

CURRICULUM

PCL IN GENERAL MEDICINE

(Three Years Programme – Yearly System)



Council for Technical Education and Vocational Training

Curriculum Development Division

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Introduction:

General Medicine is one of the prominent and popular disciplines within the health profession in Nepal. The Health Science (general medicine) profession has been helping the world for the all-round development of health and it has also been creating salary base employment and self-employment opportunities in public and private sectors. This curriculum is designed with the purpose of producing middle level technical medical workforce equipped with knowledge and skills related to the field of general medicine so as to meet the demand of such workforce in the country to contribute in the national economic development of Nepal. The knowledge and skills incorporated in this curriculum will be helpful to deliver individual needs as well as national needs in the field of health profession especially in general medicine sector.

Nepal Government has adopted a national policy for the attainment of "Health for All beyond the Year 2000 A.D" using the primary health care approach. As a result, CTEVT got the mandate to produce middle level trained workforce through CTEVT as well as CTEVT affiliated institutions.

Curriculum Title:

Proficiency Certificate Level in General Medicine

Aim

The program aims to produce middle level technical personnel in the field of General Medicine with sound academic knowledge equipped with perfect technical skills.

Program Objectives:

The course aims to produce middle level medical personnel with sound academic knowledge equipped with perfect technical skills that can be faced in real life situation at the level they are aimed at:

- Plan indoor and community health program.
- Administer medication and treatment.
- Assess patient, make provisional diagnosis, and manage from available resources.
- Identify referral cases and refer.
- Counsel patient for follow up, care and related health problem.
- Perform routine and special medical investigations independently.
- Perform minor medical and surgical procedure for patient management.
- Identify and manage common emergency cases.
- Provide maternal, child health, nutrition, and family planning services through primary health care centre (PHCC) and health post (HP).
- Implement Priority national health programs through PHCC and HP.
- Handle administrative task.
- Maintain medical records.
- Practice quality control system in hospitals/ health posts.
- Supervise subordinates and prepare reports.
- Create self-employment opportunities.

Group Size

The group size is a maximum of 40.

Entry Qualification

- SLC or SEE or Equivalent Pass with minimum GPA 2.0 and graded in Compulsory Mathematics, English & Science.
- CMA equivalent with minimum 68.33 %.
- Pass entrance examination administered by CTEVT.

Course Duration

The total duration of this curricular program is three academic years. The program is based on the Yearly system. of 35 academic weeks including evaluation period.

Medium of Instruction

The medium of instruction will be in English and/or Nepali.

Pattern of Attendance

A minimum of 90% attendance in each subject is required to appear in the respective final examination.

Teacher (Instructor) and Student Ratio

The ratio between teachers and students must be:

- Overall ratio of teacher and student must be 1:10 (at the institution level)
- 1:40 for theory and tutorial classes
- 1:10 for practical/demonstration
- 75 % of the technical teachers must be full-time.

Qualification of Instructional Staff

- The program coordinator should have a bachelor's degree in the related area or as per minimum requirements of NHPC & CTEVT.
- The disciplinary subject related Instructor should be a bachelor's degree holder in the related area or as per minimum requirements of NHPC & CTEVT.
- The demonstrators should have a bachelor's degree in the related area with two years' experience in training activities or as per minimum requirements of NHPC & CTEVT.
- The foundational subject related to teaching should be a master's degree in the related area.

Instructional Media and Materials

The following instructional media and materials are suggested for effective instruction and demonstration.

- ***Printed media materials:*** Assignment sheets, case studies, handouts, performance checklists, textbooks.
- ***Non-project media materials:*** Displays, models, photographs, flipchart, poster, writing board.
- ***Projected media materials:*** Slides, Multimedia Projector.
- ***Audio-visual materials:*** Audiotapes, films, slide-tapes, videodisc.
- ***Computer based instructional materials:*** Computer based training, interactive video.
- **Web-Based Instructional Materials** (Online learning)
- **Radio/Television/Telephone**
- **Education-focused social media platform**

Teaching learning methodologies

The methods of teaching will be a combination of several approaches, such as Illustrated talk, Lecture, Tutorial, Group Discussion, Demonstration, Simulation, Guided practice, Practical experiences, Fieldwork, Report writing, Term paper presentation, Case analysis, Tutoring, Role-playing, Heuristic, Project work and Other Independent learning.

