GURU KASHI UNIVERSITY

Diploma in Health Assistant

Session: 2021-22

Department of Paramedical Sciences

Programme Outcome

- Communicate effectively in writing on a variety of topics related to health care.
- Demonstrate an awareness and appreciation of the delivery of culturally competent health care.
- Demonstrate the knowledge and ability to search and retrieve information and materials related to individual clinical practice issues or overall health policy concerns.
- Describe and demonstrate management / leadership skills and theories that can be applied in preparation to lead or manage effectively in a health care environment.
- Demonstrate effective written and oral communication skills.

Programme Structure of the Diploma in Health Assistant

Semester: 1st							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811101	General Introductory Biology	Core	3	1	0	4
2	811102	Fundamental Chemistry	Core	3	1	0	4
3	811103	General Microbiology	Core	3	1	0	4
4	811104	Basic Elementary Physics	Core	3	1	0	4
5	811105	General Introductory Biology (Practical)	Skill Based	0	0	4	2
6	811106	Fundamental Chemistry (Practical)	Skill Based	0	0	4	2
7	811107	General Microbiology (Practical)	Skill Based	0	0	4	2
8	811108	Basic Elementary Physics (Practical)	Skill Based	0	0	4	2
Total				**12**	**4**	**16**	**24**

Semester: 2nd							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811201	English and Communication Skills	Core	3	1	0	4
2	811202	Anatomy and Physiology -I	Core	3	1	0	4
3	811203	Basic Computers and Information Science	Core	3	1	0	4
4	811204	Basic Nursing Practice	Core	3	1	0	4
5	811205	Mathematics and Statistics	Core	4	0	0	4
6	811206	Basic Computers and Information Science (Practical)	Skill Based	0	0	4	2
7	811207	Anatomy and Physiology -I (Practical)	Skill Based	0	0	4	2
Total				**16**	**4**	**8**	**24**

Semester: 3rd							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811301	Anatomy & Physiology-II	Core	3	1	0	4
2	811302	Pharmacology and Pharmacy-I	Core	3	1	0	4
3	811303	Gynecology & Obstetrics	Core	3	1	0	4
4	811304	Zoology	Core	3	1	0	4
5	811305	Environmental Health	Core	4	0	0	4
6	811306	Anatomy & Physiology- II (Practical)	Skill Based	0	0	4	2
7	811307	Zoology (Practical)	Skill Based	0	0	4	2
Total				**16**	**4**	**8**	**24**

Semester: 4th							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811401	Epidemiology and Community Diagnosis	Core	3	1	0	4
2	811402	General Medicine -I	Core	3	0	0	3
3	811403	General Surgery-I	Core	2	1	0	3
4	811404	Pharmacology and Pharmacy-II	Core	2	1	0	3
5	811405	Basics Medical Procedure and First Aid	Core	2	1	0	3
6	811406	General Medicine-I (Practical)	Skill Based	0	0	4	2
7	811407	General Surgery-I (Practical)	Skill Based	0	0	4	2
Total				**12**	**4**	**8**	**20**

Semester: 5th							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811501	General Surgery -II	Core	3	1	0	4
2	811502	General Medicine -II	Core	3	1	0	4
3	811503	Clinical Pathology	Core	3	1	0	4
4	811504	Primary Health Care/family Management	Core	4	0	0	4
5	811505	Health Education and Health Management	Core	4	0	0	4
6	811506	General surgery-II (Practical)	Skill Based	0	0	4	2
7	811507	General medicine-II (Practical)	Skill Based	0	0	4	2
Total				**17**	**3**	**8**	**24**

Semester 6th							
Sr.	**Course Code**	**Course Name**	**Type of Course**				**No. of Credits**
				L	**T**	**P**	
1	811601	Professional Training/ Internship (6 Months)	Skill Based	NA	NA	NA	20
Total				**0**	**0**	**0**	**20**

Evaluation Criteria

Evaluation Criteria for Theory Subjects

A. Continuous Assessment: [25 Marks]
   i. CA1 [10 Marks]
   ii. CA2 [10 Marks]
   iii. CA3 [05 Marks]

For Each Continues Assessment will conduct the Surprise Test, Quiz, Term paper and assignment etc.

A. Attendance [05 Marks]
B. Mid Semester Test - 1: [30 Marks]
C. Mid Semester Test - 2: [20Marks]
D. End-Term Exam: [20 Marks]

Course Title- GENERAL INTRODUCTORY BIOLOGY

Course Code: 811101

L	T	P	Cr
3	1	0	4

Total Hours: 60

Unit-I **13 Hours**

Biology & Its Branches; Scientific methods in Biology; Scope of biology and career options in Medical Laboratory Sciences. Structure and function of tissues - epithelial, connective, muscular and nervous

Unit-II **15 Hours**

Cell as a basic unit of life - discovery of cell, cell theory, cell as a self-contained unit; prokaryotic and eukaryotic cell; unicellular and multicellular organisms; Ultra structure of prokaryotic and eukaryotic cell - cell wall, cell membrane - unit membrane concept (Fluid-Mosaic model); membrane transport; cellular movement (exocytosis, endocytosis);

Unit-III **17 Hours**

Cell organelles and their functions- nucleus, mitochondria, plastids, endoplamasic reticulum, Gogli complex, lysosomes, microtubules, centriole, vacuole, cytoskeleton, cilia and flagella, ribosomes

Molecules of cell; inorganic and organic materials - water, salt, mineral ions, carbohydrates, lipids, amino acids, proteins, nucleotides, nucleic acids (DNA and RNA), Cell division: Binary fission, Cell cycle: Mitosis, Meiosis

Unit-IV **15 Hours**

Continuity of life - heredity, variation; mendel's laws of inheritance, chromosomal basis of inheritance; other patterns of inheritance - incomplete dominance, multiple allelism, quantitative inheritance. Chromosomes - bacterial cell and eukaryotic cell; parallelism between genes and chromosomes; genome, linkage and crossing over; gene mapping; recombination; DNA as a genetic material - its structure and replication; structure of RNA and its role in protein synthesis

Suggested Readings:

1. Reece, J.B., Urry, L.A., Cain, M.L., Wasserman, S.A., Minorsky, P.V. & Jackson, R.B. (2011). Campbell Biology (9th Edition). Pearson Benjamin Cummings Publishers, San Francisco, USA.

2. Fried, G.H. & Hademenos, G.J. (2002). Schaum's Biology. Tata McGraw Hill Publications, New Delhi.

Course Title- FUNDAMENTAL CHEMISTRY

Course Code: 811102

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit I **16 Hours**

Solid State Classification of solids based on different binding forces :molecular, ionic covalent and metallic solids, amorphous and crystalline solids(elementary idea),unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids ,number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties, Band theory of metals ,conductors, semiconductors and insulators and n and p type semiconductors .

Unit II **15 Hours**

Solutions Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties – relative lowering of vapour pressure, Raoult's law , elevation 8 of B.P., depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Vant Hoff factor.
Electrochemistry Redox reactions; conductance in electrolytic solutions, specific and molar conductivity variations of conductivity with concentration,

Unit III **14 Hours**

Kohlrausch's Law, electrolysis and laws of electrolysis (elementary idea), dry cell – electrolytic cells and Galvanic cells; lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells. Relation between Gibbs energy change and EMF of a cell, fuel cells; corrosion.

Chemical Kinetics Rate of a reaction (average and instantaneous), factors affecting rates of reaction: concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions); concept of collision theory (elementary idea, no mathematical treatment).Activation energy, Arrhenious equation.

Unit IV **15 Hours**

Surface Chemistry Adsorption – physisorption and chemisorption; factors affecting adsorption of gases on solids; catalysis :homogenous and ids and suspensions; lyophillic, lyophobic multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsions – types of emulsions.
General Principles and Processes of Isolation of Elements Principles and methods of extraction – concentration, oxidation, reduction electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

Course Title- GENERAL MICROBIOLOGY

L	T	P	Cr
3	1	0	4

Course Code: 811103

Total Hours 60

Unit I **13 Hours**

Introduction to Microbiology Definition, Brief history, importance of microbiology, Structure of bacteria.

Unit II **15 Hours**

Types of bacteria, Classification of bacteria on the basis of shapes, Anatomical structure of a bacterial cell including spores, flagella and capsules, Bacterial growth and nutrition of bacteria.

Microscopy –

Principle and care, working of Simple microscope and compound microscope

Unit III **17 Hours**

Sterilization – definition, By dry heat, Moist heat, Autoclave & hot air oven- their structure, functioning, controls and sterilization indicators. By radiation and filtration. Antiseptics and disinfectants. Definitions, types, properties, use of disinfectants and antiseptics

Unit IV **15 Hours**

Bacterial culture and culture techniques

Inoculations of culture media, aerobic and anaerobic culture, isolation of pure and mixed cultures.

