and their types, Immunopathology	• Introduction of Immunology • Types of Immunity
• Defense Mechanism First line defense mechanism Second line- Cells and Organ Involved in Immune System- Lymphoid cells, myeloid cells, Primary Lymphoid organs and Secondary lymphoid organs. • Third line Defense Mechanism of body	• Defense mechanism
•	
• Cellular Immunity- T-cell dependent and T-cell independent, Antibody dependent and Antibody independent. Humoral Immunity- Antigen Presentation and Processing.	• Cellular Immunity • Humoral immunity

• Hypersensitivity Reactions and their type Concept of vaccine and vaccination, type of vaccine, mechanism of vaccine • Concept and importance of cold chain	• Types of Hypersensitivity reactions • Types of vaccine
• Relation of immunity, immunology and disease, Antigen and Antibody Reactions-Serological reactions, ELISA, RIA, Immunofluorescence	• Introduction to Immunity • Antigen Antibody reaction(Types)

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Teaching Learning Methods

Teaching learning methods of this course include didactic lectures, group work, and presentations review papers discussion in class room setting

Evaluation

Internal assessment in different forms 20%

Final examination 80%

References:

1. Lenninger, AL: Principles of Biochemistry, CBS Publications.
2. Murray RK, Granner DK, Mayes PA, Rodwell VW: Harpers Biochemistry, 21stEdition,Appleton and Lang: California, 1995
3. Chatarjee MN., Shinde R. :Textbook of Medical Biochemistry, 5th Edition, Jaypee Brothers Medical Publisher (P) LTD, New Delhi,2002
4. Goldsby RA, Kinct TJ, Osborne BA, Kuby J :Immunology, 5th Edition, W.H. Freeman and Company, San Francisco, New York 2003
5. Satyanarayana U. Chakrapani U. : Biochemistry, 3rd edition, Book and Allied (P) Ltd, Calcutta, India, 2006
6. Chakraborty P. : A text book of Microbiology, 2nd Edition, New central Book agency (P) LTD, Calcutta, India,2003
7. Stryer, L.: Biochemistry, 4th Edition, W.H. Freeman and Company, San Francisco, 2000
8. Ivan Riot: Essential Immunology, ELBS- 9th Edition, 1999
9. Cheesebrough M. "District Laboratory Practice in Tropical Countries" Volume I and II, Cambridge low price Edition, 1998.
10. Mukherjee Kannai L. "Medical Laboratory Technology" Volume I, II and III. McGraw-Hill Publishing Company ltd.
11. Fuerst R. "Microbiology in health and disease" W. B. Saunder 1995.
12. Mackle and Cartney MC. "Practical Medical Microbiology" Churchill Livingston 1994.
13. Lyd Yard PM "Immunology"
14. Bailey & Scott's: Diagnostic Microbiology
15. Wilson , k and walker, J. Ed(1995) practical Biochemistry: Principles and techniques, 4th edition, Cambridge university

Course Title	**Microbiology ,Parasitology, Bacteriology and Virology**	
First Year	**First Semester**	**Course code BPH 101.4-MPBV**
Credit Hours: 3	**Full Mark: 100**	**Pass Mark: 50**

Course description The course aims to impart the basic concepts in general microbiology, parasitology, bacteriology, virology and disease development. The course also aims to develop the basic laboratory skills in identifying and diagnosing the fungal, bacterial, viral and parasites related causal agents, organisms and diseases.

Course Objectives: Upon successful completion of the course, the students will be able to:

- To provide the basic concepts in microbiology, (bacteriology, virology, parasitology, mycology), and immunology and disease processes.
- Describe the concepts of important microbial diseases in communities (fungal, parasitic, bacterial, viral).
- Describe the lifecycle of common intestinal and blood parasites
- Provide the treatment prevention and control of parasitic diseases
- Describe concepts of host-parasite relationship, normal flora, opportunistic, nosocomial and pathogenic microorganisms.
- Describe the methods of sterilization
- Understand the mechanism and development of immunity.
- Describe the selection, collection and transportation, storage and processing of specimens.