- Theory: Lecture, Discussion, Seminar, Interaction, Assignment, Group work.
- Practical: Demonstration, Observation, Guided practice, Self-practice, Project work.
- Internship: Hospital/Community practice

Approach of Learning

There will be inductive, deductive, and learner-centered approaches of learning.

Examinations and Marking Scheme

a. Internal assessment

- There will be a transparent/fair evaluation system for each subject in both theory and practical exposure.
- Each subject will have an internal assessment at regular intervals and students will get feedback about it.
- The weightage of theory and practical marks are mentioned in curriculum structure.
- Continuous assessment format will be developed and applied by the evaluators for evaluating student's performance in the subjects related to the practical experience.

b. Final examination

- The weightage of theory and practical marks are mentioned in structure.
- Students must pass in all subjects both in theory and practical for certification. If a student becomes unable to succeed in any subject, she/he will appear in the re-examination administered by CTEVT.
- Students will be allowed to appear in the final examination only after completing the internal assessment requirements.

C Requirement for final practical examination

- Professional of relevant subject teacher must evaluate final practical examinations.
- One evaluator in one setting can evaluate not more than 20 students.
- Practical examination should be administered in actual situation on relevant subject with the provision of at least one internal evaluator from the concerned constituent or affiliated institute led by external evaluator nominated by CTEVT.
- Provision of re-examination will be as per CTEVT policy.

d. Final practicum evaluation will be based on:

- Institutional practicum attendance - 10%
- Logbook/Practicum book update - 10%
- Spot performance (assigned task/practicum performance/identification/arrangement preparation/measurement) - 40%.
- Viva voce:
 - Internal examiner - 20%
 - External examiner - 20%

e. Pass marks: The students must secure a minimum of 40% marks in theory and 50% marks in practical. Moreover, the students must secure minimum pass marks in the internal assessment and in the yearly final examination of each subject to pass the subject.

Provision of Back Paper

There will be a provision of back paper, but a student must pass all the subjects of all year within six years from the enrollment date; however, there should be provision of chance exam for final year students as per CTEVT rules.

Disciplinary and Ethical Requirements

- Intoxication, insubordination or rudeness to peers will result in immediate suspension followed by the review of the disciplinary review committee of the institute.
- Dishonesty in academic or practical activities will result in immediate suspension followed by administrative review, with possible expulsion.

- Illicit drug use, bearing arms in institute, threats or assaults to peers, faculty or staff will result in immediate suspension, followed by administrative review with possible expulsion.

Grading System

The grading system will be as follows:

<u>Grading</u>	<u>Overall marks</u>
• Distinction:	80% and above
• First division:	65% to below 80%
• Second division:	50% to below 65%
• Pass division:	Pass marks to Below 50%

Certificate Awarded

- Students who have passed all the components of all subjects in all 3 years are considered to have successfully completed the course.
- Students who have successfully completed the course will be awarded with a degree of "**Proficiency Certificate Level in General Medicine**".

Career Path

The graduates will be eligible for the position equivalent to non-gazette 1st class/Level 5 (technical) as prescribed by the Public Service Commission of Nepal and other related agencies.