Staining techniques Methods of smear preparation, Gram stain, Ziehl-Neelson's (Z-N) stain, Albert's stain.

RECOMMENDED BOOKS

Textbook of Medical Microbiology by Satish Gupta; JP Brothers, New Delhi

Practical Book of Medical Microbiology by Satish Gupta; JP Brothers, New Delhi

An Introduction to Medical Laboratory Technology by FJ Baker; Butterworth – Heinemann; Oxford

Textbook of Medical Laboratory Technology by Praful B Godkar; Bhalani Publishing House, Mumbai

Medical Laboratory Technology by Kanai Lal Mukherjee; Tata McGraw Hill,New Delhi

Medical Laboratory Manual for Tropical Countries Vol. I and II by Monica Cheesbrough; Cambridge University Press; UK

Text Book of Microbiology by Ananthanarayan and Paniker; Orient Longman, Hyderabad

Text book of Medical Microbilogy by Cruckshiank Vol. I and II

Course Title- BASIC ELIMENTRY PHYSICS

Course Code: 811104

L	T	P	Cr
3	1	0	4

Total Hours: 60

Unit I **14 Hours**

Si Units, Need for measurement: units of measurement, system of units SI units. Fundamental and derived units, length and time measurements.

Unit II **16 Hours**

Magnetic effects of current and magnetism, Concept of magnetic field, Oersted's experiment, Biot- Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long, straight wire, straight and steroidal solenoids.

Unit III **15 Hours**

Atoms & Nuclei Alpha-particle scattering experiment, Rutherford's model of atom, Bohr model, Energy levels. hydrogen spectrum.

Composition and size of nucleus, atomic masses, isotopes, isobars, isotones Radioactivity-alpha, beta and gamma particles/rays and their properties, radioactive decay law. Applications of radio activity.

Unit IV **15 Hours**

Optics, Reflection of light: spherical mirrors & its types. Refraction of Light: lenses & its types. Image formations, magnification & power of a lens, Refraction and dispersion of light through a prism.

Scattering of light-blue colour of the sky and reddish appearance of the sun at sunrise and sunset. Microscope & their Magnifying Powers, Photo chromatography

RECOMMENDED BOOKS

1. Elementary Physics by Franklin Herman Ayres
2. Exercise in Elementary Physics by Charle R.
3. Particle Physics in Laboratory by Alexander & Studiniken

Course Title- GENERAL INTRODUCTORY BIOLOGY (Practical)

Course Code: 811105

L	T	P	Cr
0	0	4	2

Total Hours 30

1. Study of Mitosis and Meiosis through animal cells (Grasshopper).

2. Study of osmosis and diffusion.

3. Study of Epithelial, Muscle, Nerve and mammalian blood cells through permanent or temporary cells.

Course Title- FUNDAMENTAL CHEMISTRY (PRACTICAL)

Course Code: 811106

L	T	P	Cr
0	0	4	2

Total Hours 30

1. Cleaning of the laboratory glass ware.
2. Preparation of distilled water
3. Principle, working and maintenance of pH meter.
4. To prepare 0.1 N NaoH solution.
5. To prepare 0.2N HCl solution.
6. To prepare 0.1 molar H2SO4
7. To prepare 0.2 Molar Sodium carbonate solution.

Course Title- GENERAL MICROBIOLOGY (PRACTICAL)

Course Code: 811107

L	T	P	Cr
0	0	4	2

Total Hours 30

1. Demonstration of safety rules (universal precautions) in a microbiology laboratory
2. Preparation of cleaning agents and techniques of cleaning of glass and plastic ware.
3. Sterilization by autoclave and hot air oven
4. Handling and use of compound microscope
5. Staining techniques: Gram, Albert's, Ziehl – Neelson's
6. Demonstration of motility (Hanging drop method)
7. Preparation and sterilization of various culture media (Nutrient agar, Nutrient broth, Blood agar, Chocolate agar, Mac-Conkey agar, Lowenstein-Jensen Media
8. Aerobic and anaerobic culture methods
9. Antimicrobial susceptibility testing by Stokes disc diffusion method

Course Title- BASIC ELIMENTARY PHYSICS (Practical)

Course Code: 811108

L	T	P	Cr
0	0	4	2

Total Hours 30

DEMONSTRATION OF-

1-BASIC PHYSICS

2-SOUND

3-HEAT

4-FUNDAMENTALS OF DC CIRCUITS

5-AC CIRCUITS

6-MAGNETIC CIRCUITS

7-RECTIFICATION

Course Title- English and Communication Skills

Course Code: 811201

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit-I **13 Hours**

Basics of Grammar- Part I Vocabulary, Synonyms, Antonyms, Prefix and Suffix, Homonyms, Analogies and Portmanteau words.
Basics of Grammar – Part II Active, Passive, Direct and Indirect speech, Prepositions, Conjunctions and Euphemisms
Writing Skills
Letter writing, E mail, and Essay, Articles, and Memos, one word substitutes, note making and Comprehension

Unit-II **16 Hours**

Writing and Reading
Summary writing, Creative writing, newspaper reading
Practical Exercise
Formal speech, Phonetics, semantics and pronunciation
Communication:
Introduction: Communication process, Elements of communication, Barriers of communication and how to overcome them, Nuances for communicating with patients and their attenders in hospitals.

Unit-III **16 Hours**

Speaking: Importance of speaking efficiently; Voice culture, Preparation of speech. Secrets of good delivery, Audience psychology, handling, Presentation skills, Individual feedback for each student, Conference/Interview technique.

Listening: Importance of listening, Self-assessment, Action plan execution, Barriers in listening, Good and persuasive listening.

Unit-IV **15 Hours**

Reading: What is efficient and fast reading, Awareness of existing reading habits, tested techniques for improving speed, Improving concentration and comprehension through systematic study.
Non Verbal Communication: Basics of non-verbal communication, Rapport building skills using neuro- linguistic programming (NLP).

Course References- www.wikipedia.co.in/www.information.net

Course Title- Anatomy & Physiology-I

Course Code: 811202

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit I **14 Hours**

Introduction to Anatomical terms of the human body - Basic anatomical terminology, anatomical position, anatomical planes, levels of organization in the body, organ systems, skeleton, cavities of the body.

Organization of the human body at the cellular level - Structure of the cell comprising of cell membrane, cytoplasm, cell organelles, nucleus, cell extensions etc.

Organization of the human body at the tissue level - Epithelial, Connective, Muscular& Nervous tissue.

Blood - Composition of blood, Features of red blood cells, white blood cells, platelets.

Lymphatic system - Features of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus.

Nervous system - Central nervous system, brain, cerebellum, spinal cord, cranial nerves, autonomic nervous system.

Muscular system - Skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.

Unit II **16 Hours**

Skeletal system - Features of bones, axial skeleton, appendicular skeleton.

Musculoskeletal system - Joints of upper & lower limb. Respiratory system - Nose & paranasal sinuses, pharynx, larynx, trachea, lungs. Cardiovascular system - Heart & blood vessels. Digestive system - Oral cavity, pharynx, salivary glands, oesophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas. Urinary system - Kidneys, juxtaglomerular apparatus, ureters, urinary bladder,urethra. Introduction to genetics - Features of chromosomes, DNA. Reproductive system in females - External & internal genital organs, breast. Reproductive system in males - Penis, scrotum, testes, prostate gland.

Endocrine system - Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.

Special senses - Olfactory system, taste apparatus, external middle & internal ear, eye. Skin - Features of skin, hair, sebaceous glands, sweat glands, nails.

Unit III **15 Hours**

Introduction to physiology of the human body –Composition of body, Homeostasis, Introduction to chemistry of life.

Organization of the human body at the cellular level – Function of lipids, carbohydrates, proteins & cell organelles.

Organization of the human body at the tissue level – Function of Epithelial, Connective, Muscular & Nervous tissues.
Blood – Haemopoesis, haemostasis, coagulation of blood, blood transfusion.

Lymphatic system – Function of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus.
Resistance & immunity – Innate immunity, acquired immunity, humoral & cell mediated immunity.
Nervous system – Properties of nerve fibres, function of neuroglia, synapse, CNS, CSF, brain, cranialnerves, demonstration of reflexes.
Muscular system – Properties of skeletal muscle, cardiac muscle, smooth muscle, muscles of the body. Skeletal system – Functions of bones, axial skeleton, appendicular skeleton. Musculoskeletal system – Movement in the joints of upper & lower limb.
Respiratory system – Physiology of respiration, pulmonary function tests, gas exchange in lungs, transport of gases between lungs & tissues, regulation of respiration.