Course Contents

Existing	Micro-syllabus
Unit 1: Microbiology 24 Hours **Course Contents** **Unit 1: Introduction of microbiology 5 Hours** Introduction to microbial world Classification of microbial diseases Introduction to community acquired	❖ Historical Introduction ❖ Scientific Development of microbiology ❖ Classification of microbial diseases : ❖ -Sore throat and Pneumonia, Urinary tract infections, Diarrhoeal diseases, Meningitis, Bacteraemia, septicaemia and infective endocarditic, sexually transmission diseases etc

microbial infections	
Unit 2: Bacteriology 10 Hours Scope and public health importance of bacteriology Morphology and Classification of bacteria. Normal bacterial flora on or in the body. Concept of opportunistic and pathogenic organisms. Bacterial physiology and its growth factors. Mechanism of infection. Spread of diseases - Endemic, epidemic and pandemic and laboratory infection. Morphology, mechanism of pathogenesis, laboratory diagnosis and prevention and control of some of the community concerned bacteria (Respiratory, genital and gastrointestinal diseases) Gram staining and AFB staining in identifying bacteria.	❖ Morphology: cocci, bacilli, spirochaetes, actinomycetes, mycoplasmas,reckettsiae and chlamydiae. ❖ Classification: On the basis of gram's stain, Temperature, Culture etc. ❖ Normal bacterial flora: Skin, conjunctiva, Nose & Nasopharynx, Mouth, Upper respiratory tract, Gastrointestinal tract, Genitourinary tract etc. ❖ Introduction and importance of Opportunistic and pathogenic organism. ❖ Bacterial growth, nutrition and metabolism, Type of infection. ❖ Transmission of infection. ❖ Factor predisposing to microbial pathogenicity. ❖ Respiratory: Streptococcus group, corynebacterium diphtheria, Mycobacterium tuberculosis hemophilius influenza. ❖ Genital: Treponema pallidum, gonococci etc. ❖ Gastrointestinal: E.coli, Vibrio cholera, Salmonella, shigella, etc. ❖ Introduction, principle, apparatus, procedure, observation and interpretation and clinical significance of Gram stain and AFB stain.

Unit 3: Parasitology 15 Hours Scope and public health importance of parasites Classification of human parasite Describe the morphology, epidemiology, life-cycle, pathogenesis and pathogenicity, diagnosis and prevention and control measures of following parasites; o Protozoa – *Entamoeba histolytica, Giardia intestinalis, Plasmodium, Leishmania donovani* o Helminths – *Ascaris lumbricoides, Anchylostoma duodelals and N. americans, Enterobius vermicularis, Trichiuri strichiura, Taenia solium, Taenia saginata, Echinococcu sgranulosus and Hymenolepsis nana and Wouchereria bancrofti.*	❖ Introduction to General Parasite, Concept of Host, Vector, Host parasite Relation, Source of infection, Portal of entry etc. ❖ Describe the morphology, epidemiology, life-cycle, pathogenesis and pathogenicity, diagnosis and prevention and control measures of the following Parasites; ❖ **Protozoa** – *Entamoeba histolytica, Giardia intestinalis, Plasmodium, Leishmania donovani* . ❖ **Helminths** – *Ascaris lumbricoides, Anchylostoma duodelals and N. americans, Enterobius vermicularis, Trichiuri strichiura, Taenia solium, Taenia saginata, Echinococcu sgranulosus and Hymenolepsis nana and Wouchereria bancrofti.*
Unit 5: Virology 8 Hours Introduction and Classification of virus Replication of virus, Cultivation of viruses Introduction to viral diseases of public health concern (Influenza, Measles, RSV, Arbovinuses, Rotrovirus, Hepadna viruses, Corona viruses, Picorna virus, habdovirus, Adenovirus) Collection and preservation of viral specimen for laboratory study	❖Historical Introduction to virus. ❖Classification of virus: RNA and DNA, and on the basis of shape and size. ❖**Replication of virus:** Adsorption,penetration, uncoating,biosynthesis, Maturation and release. ❖**Cultivation of virus:** Animal inoculation, embryonated egg inoculation and tissue culture. ❖Describe the morphology, epidemiology, antigenic classification, anitigenic tructure, resistance, pathogenesis, cultivation, clinical features, laboratory diagnosis and prophylaxis