General Attitudes Required

A student should demonstrate the following general attitudes for effective and active learning. Acceptance, Affectionate, Ambitious, Aspiring, Candid, Caring, Change, Cheerful, Considerate, Cooperative, Courageous, Decisive, Determined, Devoted, Embraces, Endurance, Enthusiastic, Expansive, Faith, Flexible, Gloomy, Motivated, Perseverance, Thoughtful, Forgiving, Freedom, Friendly, Focused, Frugal, Generous, Goodwill, Grateful, Hardworking, Honest, Humble, Interested, Involved, Not jealous, Kind, Mature, Open minded, Tolerant, Optimistic, Positive, Practical, Punctual, Realistic, Reliable, Distant, Responsibility, Responsive, Responsible, Self-confident, Self-directed, Self-disciplined, Self-esteem, Self-giving, Self-reliant, Selfless, Sensitive, Serious, Sincere, Social independence, Sympathetic, Accepts others points of view, Thoughtful towards others, Trusting, Unpretentiousness, Unselfish, Willingness and Work-oriented.

Question Patterns for Final Written Exam

The question patterns for the written exam are suggested as follows.

A. For subject with full marks 80

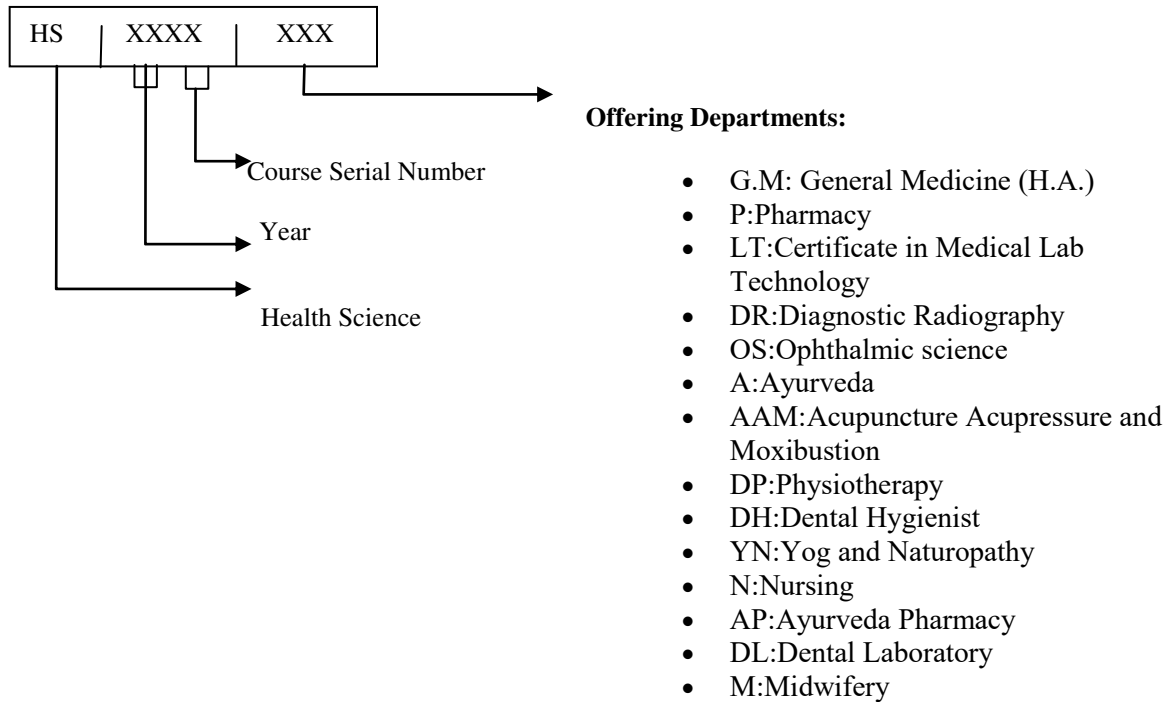
S.N.	Type of question	No of Question	Weightage marks	Full marks	Time distribution	Optional questions
1	Long	2	10	20	60.min	1
2	Short	4	5	20	60. min	2
3	Very short	10	2	20	40. min	2
4	Multiple	20	1	20	20min	
	Total	36		80	180min	