Unit IV **15 Hours**

Cardiovascular system - Heart & blood vessels: Systemic circulation, pulmonary circulation, ECG, cardiac output, blood pressure.
Digestive system – Process of digestion, function of oral cavity, pharynx, salivary glands, esophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.
Urinary system – Function of kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra, physiology of urine formation, glomerular filtration, tubular reabsorption, water balance, micturition.
Introduction to genetics - Features of chromosomes, DNA, protein synthesis, dominant inheritance, recessive inheritance, sex linked inheritance.
Reproductive system– female: Physiology of female reproductive system.
Reproductive system – male: Physiology of male reproductive system.
Endocrine system - Mechanism of action of hormones, function of pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.
Special senses - Physiology of olfaction, taste, hearing, balance & vision.
Skin – Function of skin, hair, sebaceous glands, sweat glands, nails, temperature regulation.

Text Books:

1. P.R Ashalatha & G Deepa ‘s Textbook of anatomy & physiology by
2. B.D.Chaurasia’s human anatomy

Reference books:

1. SampathMadhyastha’sManipal manual of anatomy for allied health sciences
2. Krishna Garg &Madhu Joshi’s Practical anatomy workbook
3. Dixit’s Atlas of Histology for Medical Students

4. Basic Histology: A Color Atlas & Text
5. Jana's Exam Oriented Practical Anatomy
6. Krishan's Anatomy Mnemonics

Online references:
Coursera subscription for physiology topics

Course Title- Basic in Computer & Information Science

Course Code: 811203

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit I **14 Hours**

Introduction to computer: Introduction, characteristics of computer, block diagram of computer, generations of computer, computer languages. Input output devices: Input devices(keyboard, point and draw devices, data scanning devices, digitizer, electronic card reader, voice recognition devices, vision-input devices), output devices(monitors, pointers, plotters, screen image projector, voice response systems).

Unit II **15 Hours**

Processor and memory: The Central Processing Unit (CPU), main memory. Storage Devices: Sequential and direct access devices, magnetic tape, magneticdisk, optical disk, mass storage devices. Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).

Unit III **16 Hours**

Introduction to MSWord: introduction, components of a word window, creating, opening, inserting files, editing a document file, page setting and formatting the text, saving the document, spell checking, printing the document file, creating and editing of table, mail merge. Introduction to Excel: introduction, about worksheet, entering information, saving workbooks and formatting, printing the worksheet, creating graphs.

Unit IV **15 HOURS**

Introduction to power-point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs. Introduction of Operating System: introduction, operating system concepts, types of operating system.

Computer networks: introduction, types of network (LAN, MAN, WAN, Internet, Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), components of network. Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the internet . Application of Computers in clinical settings.

Course Title- FUNDAMENTALS OF NURSING

Course Code: 811204

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit I **16 Hours**

Introduction to Nursing, Nursing Care of the patient, Meeting the needs of a patient, Assessment of patient, Infection control, Therapeutic Nursing Care, Introduction to Clinical Pharmacology, First Aid Need for First Aid, Minor injuries and ailments, Fractures, Life threatening conditions, Community emergencies & community resources

Unit II **15 Hours**

An Introduction to Nursing. Definition of Nursing - a profession: qualities of a nurse , Professional etiquettes for Nurses. Ethical Aspects of Nursing. ICN code of Ethics for Nurses. Nurses role in safeguarding the clients rights

Unit III **14 Hours**

Terminology, spiritually in Nursing, factors which effect spiritual health, Goals of spiritual care Nursing process ☹assessment, nursing diagnosis, planning, intervention, evaluation)

Unit IV **15Hours**

Nursing process. description of nursing process-definitions, characteristics of nursing process-phases of nursing process-assessment-nursing diagnosis,-outcome identification,implementation,evaluation,model of nursing care plan.

Course Title- Mathematics and Statistics

Course Code: 811205

L	T	P	Cr
4	0	0	4

Total Hours 60

Unit I **16 Hours**

Set theory and real number system Define and denote sets.

Find subsets of a set and represent the sets in venn diagrams.

The concept of sets, specification of sets, representation and types of sets, venn diagrams. Find the union, intersection, complement and difference of given sets. Define cardinality of a finite set Solve verbal problems using set operations. Prove algebra of sets

Define real numbers, absolute value, open and closed intervals and inequalities. Use the concept of set in selected problems. Proof of the Algebra of sets, De-Morgan's law, Problems related to cardinality of sets.

Set operation, set of numbers, Cartesian products and relation, domain and range of relation.

Real number system and the types of numbers, real numbers line, absolute value, open and closed intervals, inequalities.

Unit II **14 Hours**

Function and graph Define a function, Classify functions. Identify the different functions. Define domain and range of relation, Functions and their inverse and related problems. Composite function and related problems. Algebraic only. Domain and range (excluding inverse and composite function) Exponential and Logarithmic functions.

Matrices and determinants Define the term matrix. Write the rows, columns and order of the matrices. Classify matrices according to their properties. Define the addition and multiplication of matrices (of order m x n, with its different types in 3x3 order). Define a determinant and list the properties of a determinant. Define the inverse of a matrix. Definition of matrix and its notation and order

Unit III **17 Hours**

Types of matrices and simple algebra of matrices. Transpose ,Adjoint and inverse of a matrix and related problems.

Definition of a determinant. Minors and cofactors

Properties of determinants. Application of matrix and determinant to solve linear system of equation (inverse of matrix and Cramer's Rule)

Algebra& Straight Line Recall the formula of distance between two points and its slope Find the angle between two lines and derive the Condition of perpendicularity and parallelism. Find the distance two parallel line. Find the area of triangle. Define quadratic equations and its roots. Define the nature of roots. Formula of distance between two points and its slope Angle between two lines and condition of perpendicularity and parallelism. Distance two parallel line. Area of triangle. Quadratic equations , its roots and nature of

Unit IV **13 Hours**

Derivatives and their Applications. Define the term derivatives.

Apply definition to get derivatives of the functions xn, (ax + b)n, sin (ax + b), cos (ax + b), ex and logax .Definition of the term derivatives. Geometrical meaning of derivatives.Use the sum, difference, product, quotient and chain
rule of derivates to calculate the derivates of algebraic function only. Apply derivate to calculate maximum and minimum values of a given algebric function and other related problems. Application of definition to get derivatives of the functions xn, (ax + b)n, sin (ax + b), cos (ax + b), ex and logax .
Using the sum, difference, product, quotient and chain rule of derivates to calculate the derivates of algebric function only.
Application of derivate : increasing , decreasing and stationary
points. Maximum , minimum values of a given algebric function and point of inflection. concave upward and concave downward (algebraic only)

Course Title- Basic in Computer & Information Science (Practical)

Course Code: 811206

L	T	P	Cr
0	0	4	2

Total Hours 30

PRACTICAL

1. Introduction to power-
   point: introduction, creating and manipulating presentation, views, formatting and enhancing text, slide with graphs.
2. Introduction of Operating System: introduction, operating system concepts, types of operating system.
3. Computer networks: introduction, types of network (LAN, MAN, WAN, Internet,
   Intranet), network topologies (star, ring, bus, mesh, tree, hybrid), compone nts of network.
4. Internet and its Applications: definition, brief history, basic services (E-Mail, File Transfer
   Protocol, telnet, the World Wide Web (WWW)), www browsers, use of the in ternet.
5. Application of Computers in clinical settings.

Course Title- Anatomy & physiology-I (Practical)

Course Code: 811207

L	T	P	Cr
0	0	4	2

Total Hours 30

Demonstration

Basic anatomical terminology, anatomical position, anatomical planes, levels of organization in the body, organ systems, skeleton, cavities of the body.

Lymphatic system - Features of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus.

Nervous system - Central nervous system, brain, cerebellum, spinal cord, cranial nerves, autonomic nervous system.

Muscular system - Skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.

Skeletal system - Features of bones, axial skeleton, appendicular skeleton.

Musculoskeletal system - Joints of upper & lower limb.

Respiratory system - Nose & paranasal sinuses, pharynx, larynx, trachea, lungs.

Cardiovascular system - Heart & blood vessels.

Digestive system - Oral cavity, pharynx, salivary glands, oesophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.

Urinary system - Kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra.

Course Title- Anatomy & Physiology II

Course Code: 811301

L	T	P	Cr
3	1	0	4

Total Hours: 60

Unit I **14 Hours**

Introduction to genetics - Features of chromosomes, DNA.
Reproductive system in females - External & internal genital organs, breast.
Reproductive system in males - Penis, scrotum, testes, prostate gland.
Endocrine system - Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.
Introduction to Anatomical terms of the human body - Basic anatomical terminology, anatomical position, anatomical planes, levels of organization in the body, organ systems, skeleton, cavities of the body.
Organization of the human body at the cellular level - Structure of the cell comprising of cell membrane, cytoplasm, cell organelles, nucleus, cell extensions etc.
Organization of the human body at the tissue level - Epithelial, Connective, Muscular& Nervous tissue.
Blood - Composition of blood, Features of red blood cells, white blood cells, platelets. Lymphatic system - Features of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus.