Prevention and control of viral diseases	measures of following Viruses; Influenza, Measles, RSV, Arbovinuses, Rotrovirus, Hepadna viruses, Corona viruses, Picorna virus, habdovirus, Adenovirus. ❖ **Collection of viral specimen from different route like:** respiratory tract, alimentary tract, conjunctiva, congenital etc. ❖**Prevention and control of viral (Immunoprophylaxis):** like Active and passive immunization.
Unit 6: Mycology 2 Hours Introduction, classification and methods of identification of fungal disease of public concern – Dermatomycoses and Candidiasis.	❖ Historical introduction to mycology, classification of fungi like: yeast, Yeast like fungi, Mould, Dimorphic fungi. ❖ Method of identification of fungi by direct microscope, Culture and Tissue section
Unit 7: Laboratory concept 8 Hours Introduction of laboratory protocols, study of universal precaution and post exposure	❖ Introduction to SOP(standardized operative procedure). ❖ universal precaution and post exposure prophylaxis used in laboratory.

prophylaxis Principle of microscopy and study of different parts of light microscope Sterilization –Physical, chemical and radiation Method of disinfection and their importance	❖ principle and different part of light microscope including: eye piece, objective, mechanical stage, mirror, base, arm, rough and fine adjustment ,screw etc. ❖ Sterilization method including physical(sunlight ,heat, filtration, radiation), Chemical(alcohols, aldehydes, phenols, salt, dye etc and radiation(ionizing and non- ionizing radiations) etc. ❖ Different type of disinfection like: 70% ethyl alcohol, formaldehyde, hypochlorite etc.

Teaching Learning Methods Teaching learning methods of this course include didactic lectures, group work, and presentations review papers discussion in class room setting.

Course Title	**Medical Entomology and Rodentology**	
First Year	**First Semester**	**Course code BPH 101.5-MER**
Credit Hours: 3	**Full Mark: 100**	**Pass Mark: 50**

Course description

The course has designed to impart the basic concepts and knowledge on entomology, rodentology and insecticides.

Learning Objectives:

Upon the successful completion of the course, the students will able:

- Understand the basic concepts and acquire the basic knowledge of entomology.
- Describe the role of arthropods in public health.
- Describe the role of rodents in public health
- Describe the characteristics of different arthropods and rodents of medical importance and disease transmitted by them.

- Describe different control measures of arthropods and rodents.
- Describe the types, usability, problem of resistance and health hazards of insecticides and rodenticides.

Course Contents

Existing	Modification	Micro-syllabus
Unit 1: Medical Entomology 32 Hours		
Introduction 10 Hours o Introduction to medical entomology o Introduction to medically important arthropods o General and outline classification of arthropods (with special reference to medical important groups) **Habit, habitant, external morphology and control measures; 16 Hours** o Arachnids: Scorpions, spider, ticks, mites. o Non-dipterous insect: Lice, fleas, bugs, and cockroach. **o Dipterous insects**: - Myasis Producing flies: housefly - Phlebotomine: Sand flies - Simulium: Black flies o Mosquito (Life cycle and differences) - Culicine, Anopheline and Ades **Disease and health hazards: 6 Hours** o Diseases and health hazards associated with arthropods o Different methods of controlling	**4 ½ Hrs** 1 1/ 2 Hr 1 1/2 Hr 1 1/ 2 Hr **18 1 /2 Hrs** 4 Hrs 4 Hrs 1 ½ Hr 2 Hrs 1 Hr 6 Hrs **11 Hrs.** 3 Hrs 4 Hrs 2 Hrs 2 Hrs	• Importance of Medical Entomology in public health • Introduction &Importance of medically important arthropods • General and outline classification of arthropods (with special reference to medical important groups)

arthropods o Insecticides and their usability. o Insecticides - Problem of resistance, Hazards		
Unit 2: Rodentology: 8 Hours		
Introduction **4 Hours** o Introduction to rodent and rodentology o Introduction to medically important rodents o Classification of rodent (with special reference to medical important groups) **Disease and health hazards: 4 Hours** o Disease and health hazards associated with rodents. o Different methods antirodent measures o Rodenticides and their usability. **Unit 3: Integrated control approach 8 Hours** • Principle of control measure of arthropod and rodents • Integrated control measures of arthropod and rodents • Nepal vector born disease program (Objective and strategy) • Public health importance, hazards and management of pesticides • Coordination with line ministries; MoHP, MoA,	**3 hrs Ok** **2 Hrs.** 2 Hrs 2 Hrs 2 Hrs 2 Hrs 1 Hr	

Ministry of Environment •		

Total **48 hrs**

References:

1. Handbook on management of Pesticide Poisoning published by Plant Protection Division, Ministry of Agriculture

2. Implementation of integrated vector management, report of regional meeting, SEARO 2010

PG Fenemore, Alka Prakash" Applied Entomology" New

Age International P Ltd. B. S. Mishara and Dr. R. P. Singh "A Text book of Medical Zoology".