B. For subject with full marks 40

	Type of question	No of Question	Weightage marks	Full marks	Time distribution	Optional questions
1	Long	1	10	10	30 min	1
2	Short	2	5	10	30 min	1
3	Very short	5	2	10	20 min	1
	Multiple	10	1	10	10 min	
	Total	18		40	90 min	

Subjects Codes

Each subject is coded with a unique number preceded and followed by certain letters as mentioned in following chart



Curriculum Structure

PCL in General Medicine

Year: II

S. N.	Course Code	Subject	Teaching Scheme						Examination Scheme						Total Marks	Remarks
			Mode				Weekl y Hours	Credit Hour s	Theory			Practical				
			L	T	P	L /C			Assmt. Marks	Final		Assm. Marks	Final			
										Mark s	Time (Hrs.)		Mark s	Time (Hrs)		
1	HS2101GM	Medicine-I,	4			3	7	6	20	80	3	60	40	3	200	*continuo us assessmen t
2	HS2102GM	Surgery-I	3			4	7	5	20	80	3	60	40	3	200	
3	HS2103GM	Basic Medical Procedures and First Aid (2			3	6	4	10	40	1.5	60	40	3	150	
4	HS2104GM	Clinical Pathology	2			2	4	3	10	40	1.5	30	20	1.5	100	
5	HS2105GM	Pharmaco logy and Pharmacy	3			1	4	4	20	80	3	25	-		125	
6	HS2106GM	Environmenta l Health	3			1	7	3	20	80	3	25			125	
7	HS2107GM	Health Education	3			1		4	20	80	3	25	-		125	
8	HS2108GM	Primary Health care and Family Health (MCH, Family Planning, Nutrition)	3			2	5	4	20	80	3	30	20	1.5	150	
		Total	24			16	40	33	140	560		315	160		1175	

Year: III

S. N.	Code No.	Subject	Teaching Scheme						Examination Scheme						Total Marks	Remarks
			Mode				Weekly Hours	Credit Hours	Theory			Practical				
			L	T	P	L /C			Assmt. Marks	Final		Assm. Marks	Final			
										Marks	Time (Hrs.)		Marks	Time (Hrs.)		
1	HS3101GM	Medicine-II	8			4	12	4	10	40	1.5	30	20	1.5	100	*continuous assessment
2	HS3102GM	Surgery-II	8			4	12	4	10	40	1.5	30	20	1.5	100	
3	HS3103GM	Health Management	6			-	6	2	10	40	1.5	-	-	-	50	
4	HS3104GM	Epidemiology and Demography & Community Diagnosis	6			4	10	3	10	40	1.5	30	20	1.5	100	
		Total	28			12	40	13	50	160		90	60		350	
	Total Duration 16 weeks															
												Health Facility Supervisor	Internal	Final Evaluation		
5	HS3105GM	Comprehensive clinical + PHC Practicum II										100	100	200	400	
	Total Duration 8 weeks															
6	HS3106GM	Comprehensive Community Field Practicum										50	50	100	200	
	T0tal											150	150	300	600	
	Grand Total														950	

Master Plan

Second Year

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	
Study Block															Medical + BMP practical (Lab+PHC+hospital				Surgical + BMP practical (Lab+PHC+hospita l				Cp +P Ph	Vacation		
27		28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Vacation					Study Block							Env	Study Block			Revision							Final exam			

Third Year

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Study Block										Surgical +Medical + BMP															
27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
Vacation								Study	Community Field								Revision					Final exam			

Note:

BMP- Basic Medical Procedure

PHC: Primary Health Care and Family Health / Maternity Childcare

Env: Environment Health

CP: Clinical Pathology

PPh: Pharmacy and Pharmacology

Second Year

Medicine I and Gynecology Theory

Total: 7 hours /week
Lecture: 4 hours/week
Tutorial: 0 hour/week
Practical: hours/week
Lab/clinical: 3 hours/week

Course Description:

This course begins with an in-depth presentation on the diagnostic process applied to the history and physical examination of the patient and includes assessments specific to each system. Medicine, I present a basic review of selected conditions and disorders from areas of internal medicine, including hematological, cardiovascular, respiratory, gastrointestinal, endocrine, hepatic, nervous, and genitourinary systems. Additionally, communicable diseases common to Nepal are individually discussed. For each disease or condition this course examines etiologies, clinical features, differential diagnosis, management at the health post level, indications for referral, and preventive education.