Unit II **16 Hours**

Nervous system - Central nervous system, brain, cerebellum, spinal cord, cranial nerves, autonomic nervous system.
Muscular system - Skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.
Skeletal system - Features of bones, axial skeleton, appendicular skeleton.
Musculoskeletal system - Joints of upper & lower limb.
Respiratory system - Nose & paranasal sinuses, pharynx, larynx, trachea, lungs.
Cardiovascular system - Heart & blood vessels.
Digestive system - Oral cavity, pharynx, salivary glands, oesophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.
Urinary system - Kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra. Introduction to genetics - Features of chromosomes, DNA. Reproductive system in females - External & internal genital organs, breast.
Reproductive system in males - Penis, scrotum, testes, prostate gland.
Endocrine system - Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas. Special senses - Olfactory system, taste apparatus, external middle & internal ear, eye. Skin - Features of skin, hair, sebaceous glands, sweat glands, nails.

Unit III **15 Hours**

Introduction to physiology of the human body –Composition of body, Homeostasis, Introduction to chemistry of life. Organization of the human body at the cellular level – Function of lipids, carbohydrates, proteins & cell organelles. Organization of the human body at the tissue level – Function of Epithelial, Connective, Muscular & Nervous tissues. Blood – Haemopoesis, haemostasis, coagulation of blood, blood transfusion. Lymphatic system – Function of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus. Resistance & immunity – Innate immunity, acquired immunity, humoral & cell mediated immunity.

Nervous system – Properties of nerve fibres, function of neuroglia, synapse, CNS, CSF, brain, cranialnerves, demonstration of reflexes.

Muscular system – Properties of skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.

Skeletal system – Functions of bones, axial skeleton, appendicular skeleton.

Musculoskeletal system – Movement in the joints of upper & lower limb.

Respiratory system – Physiology of respiration, pulmonary function tests, gas exchange in lungs, transport of gases between lungs & tissues, regulation of respiration.

Unit IV **15 Hours**

Cardiovascular system - Heart & blood vessels: Systemic circulation, pulmonary circulation, ECG, cardiac output, blood pressure.

Digestive system – Process of digestion, function of oral cavity, pharynx, salivary glands, oesophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.

Urinary system – Function of kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra, physiology of urine formation, glomerular filtration, tubular reabsorption, water balance, micturition.

Introduction to genetics - Features of chromosomes, DNA, protein synthesis, dominant inheritance, recessive inheritance, sex linked inheritance. Reproductive system– female: Physiology of female reproductive system. Reproductive system – male: Physiology of male reproductive system. Endocrine system - Mechanism of action of hormones, function of pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.

Special senses - Physiology of olfaction, taste, hearing, balance & vision.

Skin – Function of skin, hair, sebaceous glands, sweat glands, nails, temperature regulation.

Text Books:

1. P.R Ashalatha& G Deepa ‘s Textbook of anatomy & physiology by
2. B.D.Chaurasia’s human anatomy

Reference books:

1. SampathMadhyastha'sManipal manual of anatomy for allied health sciences
2. Krishna Garg &Madhu Joshi's Practical anatomy workbook
3. Dixit's Atlas of Histology for Medical Students
4. Basic Histology: A Color Atlas & Text
5. Jana's Exam Oriented Practical Anatomy
6. Krishan's Anatomy Mnemonics

Course Title- Pharmacology and Pharmacy I

Course Code: 811302

L	T	P	Cr
3	1	0	4

Total Hours: 60

Course Contents-

Unit I **15 Hours**

Antisialagogues: Atropine, Glycopyrrolate.

Sedatives I Anxiolytics: Diazepam, Midazolam, Phenergan, Lorazepam, Chlorpromazine, and Triclofos. Narcotics: Morphine, Pethidine, Fentanyl, Pentazozine, tramadol. Antiemetic's: Metoclopramide, Ondanseteron, Dexamethasone

Unit II **15 Hours**

Induction Agent: Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Etomidate. Muscle Relaxants: Depolarizing - Suxamethonium, Non depolarizing - Vecuronium, Atracurium, rocuranium Inhalational Gases: Gases-02, N20, Air, Agents-Ether, Halothane, Isofllurane, Saevoflurane, Desflurane Reversal Agents: Neostigmine, Glycopyrrolate, Atropine, Naloxone, Flumazenil (Diazepam).

Unit III **14 Hours**

Local Anesthetics: Xylocaine, Bupivacaine - Topical, Prilocaine-jelly, Emla - Ointment, Etidocaine. Ropivacaine. Emergency Drugs: Mode or administration, dilution, dosage and effects Adrenaline, Atropine Ephedrine, Mephentramine

Bicarbonate, calcium, potassium.

Unit IV **16 Hours**

Inotropes: dopamine, dobutamine, amidarone Aminophylline, hydrocortisone, antihistaminic, Antihypertensive –Beta-blockers, Ca-channel blockers.

Antiarrhythmic- xylocard Vasodilators- nitroglycerin & sodium nitroprusside

Respiratory system- Bronchodilators Renal system- Diuretics, frusemide, mannitol

Course Title- Gynecology & Obstetrics

Course Code: 811303

L	T	P	Cr
3	1	0	4

Total Hours: 60

Unit I **15 Hours**

Gynecological history & physical exam. Terms for describing gynecological functioning and abnormalities. Techniques for examination of female reproductive organs (breasts, vulva, vagina, cervix, uterus, tubes, ovaries). Principles of patient education.
Discussion obstetrics investigation including ultrasound, Discussion gynecological investigation including pap smear and colposcopy with biopsy. Self-breast examination.

Menstruation disorders. Common menstrual disorders (Dysmenorrhoea, premenstrual syndrome, menorrhagia, metrorrhagia and dysfunctional uterine bleeding). The treatment of uncomplicated disorders. Common menopausal disorder and its management. Symptoms of complicated or serious conditions related to menstruation

Disorders of the breast. Development of the breast, and anatomic variations. Effects of pregnancy & lactation on breast tissues. Common problems of the breast feeding, cracked nipples, mastitis, breast abscess. Breast masses including classification causes, symptoms, management approach. Strategies for treating common problems of breastfeeding. Eczema of the breast Procedure for breast self-examination. Symptoms of breast masses.

Genital Prolepses. Definition, causes and stages of genital prolapsed. Sign, symptoms and complication of genital prolapsed. Techniques of assessment of female genital organs. Methods to reduce the risk of complication of genital prolapsed. Correct management of genital prolapsed.

Unit II **13 Hours**

Diseases of the vagina, vulva and cervix. Characteristics and treatments for common disorders (monilial, trichomonal, gonoccocal, bacterial infections) National STD Management Guidelines. Characteristics and treatment for communicable diseases of the reproductive & urinary tracts. Long term effects of chronic or untreated diseases of the reproductive tract. Common disorders of the uterus, (endometerosis, endometrial fibrosis, endometrial tumors) fallopian tubes and ovaries. Differential diagnosis of PID. Relationship of PID and STI. The risks of untreated conditions of the internal reproductive organs.

Female urinary tract infections. . Symptoms and differential diagnosis of upper & lower UTI. Treatment for common UTI. Anatomical relationship of difficult childbirth and inadequate support of the uterus and bladder. Delivery practices

which reduce the occurrence of cystocele and uterine prolapse. Muscle exercises and treatments for urine leakage and urinary retention.

Family Planning methods & Infertility. Definitions and examples of different contraceptive devices. Guidelines for safe use of contraceptives method. Pharmacological action,dose, effects, adverse effects, indication, contra indication of contraceptive methods. Complication of different contraceptive methods.

Infertility. Anatomical and physiological variation in both sexes. Strategies for treating common problems of infertility. Discussion In Vitro fertilization (IVF). Discussion Polycystic ovarian diseases. Semen analysis.

Unit III **17 Hours**

Normal & Abnormal pregnancy. Physiology of normal pregnancy and fetal development. Diagnosis of pregnancy . Use of formula to estimate Period of gestation and expected date of delivery. Methods to reduce common discomforts of pregnancy such as backache, constipation, morning sickness, varicose veins, vulvar itching. Increased nutritional needs in pregnancy, Medications, toxins, habits, infections and other factors which are teratogenic. Ante-natal assessment of fetal well-being. Purposes and recommendations for immunizations during pregnancy Symptoms which may indicate a complication of pregnancy. Anatomy and physiology of conception, embryionic and foetal development. Foetal circulation and placenta function. Interferences with normal growth and development. Health education measures to promote healthy babies.

Complications of pregnancy

The symptoms and risks of : hyperemesis gravidarum, ectopic pregnancy, placenta previa, acute abdomen, multiple fetus, small for dates, polyhydramnios, hydatidiform mole, hypertensive disorders of pregnancy, cephalo-pelvic disproportion, malpresentation fetus, premature rupture of membranes, Rh incompatibility.