Durga Books, 2000. Gordon, R.M.; Lavoipoerre, M.M.J.; Entomology for Students of Medicine. Fifth edition, Blackwell Scientific Publications 1978 Service SM. Lecturer notes on medical entomology. London, Blackwell Scientific, 1986 Jan A. Rozendaal. Vector control. WHO, Geneva, 1999

Course Title	Professional English	
First Year	First Year	Course code BPH 101.6-PE
Credit Hours: 3	Full Mark: 100	Pass Mark: 50

Course description

The course offers an opportunity to develop a basic understanding of context and scope of English in public health, including sentence structure, communication, and technical writing skill, speaking skill and time management. The student will learn different national and international declarations, research report, discoveries, and literature as significant forces influencing public health.

Course Objectives:

Upon successful completion of the course students will be able to:

- Basic concepts about the technical English and student able to develop utilization of
- Professional communication skills in public health discipline.
- Identify sentence (clause) and its types and transformation of sentences
- Communicate in different technical topics
- Develop reading skills, note making and summarizing from different passages
- Prepare short memoranda, write business letters, job application, seminar papers, and Proposal development

Course content

Existing	Micro-syllabus
Unit 1: Review of Written English 8 Hours	
• Sentence structure (identification of sentence or its types and transformation of sentences) and clauses	• Sentence structure (identification of sentence or its types and transformation of sentences) and clauses • Preposition & noun phrases (noun, adjective and adverbs) and their use,
Unit 2: Oral Communication 15 Hours	
• **Public Speaking:** Audience Analysis, Choosing the Subject, Preparation of Speech, Presentation, Use of various Aids, Launching Pad, Evaluation, How to overcome Stage fear and Class room	• **Public Speaking:** Audience Analysis, Choosing the Subject, Preparation of Speech, Presentation,

practice • **Public communication**: Preposition & noun phrases (noun, adjective and adverbs) and their use, verbal phrases, types of English. Elements of communication, 7cs of communication, types of communication, speaking and listening, non verbal communication, writing skills, body language, improvement of communication skills and class room practice. • **Interview facing:** Preparation for the interview, attire, postures and gestures, right way of answering questions	Use of various Aids, How to overcome Stage fear Class room practice • **Public communication**: Verbal phrases, Elements of communication, 7cs of communication, Types of communication, Speaking and listening, Non-verbal communication, Writing skills, Body language, Improvement of communication skills and class room practice. • **Interview facing:** Preparation for the interview, Attire, Postures and gestures, Right way of answering questions.
Unit 3: Technical Writing Skill 10 Hours	
• Literature review, Article and summery, preparation of short memoranda (Importance formats) health messages, business letters (Importance-purposes), paragraph writing (descriptive/narrative, argumentative, compare and contrast etc.), note taking and preparation of meeting minutes, job application, motivation letter, biodata/curriculum vitae, description writing (Process, mechanism, place etc.), seminar papers, rapporteuring, proposal writing (Importance- type, formats), preparation of reports (Importance-types, formats), article's summary	• Literature review (concept and importance) • Article and summery, • Health messages, • Business letters (Importance-purposes), • Paragraph writing (descriptive/narrative, argumentative, compare and contrast etc.), • Note taking and preparation of meeting minutes, • Job application, • Motivation letter, • Bio-data/curriculum vitae, • Seminar papers (How to prepare/ what is the purpose) • Proposal writing (Importance-type, format followed which is developed by concern institution),
Unit 4: Reading skill 13 Hours	

• Comprehension questions and exercises (from prescribed passages- discovery, diseases, community and environment, healthy life styles, conferences, foundations of public health etc.), outlining or note taking, precise writing.	• Comprehension questions and exercises (from prescribed passages- discovery, diseases, community and environment, healthy life styles, conferences, foundations of public health etc.), • Reading techniques (Skimming, Scanning, Intensive, Extensive) • Outlining or note taking, • Appropriate way of answering.
Unit 5: Time management 2 Hours	
• Importance of time, identifying time wasters, four chambers of time management, steps for proper management of time	• Importance of time, identifying time wasters, four chambers of time management, steps for proper management of time