The obstetric component of this course prepares the student to manage cases of normal pregnancy: antenatal care, labor and delivery, and postnatal care of mother and newborn. Additionally, the student is prepared to manage basic complications of these periods, and to identify, stabilize and transport cases requiring referral for expert management. The gynecology component prepares the student to identify and manage common uncomplicated cases of female genitourinary conditions and to recognize indications for referral to higher level health care facilities.

Course Objectives:

On completion of the course the learner will be able to:

- Discuss history and physical examination of the various organ system in order to analyze and interpret the findings to make a rational provisional diagnosis.
- Identify the etiologies, pathology and clinical features of common systemic disorders and communicable diseases.
- Describe the management and counseling for common systemic disorders and communicable diseases.
- Identify indications for cases requiring referral to a higher level or specialty facility.
- Identify and implement opportunities for health education, prevention measures, or rehabilitation.
- Manage gynecological conditions.

Course Content

Unit 1: Clinical methods

3Hrs

- History taking
 - Definition
 - Purpose
 - Components
- Physical examination
 - General physical examination: PILCCOD

- Systemic examination (Respiratory, Cardiovascular, Gastrointestinal, Central nervous system and Genitourinary system)

Unit 2: Hematological & cardiovascular conditions

25Hrs

Sub-unit: 2.1: Anemia

- Definition
- Describe the process of coagulation cascade and hemostasis.
- Signs & symptoms
- Classification (based on RBC morphology, etiology, physiology,)
- Clinical features of different types of anemia
 - Iron deficiency anaemia.
 - Megaloblastic anaemia
 - Aplastic anaemia
 - Haemolytic anaemia
 - Thalassemia
 - Sickle cell anemia
 - Hemophilia A and B
 - Anemia of chronic disease
- Investigations and interpretation of the findings
- Management & prevention
- Complications

Sub-unit 2.2.: Describe Polycythemia and Leukocytosis

Sub-unit: 2.3: Leukemia & lymphoma

- Definition
- Causes
- Types/classification
- Clinical features
- Investigations
- Management
- Complications

Sub-unit: 2.4: Hemostatic & atherosclerotic disorders

- Common disorders
- Risk factors.
- Etiology
- Pathophysiology
- Investigations
- Clinical features
- Management & prevention
- Complications

Sub-unit 2.5: Cardiac disorders – angina, myocardial infarction, arrhythmia, valvular diseases

- Definition
- Etiology
- Pathophysiology
- Signs and symptoms.
- Emergency and general management

- Indications for referral
- Sub-unit 2.6: Hypertension
- Definition
 - Etiology & risk factors
 - Classification
 - Clinical features
 - Management & prevention
 - Complications
 - Hypertensive urgency and emergency

Sub-unit 2.7: Congestive cardiac failure

- Definition
- Etiology
- Pathophysiology
- Clinical features
- Investigations
- Management

Unit 3: Respiratory disorders

18Hrs

Sub-unit 3.1: Acute bronchitis

- Definition
- Etiology
- Pathophysiology
- Clinical features
- Investigations
- Differential diagnosis
- Management and Preventive measures
- Complications

Sub-unit 3.2: Chronic Obstructive Pulmonary Disease (COPD)

- Definition
- Components (chronic bronchitis & emphysema)
- Etiology
- Pathophysiology
- Clinical features
- Management
- Complications: Acute exacerbation of COPD and Cor-pulmonale

Sub-unit 3.3: Pleural effusion

- Definition
- Etiology
- Pathophysiology
- Clinical features
- Differential diagnosis
- Investigations and diagnosis according to Light's criteria
- Management with emphasis on chest tube insertion, pleural tapping.