The symptoms and risks of maternal anaemia, heart disease, tuberculosis, endocrine disease, diabetes mellitus, jaundice, genital tract infection, urinary tract & renal disease, use of tobacco, alcohol or drugs, severe malnutrition or obesity.

Pregnancy history which indicate increased risk for complications: repeated pregnancy loss, still birth, premature delivery, neonatal death, baby with congenital defect, post partum hemorrhage, retained placenta, prolonged labor, assisted deliveries, caesarean section, perineal surgery, fibroid/cyst/cancer of reproductive organs, history of subfertility.

Definitions of abortion (threatened, spontaneous, induced, complete, incomplete, septic) and management of each at the health post or through referral.

Accidental and non-placental causes of antepartal vaginal bleeding.

Indications for referral to hospital when patient exhibits symptoms of pre-eclampsia. Abortion law in Nepal.

Normal labor and delivery The anatomy and physiology related to normal

labor. Assessment of the normal progression of the fetus through the birth canal. Stages of Normallabor. Principles and management of normal labor. The procedure for assisting in the normal delivery of a baby. The principles and procedures for active management of the third stage of labor

Unit IV **15 Hours**

Complications of labor and delivery. Definitions, causes, symptoms and treatments for complications of L & D: premature labor, prolonged/obstructed labor, maternal distress, fetal distress, breech delivery, cord prolapse, hand prolapse, postpartum hemorrhage, retained placenta, maternal injuries (vaginal or cervical tears, rupture of uterus, inversion of uterus) Prompt, regular uterine massage for prevention & treatment of uterine atony. Procedure for the manual removal of retained placenta. Methods to reduce the risk of complications of labor and delivery. Correct use of oxytocin after delivery

Newborn care & Postnatal care. Hormonal effects of immediate breastfeeding which produce placental expulsion; hypothermia prevention benefits of immediate breastfeeding. Techniques of newborn cord care. Maintaining respiration and temperature in newborns. Assessment of normal physiological signs for newborns. Techniques of newborn assessment-APGAR scoring system. Describe stimulation and resuscitation of the non- breathing child. Necessary newborn care by mothers (umbilical sepsis, conjunctivitis, septicemia). Management of newborn infections.

Postnatal care The progress of normal postpartum recovery. Danger signs during postnatal recovery: fever, convulsions, p.v. bleeding or odorous discharge, wound inflammation, calf tenderness, uterine tenderness/swelling, dysuria, sleeplessness or depression. Signs/symptoms and management of postpartum complications: puerperal sepsis, breast infection, deep vein thrombosis, wound infection, urinary tract infection, puerperal psychosis, fistula.

Course Title- Zoology

Course Code: 811304

L	T	P	Cr
3	1	0	4

Total Hours 60

Unit I **15 Hours**

Meaning of Zoology, Scope of Zoology, Different branches of Zoology related to medical science: On the basis of structure and function - morphology, anatomy, physiology, histology, cytology. On the basis of specific unit or field - toxicology, genetics, embryology, evolution, mycology, microbiology, ecology, parasitology, paleontology, taxonomy. On the basis of specific group - entomology, helminthology, protozoology, bacteriology, virology.

Definition of Animal tissue and its types. Functions of epithelial tissues i.e. protection, secretion, excretion, absorption, exchange of materials/gases, sensory. Structure, locations and functions of different types of epithelial tissues.
Structural and functional study of different types of connective tissues. Location of different types of connective tissues in different regions of our body. Composition and functions of blood and blood plasma, etc
Structure and function of different types of muscular tissues. Location of different types of muscular tissues in different regions of our body. Differences between striated, smooth and cardiac muscles of animals. Definition of nervous tissue and its types. Structural and functional study of different types of nervous tissues.

Unit II **14 Hours**

Definition of taxonomy, species as a basic unit of classification, systematics, taxon, lower and higher taxa. Different systems of classification (Natural & Artificial). Modern trends in taxonomy, Binomial system of nomenclature adopted by Carolus Linnaeus (1707-1778). Selected examples of binomial nomenclature of animals. Five kingdom system of classification. Chief characteristics and examples of five kingdoms. Meaning of hosts and parasites, Common types of hosts and parasites with examples. Types of relationships between a host and a parasite. Delicate adjustments between hosts and parasites.

Systematic position, distribution, habitat, morphology, life cycle, mode of transmission, pathogenic effects and Preventive measures of : Entamoeba histolytica, Plasmodium vivax, Entamoeba gingivalis, Giardia lamblia, Trichomonas vaginalis,

Unit III **16 Hours**

Distribution, habitat, morphology, life cycle, mode of transmission, pathogenic effects and Preventive measures of: Taenia solium, Hymenolepis nana, Ascaris lumbricoides, Ancylostoma duodenale,Wuchereria bancrofti, Taenia saginata, Trichuris trichiura,Echinococcus granulosus, Enterobius vermicularis. Introduction, Classification and public health importance of medically important arthropods. Distribution, habit and habitat, morphology, diseases and control measures of: Mangemite (Sarcoptes scabiei),Cockroaches (Periplaneta americana), Houseflies (Musca nebulo), Mosquitoes (Culex, Anopheles and Aedes),Sand flies (Phlebotomusargentipes),Human louse (Pediculus humanus), Bed bug (Cimex), Fleas (Xenopsylla cheopis). General concept of Integrated vector management approaches.

Unit IV **15 Hours**

Brief description about origin of life. Definition and Pattern of organic evolution, Morphological and anatomical, palaeontological, biochemical and embryological evidences. Description of : Lamarckism, Darwinism and Neo-Darwinism (modern synthetic theory of evolution) With examples. Summarize the evolution of modern man starting from human ancestors Dryopithecus. Definition of wildlife and conservation, Importance of wildlife conservation. Categories of wildlife with example. Causes of extinction of wildlife. Brief discussion on protected areas.

References:

Aggarwal, S. 1998. A Textbook of Biology Part II.Vikas Publishing House Pvt. Ltd., New Delhi, India.

Shukla, G.S. and Upadhyay, V.B. 1993. Economic Zoology.Rastogi Publications, Meerut, India.

Kotpal, R.L. Modern Textbook of Zoology, Invertebrates.Rastogi Publications, Meerut, India.

Kotpal, R.L. Modern Textbook of Zoology, Vertebrates.Rastogi Publications, Meerut, India.

Chatterjee, K.D. Parasitology (Protozology and Helminthology). Medical Publishers, Calcutta, India.

Course Title- Environmental Health

Course Code: 811305

L	T	P	Cr
4	0	0	4

Total Hours 60

Unit I

Introduction **15 Hours**

Definition of Environment, Environmental Health, Environmental Sanitation and Environmental Pollution. Examples of environmental health, sanitation and pollution. Individual and collective efforts to promote environmental health.

Environmental Health Concepts

Definition of environmental hazards, Types and effects of environmental hazards, Concept of environmental threats, Different types of environmental health threats, - Intensification of Agriculture - Industrialization & health - Energy crisis & health, Climate change and its causes. Effects of climate change on health

Unit II **15 Hours**

Environmental Pollution

Concept of environmental pollution health issue, Environmental pollution issues of global & national importance: - Water, Air, Noise, Soil, Chemicals, Pesticides and Radioactive substances. Definition of water pollution, Cases of water pollution and different types of pollutants. - Physical - Chemical – Biological, Primary and secondary preventive measure of water pollution & Water borne disease, Criteria and standards of water quality. Sources of water - Rain - Surface water - Ground water - Shallow wells - Deep wells - - Springs

Unit III **14 Hours**

Waste Management

Definition, Types of waste with examples -Solid waste -Liquid waste - Hazardous waste, Biodegradable and non-biodegradable solid wastes, Role and responsibility of local governments to reduce the amount of non-biodegradable wastes. Minimizing waste 3R concept, Disposal of waste Collection Storage Transportation.

Clinical laboratory hazards to the environment from the following and means to prevent:

Infectious material, Toxic Chemicals, Radioactive Material, Other miscellaneous wastes Hospital waste Hazards of hospital waste, Management of hospital waste - separation of waste - using incineration - management of mercury Hospital waste management guideline according to WHO

Unit IV **16 Hours**

Food borne disease and occupational Disease - food intoxication - food infection. Food intoxication (food poisoning) - Bacterial food poisoning - Plant poisoning - Chemical poisoning Food borne infection. Definition of food contamination Sources of food contamination - Human factors - Environmental factors. Occupational diseases, Diseases due to physical agents, Diseases due to chemical agents, Diseases due to biological agents

Reference Books:

Reference 1: Ja811v, H & Bhosale, V.M., 1995. Environmental Protection and Laws. Himalaya Pub. House, New Delhi.

Reference 2: Gadi R., Rattan, S., 2006. Environmental Studies, KATSON Books, New Delhi.