Sub-unit 3.4: Pneumonia

- Definition
- Classification
- Etiology
- Clinical features
- Investigations
- Management & prevention including vaccine (Pneumococcal, Hib vaccine)
- Complications

Sub-unit 3.5: Asthma

- Definition
- Etiology
- Classification according to severity of symptoms.
- Pathophysiology
- Clinical features
- Management using classification of asthma & prevention.
- Complications: Acute exacerbation and status asthmaticus

Sub-unit 3.6: Pulmonary tuberculosis

- Definition of PTB, relapse, drug resistant, treatment failure, MDR and XDR TB.
- Etiology
- Pathophysiology
- Clinical features
- Investigations
- Management (DOTS therapy according to national guideline, MDR & XDR)
- Prevention and control

Unit 4: Gastrointestinal Disorders

8Hrs

Sub-unit 4.1: Peptic Ulcer Diseases

- Definition: gastritis, gastric ulcer, duodenal ulcer, esophageal ulcer
- Physiology of gastric acid secretion
- Etiology
- Pathophysiology (correlation with H. pylori, NSAIDs)
- Clinical features
- Investigations
- Management & prevention
- Complications

Sub-unit 4.2: Diarrhea, Constipation and Vomiting

- Definition
- Causes
- Types (diarrhea, vomiting)
- Clinical features according to no, some and severe dehydration
- Investigations
- Management & prevention
- Management of dehydration according to severity of fluid loss (no, some and severe dehydration).

Sub-unit 4.3: Infectious disorders - Abdominal tuberculosis.

- Definition
- Etiology
- Pathophysiology
- Clinical features
- Investigations
- Management
- Complications

Unit 5: Endocrine System Disorders

7Hrs

Sub-unit 5.1: Diabetes Mellitus

- Physiology of the pancreatic secretion
- Definition
- Types and differences
- Pathophysiology
- Clinical features
- Management (Discuss oral drugs vs insulin) & prevention.
- Complications
- Hypoglycemia
- Diabetic ketoacidosis versus Hyperosmolar Hyperglycemic coma

Sub-unit 5.2: Thyroid disorders (hypo & hyperthyroidism)

- Physiology and steps of thyroid hormone synthesis.
- Definition
- Etiology
- Clinical features
- Investigations
- Management with considerations during pregnancy.
- Complications

Unit 6: Hepatic Disorders

9Hrs

Sub-unit 6.1: Cirrhosis of the liver

- Definition
- Etiology
- Types
- Pathophysiology
- Clinical features
- Investigations
- Management, prevention, and stabilization prior to referral
- Complications (Portal hypertension and esophageal variceal bleeding)

Sub-unit 6.2: Ascites

- Definition
- Etiology
- Types
- Pathophysiology

- Clinical features
- Investigations
- Management
- Complications (Spontaneous bacterial peritonitis)

Sub-unit 6.4: Hepatitis

- Definition
- Etiology
- Pathophysiology
- Types
- Clinical features
- Investigations
- Management & prevention (including vaccination)
- Complications

Unit 7: Central Nervous System Disorders

10Hrs

Sub-unit 7.1: Tetanus

- Causative organism
- Pathophysiology
- Clinical features
- Investigations
- Management & prevention (including post and pre-exposure prophylaxis of tetanus toxoid)

Sub-unit 7.2: Poisoning

- Definition
- Common poisoning in Nepal (Organophosphorus, Paracetamol, corrosives, opioids and Mushroom)
- Clinical features, prevention and precautions
- Management

Sub-unit 7.3: Meningitis and encephalitis

- Definition
- Etiology
- Clinical features
- Investigations
- Management (including vaccination for meningitis and encephalitis)
- Difference between Bacterial, viral and tubercular meningitis

Sub-unit 7.4: Parkinsonism

- Clinical features and management.