Reference 3: Mckinney, M.L. & School, R.M., 1996. Environmental Science Systems & Solutions, Web enhanced edition.

Reference 4: Wanger K.D., 1998. Environmental Management. W.B. Saunders Co. Philadelphia, USA

Course Title- Anatomy & physiology-II (Practical)

Course Code: 811306

L	T	P	Cr
0	0	4	2

Total Hours 30

Demonstration

Basic anatomical terminology, anatomical position, anatomical planes, levels of organization in the body, organ systems, skeleton, cavities of the body.

1. Lymphatic system - Features of lymph vessels, lymphatic tissue & organs, lymphatics, spleen, tonsil, thymus.
2. Nervous system - Central nervous system, brain, cerebellum, spinal cord, cranial nerves, autonomic nervous system.
3. Muscular system - Skeletal muscle, cardiac muscle, smooth muscle, muscles of the body.
4. Skeletal system - Features of bones, axial skeleton, appendicular skeleton.
5. Musculoskeletal system - Joints of upper & lower limb.
6. Respiratory system - Nose & paranasal sinuses, pharynx, larynx, trachea, lungs.
7. Cardiovascular system - Heart & blood vessels.
8. Digestive system - Oral cavity, pharynx, salivary glands, oesophagus, stomach, small intestine, large intestine, liver, gallbladder, pancreas.
9. Urinary system - Kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra.
10. Introduction to genetics - Features of chromosomes, DNA.
11. Reproductive system in females - External & internal genital organs, breast.
12. Reproductive system in males - Penis, scrotum, testes, prostate gland.
13. Endocrine system - Hormones, pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.

Course Title- Zoology (Practical)

Course Code: 811307

L	T	P	Cr
0	0	4	2

Total Hours 30

1. Microscope, function of its different parts and observation techniques.
2. Preparation of temporary mounts of striated muscle, Bed bug, Flea and Louse
3. Instruments used for dissections
4. Techniques of dissecting mammals
5. Use of stethoscope and measure of human blood pressure.
6. Stages in the life span of Anopheles and Culex mosquitoes and housefly.
7. Characteristics of the stages of each life cycles.
8. Demonstration of chart of different organ system in human

Course Title- Epidemiology & Community Diagnosis

Course Code: 811401

L	T	P	Cr
3	1	0	4

Total Hours 60

UNIT I. **14 Hours**

Concepts and method of epidemiology

Definition with example: infection and infectious disease, epidemic, endemic, sporadic, pandemic, exotic, opportunistic infection, source of infection, reservoir of infection, iatrogenic infection, rate, ratio and proportion, surveillance, control, eradication, elimination.

Concepts of disease causation, Germ theory, Epidemiological triad, Multifactorial causation, Web of causation

Definition of risk factors & risk groups in relation with particular diseases.

Natural history of disease, Concept of risk factors and risks groups.

Epidemiological triad Agent, Host, Environment. Purpose and function of epidemiology. Methods of epidemiological measurements. Principles purposes and methodology of descriptive epidemiology.

Common characteristics and attributes of descriptive epidemiology: time, place & person distribution. Principles, purposes and methodologies of screening. Concept of screening.

Pre-requisites/Criteria for screening, Disease to be screened, Test to be applied, Names of common diseases, target populations and tests to be applied for screening.

UNIT II **15 Hours**

Dynamics of disease transmission. Outline the transmission cycle of disease (chain of infection). Describe the term "reservoir" in terms of human reservoir in non-living things. Differentiate between direct and indirect modes of transmission; give examples of diseases for each.

Explain the terms "incubation period" and "period of communicability" in relation to a susceptible host. Identify the incubation period and communicable period of common diseases. Infectious disease prevention and control: methods for controlling the reservoir, interruption of transmission and protecting the susceptible host. Discuss each method of control with relationship to a specific disease.

Characteristics of infectious disease epidemics. Investigation and management of infectious disease epidemics.

UNIT III **16 Hours**

Definitions and meanings of culture. Elements of culture, beliefs, norms, taboos, traditions, customs, superstitions, religious practices, social boundaries

Relationship between health, illness, behavior and culture

Cultural practices and their effects on health: personal hygiene, food selections, preparation and storage of food, food taboos, sexual taboos. Diseases: causes, precautions and patient care

Steps of the community diagnosis process:

Preparation of tools, techniques and work plan, Pre-testing of instruments, Rapport building, Data collection, Data processing, analysis, interpretation, Community presentation, Planning and implementation of the Managed Health Project (MHP), Evaluation

Components of community diagnosis

Demographic characteristics, Social, economic and geographic characteristics, Environmental health and sanitation, Knowledge, attitude and practice (KAP) on health and health issue, Maternal and child health, Morbidity and disability, Availability of health services and its utilization. Community resources, Community leaders

Culture and tradition

UNIT IV **15 Hours**

Health needs assessment: felt health needs, observed health needs, real health needs. Principles of needs assessment, Introductions of a micro health project. Steps of a MHP: planning of the MHP, implementation of the MHP

evaluation of the MHP, Important functions of a community presentation: to inform, to motivate for action, to involve community members, Steps of community presentation

Nutritional Interventions, Immunizations Services, Safe motherhood. Community Mobilization & Local Governance Female Community Health volunteers (FCHV)and Mother's Groups, Primary Health Care Outreach Clinic, Free Drug Programmer (FDP), mobilization of Local Health Leaders and Committees, Decentralized Management of Health Services

Text books

1.Park, K. Park's Textbook of Preventive and Social Medicine. M/S BanarasidasBhanot, Jabalpur, India. Current edition.

2.Parker, D.J.P., Practical Epidemiology. ELBS Publications. Current edition.

3.Essential Preventive Medicine, by O.P. Ghai, Piyush Gupta. Vikas Publishing House, India. Current edition.

4.Basic Epidemiology. WHO publication

Course Title- General Medicine I

Course Code: 811402

L	T	P	Cr
3	0	0	3

Total Hours 45

Unit I **11 Hours**

Clinical Methods

History taking & Physical Examination, Principles and procedures for collecting and interpreting Clinical data, Procedure of general physical examination and systemic examinations in regard to all systems, Bedside history and clinical examination practice.

Unit II **10 Hours**

Systemic diseases

Hematological & Cardiovascular, Conditions, Respiratory Disorders, Gastrointestinal Disorders, Endocrine System Disorders, Hepatic Disorders, Central Nervous System Disorders,

UNIT III **12 Hours**

Pediatrics

Pediatric examination, Neonatal Conditions, Neonatal conditions, Neonatal disorders, systemic disorders of children, infectious diseases-Mumps, diphtheria, whooping cough, rheumatic fever, poliomyelitis

UNIT IV **12 Hours**

Neonatology

Skin disorders, Helminthes infestations , Nutritional disorders, Integrated Management of Childhood illness (IMCI), Infection prevention, Neonatology.

TEXT BOOKS (Latest Edition)

1. Harrisons Principles of Internal Medicine – Dennis Kasper et al. Volume No. 1&2, 19th Edition Mcgraw Hill, 2015.

2. Cecil-Text Book of Medicine – Lee Goldman. Volume 1 &2 24th Edition Saunders, 2012.

3. Oxford Text Book of Medicine – David Warrell et al. Volume 1 & 2, 5th Edition Oxford, 2010.

Course Title- General Surgery I

Course Code: 811403

L	T	P	Cr
2	1	0	3

Total Hours 45

UNIT I **12 Hours**

Basic Surgery

Hemorrhage, Management of inflammation, Septicemia, Toxemia, Sinus, fistula, Gangrene, Wound, Tetanus, Acute Pain Abdomen, Hernia, Anal Fissure, Piles, Acute Retention of Urine, Causes of Frequent Urination and Nocturia Management of Rupture of Urethra, Haematuria, Phmosis, Paraphymosis, Hydrocele, Head Injury, Clinical Features and management of Osteomyelitis, Local Anesthesia, Sterilization of Surgical Instruments.

UNIT II **11Hours**

First aid and emergency care

Shock, Poisoning, Injuries, Hemorrhage, External bleeding, Thermal and Chemical Burns, Fracture and Dislocation, Frost Bite, Animal bite and Drowning, Abscess and Cellulites.

UNIT III **10 Hours**

Obstetrics

Male and Female reproductive System, mechanism of Menstruation, Conception, Evolution, vaginal Discharge, management of Per Vaginal Bleeding, Post-Menopausal Bleeding, Uterine Prolapsed, Pelvic Inflammatory Diseases : causes, Sign, symptoms and

UNIT IV **12 Hours**

Gynecology Complication of Ectopic pregnancy, Management of Mastitis and Breast Abscess, Management of Normal Labor and Early Diagnosis and referral of Complicated Pregnancy, Labor, Puerperium, Safe Abortions, Permanent and Temporary Contraceptives.

Reference Books

Hamilton Bailey Demonstration of Clinical signs & Symptoms in surgery

Emergency Surgery By Baily

H Dudley's Atlas of General Surgery

Pye's Surgical Handicraft

Course Title- Pharmacology and Pharmacy II

Course Code: 811404

L	T	P	Cr
2	1	0	3

Total Hours 60

UNIT I **10 Hours**

Induction Agent: Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Etomidate.

Muscle Relaxants: Depolarizing - Suxamethonium, Non depolarizing - Vecuronium, Atracurium, rocuranium

Inhalational Gases: Gases-02, N20, Air, Agents-Ether, Halothane, Isoflurane, Saevoflurane, Desflurane Reversal Agents: Neostigmine, Glycopyrrolate, Atropine, Naloxone, Flumazenil (Diazepam).

UNIT-II **11 Hours**

Local Anaesthetics

Xylocaine, Bupivacaine - Topical, Prilocaine-jelly, Emla - Ointment, Etidocaine. Ropivacaine.

UNIT III **11 Hours**

Emergency Drugs

Mode or administration, dilution, dosage and effects Adrenaline, Atropine Ephedrine, Mephentramine

Bi carbonate, calcium, potassium.

Inotropes: dopamine, dobutamine, amidarone

UNIT IV **13 Hours**

Aminophylline

Hydrocortisone, Antihistaminic, Antihypertensive –Beta-blockers, Ca-channel blockers. Antiarrhythmic- xylocard Vasodilators- nitroglycerin & sodium nitroprusside Respiratory system- Bronchodilators Renal system- Diuretics, frusemide, mannitol

Course Title- Basic Medical Procedure and First Aid

Course Code: 811405

L	T	P	Cr
2	1	0	3

Total Hours 45

UNIT I **11 Hours**

The concept of professionalism, Definitions and examples of: legal, ethical, and moral, The code of conduct for Health Post In charge, Demonstration proper techniques according to guidelines: Palpating pulses at different sites, Counting respirations, Taking temperature at different sites, Measuring blood pressure, Recording Vital Signs, Caring for Vital Signs equipment.

Ways to collect subjective and objective data about the patient. General appearance, Chief complaint/history of chief complaint, History of present illness, Past medical history Family history Social personal history, Developmental history Dietary history, Drug history Menstrual history Immunization, Inspection of the patient, Palpation of chest and abdomen

UNIT II **12 Hours**

Percussion of chest and abdomen, Techniques for auscultation, Assessment of Jaundice, Anemia, Lymph nodes, Cyanosis, Clubbing, Edema. Advantages and disadvantages of each mode of medicine administration, Principles and physiology of medication absorption, Procedure for safe administration of drugs by orally, rectum, vagina, on topically, into the eye conjunctiva and external ear, Factors increase or reduce the effect of oral and topical medications. Risks of administering drugs directly into the vein, Guidelines for administration of medicine via parenteral routes.

Definitions and implications of sterile, aseptic and non-sterile, Procedures for application of principles of medical and surgical asepsis, Principles and procedures for hand washing and sanitation, Proper handling of aseptic and sterile equipment.

UNIT III **12 Hours**

Purpose of first aid, Essential principles of first aid, Procedures for assessment and intervention in first aid, Disposal and communication responsibilities, Principles of triage with multiple casualties, Clinical features of mild, moderate and severe dehydration, heat reaction, altitude sickness, hypothermia, frostbite. Correct use of rehydration salts and other treatments for dehydration, heat reaction, altitude sickness, hypothermia, frostbite, Indications of severe cases of dehydration, heat reaction, altitude sickness, hypothermia, frostbite which require expert management. Terminology for various types if injury. Recommended first aid treatment of closed or open wounds (abrasions,

contusions, lacerations, puncture, wounds, or burns). Techniques of bandaging. Control of hemorrhage. First aid assessment and treatment of burns.

UNIT IV **10 Hours**

Injury due to snake bites, animal bites, Insect stings and poisoning. Explanation of the patho physiology, types of snake poison (Neuro-toxic and Hemato-toxic), sign and symptoms, emergency and emergency management of poisons snake bites. Methods of proper diagnosis of snake bites. Explanation of etiology, reservoir, and mode of transmission, incubation period of rabies and management of suspected rabid animal bites. Causes of breathlessness: asthma, pulmonary embolism, pneumothorax, pulmonary edema, heart failure, chronic obstructive pulmonary disease, hysteria, uremia. Definition of terms: full consciousness, drowsiness, stupor, coma Principles of emergency assessment. Common causes of unconsciousness: asphyxia, head injury, shock, fainting, stroke, poisoning, heart attack, convulsions, diabetic emergency, convulsion disorder (hysteria) Management of different causes of unconsciousness. The process and principles of CPR The process and principles of the treatment of choking with the Heimlich maneuver Circumstances which require modification of these procedures

REFERENCE BOOKS

First Aid: the Authorized Manual of St. John's Ambulance Association (current edition) Manual for Primary Health Care, Health Learning Materials Center, 1999/2055 Fundamentals of Nursing, Health Learning Materials Center Gupta, Rejesh Kumar and Sharma, Rajiv Kumar, Basic Pathology First Aid and Basic Public Health, Revised and Updated 2nd Edition 2016

Course Title- General Medicine I (PRACTICAL)

Course Code: 811406

L	T	P	Cr
0	0	4	2

Total Hours 30

Practical skills

- Mechanics and interpretation of EKG.
- Interpretation of X-Ray Chest.
- TMT monitoring and interpretation
- Ambulatory EKG monitoring and interpretation.
- Cardiopulmonary resuscitation including BLS and ACLS.

Course Title- General Surgery I (PRACTICAL)

Course Code: 811407

L	T	P	Cr
0	0	4	2

Total Hours 30

Surgical Skills:

1. Observation of general layout and working of OT,
2. Understanding the importance of management and maintaining the sanctity of OT,
3. scrubbing, working and sterilization of OT instruments,
4. Equipment's eg electrocautery etc.,
5. Laparoscopic set, shifting of OT patients, pre operative work up of patients,
6. Acquisition of basic surgical skills to perform minor/medium surgeries independently (suprapubic cystectomy, Urethral Dilatation, Cystolithotomy, Varicocele)

Course Title- General Surgery II

Course Code: 811501

L	T	P	Cr
3	1	0	4

Total Hours 60

UNIT I **14 Hours**

Obstetrics and Gynecology Male and Female Reproductive System, mechanism of Menstruation, Conception, Evolution,
Vaginal Discharge, Management of Per Vaginal Bleeding, Post-Menstruation, Conception, Evolution, Prolapsed, Pelvic Inflammatory Diseases ,Sign, Symptoms and Complication of Ectopic pregnancy, Management of Mastitis, and Breast Abscess, Management of Normal Labor and Early
Diagnosis and referral of Complication Pregnancy, Labor, Puerperium, Safe Abortions, Permanent and Temporary Contraceptives.

Unit II **15 Hours**

Gall bladder and bile ducts

Surgical anatomy ,physiology ,clinical features investigations , treatment of benign and malignant disorders Pancreas Peritoneum ,Omentum ,mesentery and retroperitoneal space Small and large intestines Intestinal Obstruction Vermiform Appendix Rectum Anus and anal canal Hernias ,umbilicus and abdominal wall Genitourinary system :Urinary symptoms, investigation of the urinary tract and anuria, kidney and ureters ,urinary bladder ,prostate and seminal vesicles ,urethra and penis ,testis and scrotum

UNIT III **16 Hours**

Eye

General Examination procedures of Eye,Ear,Nose and Throat , Sign and Symptoms and General Managements of Eye Lid complications, Red Eyes, Trachoma, Corneal ulcer, night Blindness, Cataract,Pterygium, Iridocyclitis, Exophthalmia, Glaucoma and foreign body in the eyes, Removal
Of Wax and Foreign Bodies.

UNIT IV **15 Hours**

ENT and Oral Health

Sign and Symptoms and Managements of Otitis Media, Otitis External and referral conditions of hearing problems, Deviated nasal Septum, Nasal polyps, Epitasis and Sinusitis, Clinical Features, Complications and management of Acute Tonsillitis, Pharyngitis and Laryngitis, Dental plaques and calculus, Dental Carries, periodontitis, Periodontal pockets and Abscess, Importance and Maintenance of Oral Hygiene

Reference Books

Hamilton Bailey Demonstration of Clinical signs & Symptoms in surgery
Emergency Surgery By Baily
H Dudley's Atlas of General Surgery
Pye's Surgical Handicraft

Course Title- General Medicine II

Course Code: 811502

L	T	P	Cr
3	1	0	4

Total Hours 60

UNIT -I **16 Hours**

Respiratory

Cough and Haemoptysis, Breathlessness, Hypoxia and Cyanosis. Infections of upper respiratory tract, tonsils and adenoids, Obstructive sleep apnea, Pneumonia, Suppurative lung disease, COPD and Emphysema, Bronchial asthma, Bronchiectasis, Pleural effusion, Pneumothorax, Mediastinal mass, Carcinoma lung, Chest imaging (X-Ray and CT scan), Bronchoscopy and Spirometery.

Unit II **14 Hours**

Skin Diseases

Introduction to Dermatology, Bacterial Infections of the skin, Fungal Infection of the skin, Viral Infection of skin , Parasitic infections of the skin, Allergic conditions of the skin, Acne vulgaris, Psoriasis , Vitiligo , Malaria.

UNIT III **15 Hours**

Cardiovascular

Dyspnoea and pulmonary edema, Heart murmur, Hypertension, Chest discomfort, Palpitations, Edema, Syncope. Atherosclerosis, Angina, Myocardial infarction, Revascularisation, Heart failure, Congenital heart diseases (cyanotic and acyanotic), Rheumatic fever and rheumatic heart disease, Infective endocarditis, Brady and Tachyarrhythmias, Diseases of myocardium (cardio-myopathy, myocarditis), Diseases of pericardium, Systemic hypertension, Diseases of the Aorta, Cor Pulmonale, Pulmonary embolism, Pulmonary hypertension,52

UNIT IV **15 Hours**

Psychiatry

Mental Health Services , Psychiatric Assessment , Causes of Mental illness, Psychosis,
Neurosis – anxiety disorders, Neurosis- depressive disorders, Bipolar disorder, Alcohol and drug
Abuse, Childhood Mental disorders, Psychosexual Disorders, Psychological trauma, Epilepsy,
Mental Retardation

TEXT BOOKS (Latest Edition)

1. Harrisons Principles of Internal Medicine – Dennis Kasper et al. Volume No. 1&2, 19th Edition Mcgraw Hill, 2015.

2. Cecil-Text Book of Medicine – Lee Goldman. Volume 1 &2 24th Edition Saunders, 2012.

3. Oxford Text Book of Medicine – David Warrell et al. Volume 1 & 2, 5th Edition Oxford, 2010

Course Title- Clinical Pathology

Course Code: 811503

L	T	P	Cr
3	1	0	4

Total Hours 60

UNIT I **14 Hours**

General pathology

Normal cell and tissue structure and function. The changes in cellular structure and function in disease. Causes of disease and its pathogenesis. Reaction of cells, tissues, organ systems.

UNIT II **16 Hours**

Parasitology

Intestinal Parasites-Ascaris, Hookworm, Trichuris, Enteroblus, Taenia, Echinococus, Hymenolepis Entamoeba, Giardia, Trichomouas, Mode of infection, pathogen city, laboratory diagnosis and prevention of intestinal parasites, Blood and tissue parasites, Defense mechanisms of the body.

UNIT III **15 Hours**

Hematology

Blood and Anticoagulants, Blood characteristics, hematological tests and blood collection techniques.

UNIT IV **15 Hours**

Blood Banking

ABO grouping and its subgroups Rh grouping, Preparation of donor, criteria of an ideal blood donor, history of donor. Blood collection, preservation of blood in blood bank, anticoagulants used in blood banking, Cross matching - major and minor cross matching, preparation of working antiglobulin, serum, principle and importance of cross matching,

Course Title- Primary Health Care/ family Management

Course Code: 811504

L	T	P	Cr
4	0	0	4

Total Hours: 60

UNIT I **14 Hours**

Epidemiology and Disease control

Definition, Scope, Causes of Disease and infection, Management of Disasters, Management of Epidemics, Causes, Sins, symptoms, Management , Prevention and Control of Gastroenteritis, Dysentery, Cholera, Typhoid Fever, Glardiasis, Malaria, Filariasis, Encephalitis, Kala-agar, Dengue, fever , Parasitic Infestation, Scabies, Chicken Pox, Influenza, Mumps, Rabies, Hepatitis, Ring Worm, Leprosy, Tuberculosis, Helmenthiasis, Pertusis, Measles, Diphtheria, HIV and AIDS, Sexually transmitted infection (STI) and COVID.

UNIT II **15 Hours**

Nutrition

Introduction, Proteins, Fats & Carbohydrate, Vitamins, Minerals, Balanced diet, Assessment of Nutritional status, under nutrition, Nutritional problems of public health, Nutrition Factors in Selected Diseases, Nutrition education and food taboos and myths.

UNIT III **16 Hours**

Community diagnosis

Concept of Culture and health, Introduction to Community Diagnosis, data collection, Data Processing, community presentation, micro Health Project. Community Health Diagnosis & Health Profile, Micro Planning of Health Programme , Supervision, Monitoring and Evaluation of Health Programmers, Health Management Information system (HMIS),

UNIT IV **15 Hours**

Health Management

Planning and Management of Camps, Cold, Chain Management , Health Training Management in different settings, Logistic Management, Organization Structure and Functions Of Ministry of Health and Population(MOHP), Department of Health Service (DOHS), Provincial Health Directorate (PHD), Health Office (HO), Municipality Health Section, Primary Health Care Center (PHCC), Heath Post (HP) and Basic Health service Centre (BHSC), Health Professional Council Act ,2053 and Regulation , 2056.

Text books

Public Health and preventive medicine

The Oxford Text Book of Public Health

Course Title- Health Education and Health Management

Course Code: 811505

L	T	P	Cr
4	0	0	4

Total Hours: 60

Unit – I **15Hours**

Introduction to Nutrition Meaning and Definition of Nutrition. Factor to consider for developing nutrition plan. General Nutrients of the diet. Daily food requirement in different activities. Appropriate diet before, during and after activity.

Unit – II Nutrients: Ingestion to energy metabolism **14 Hours**

Carbohydrates, Protein, Fat – Meaning, classification and its function. Role of carbohydrates, Fat and protein during exercise. Vitamins, Minerals, Water – Meaning, classification and its function. Role of hydration during exercise, water balance, Nutrition – daily caloric requirement and expenditure.

Unit – III Nutrition and Weight Management **16 Hours**

Meaning of weight management Concept of weight management in modern era Factor affecting weight management and values of weight management.
Concept of BMI (Body mass index), Obesity and its hazard, Myth of Spot reduction, dieting versus exercise for weight control, Common Myths about Weight Loss. Obesity – Definition, meaning and types of obesity. Health Risks Associated with Obesity, Obesity - Causes and Solutions for Overcoming Obesity.

Unit – IV Steps of planning of Weight Management **15 Hours**

Nutrition – Daily calorie intake and expenditure, Determination of desirable body weight. Balanced diet for Indian School Children, Maintaining a Healthy Lifestyle. Weight management program for sporty child, Role of diet and exercise in weight management, Design diet plan and exercise schedule for weight gain and loss.

References:

Bessesen, D. H. (2008). Update on obesity. *J ClinEndocrinolMetab.93*(6), 2027-2034.
Butryn, M.L., Phelan, S., &Hill, J. O.(2007). Consistent self-monitoring of weight: a keycomponent of successful weight loss maintenance.*Obesity(Silver Spring). 15*(12), 3091-3096.
Chu, S.Y. & Kim, L. J. (2007). Maternal obesity and risk of stillbirth: a metaanalysis. *Am JObstetGynecol*, *197*(3), 223-228.
DeMaria, E. J. (*2007).* Bariatric surgery for morbid obesity.*N Engl J Med,356*(21), 2176-2183.
Dixon, J.B., O'Brien, P.E., Playfair, J. (n.d.). Adjustable gastric banding and conventionaltherapy for type 2 diabetes: a randomized controlled trial. *JAMA. 299*(3), 316-323.

Course Title- General Surgery II (PRACTICAL)

Course Code: 811506

L	T	P	Cr
0	0	4	2

Total Hours: 30

1. Laparoscopic Set,
2. shifting of OT patients,
3. pre operative work up of patients,
4. acquisition of basic surgical skills to perform minor/medium surgeries independently (suprapubic cystostomy, Urethral Dilatation, Cystolithotomy, Varicocele, Orchidectomy, Ureterolithotomy,
5. Excision of Cyst & I&D,
6. Excision of Breast Lump,

Course Title- General Medicine II (PRACTICAL)

Course Code: 811507

L	T	P	Cr
0	0	4	2

Total Hours: 30

Assessment of Patient

Perform general and specific physical examination

Administer medications

Oxygen therapy by different methods

Nebulization

Chest Physiotherapy

Maintain Intake, output and documentation

Pre-operative preparation of patients

Course Title- Professional Training/ Internship (6 months)

Course Code: 811601

L	T	P	Cr
0	0	0	20

PROJECT REPORT

Students have to carry out a research project (on any topic related to community Health program) under the supervision of a faculty. The project report has to be prepared on the basis of the research work carried out. The assessment is done on the basis of the work done and the presentation and viva.