Unit 8: Rheumatology

2Hrs

- Rheumatology (osteoarthritis, ankylosing spondylitis, gout & rheumatoid arthritis)
 - Definition
 - Etiology
 - Pathophysiology
 - Clinical features
 - Management
 - Complications of chronic use of NSAIDs for arthritis

Unit 9: Urinary System Disorders

2Hrs

- Renal failure
 - Definition
 - Types: Acute and Chronic Kidney failure
 - Etiology
 - Clinical features
 - Investigations
 - Management and Prevention
 - Indications for dialysis
 - Causes, clinical aspects and management of anuria and oliguria.

Unit 10: Other Disorders

3Hrs

- Acute Rheumatic fever and Infective Endocarditis
 - Definition
 - Etiology
 - Pathophysiology
 - Clinical features
 - Investigations, Jones criteria for diagnosis of ARF and Dukes criteria for diagnosis of Infective endocarditis
 - Prevention and Complication
 - Management

Unit 11: Infectious Disorders

20Hrs

Sub-unit 11.1: Common communicable diseases

- Causative agents, modes of transmission, incubation period, clinical features, investigations, management, complications and prevention of:
 - Malaria
 - Kala-azar
 - Filariasis
 - Dengue fever
 - Enteric fever
 - Dysentery (Amoebic & Bacillary)
 - Cholera
 - Giardiasis
 - Brucellosis
 - Rabies
 - Food poisoning
 - Influenza
 - Swine flu (H1N1)
 - SARS
 - Bird flu
 - COVID-19
 - Scrub typhus.

Sub-unit 11.2 Worm infestations

- Modes of transmission, incubation period, clinical features, investigations, management, complications, and prevention of:
 - Hook worm
 - Round worm
 - Trichuris trichiura
 - Tape worm (Tenia solium, Tenia saginata, H. nana)

Gynecology

Unit 12: Anatomy and physiology 2Hrs

- Structure and function of parts female pelvic organs.
- Menstruation, ovulation and menopause
- Hormones and functions

Unit 13: Gynecological history & physical exam 3Hrs

- Gynecological history taking
- Gynecological examination
- Describe the procedure for pelvic and vaginal examination.
 - Discuss obstetrics investigation including ultrasound,

Unit 14: Menstruation disorders 5Hrs

- Amenorrhea
- Dysmenorrhea
- Menorrhagia
- Metrorrhagia
- Dysfunctional uterine bleeding

Unit 15: Diseases of the vagina, vulva and cervix 10Hrs

- Etiology, Clinical features, Investigations and management of STI (Sexually Transmitted Infection): Chlamydia, Syphilis, chancroid, Trichomonas, Hepatitis B and Gonorrhea.
- Bartholin's cyst
- Urinary tract infections with special emphasis on pregnancy
- HIV
 - Etiology, Transmission, clinical features, investigations and management
 - Counselling in case for HIV positive patient.
- Cancerous conditions in vulva, vagina, cervix
- Discuss the benign and malignant conditions of vulva, vagina and cervix.

Unit 16: Disorders of the uterus, endometrium, ovaries & fallopian tubes 4Hrs

- Endometriosis
- Endometrial fibroids
- Pelvic inflammatory disease (PID)
- Urinary retention

Unit 17: Cancerous conditions of uterus and ovaries 2Hrs

- Benign and malignant conditions of uterus, endometrium and ovaries.

Unit 18: Genital Prolapse/ Pelvic organ prolapse

3Hrs

- Definition,
- Causes,
- Stages,
- Clinical features,
- Management
- Complications

Unit 19: Infertility

4Hrs

- Review of anatomy/physiology of male & female reproductive system
- Definition of infertility
- Causes in male & female.
- Treatment
- In vitro fertilization (IVF)
- Semen analysis and interpretation

Reference Texts:

- Kafle, K. K., & Pinniger, R.G. Diagnostic and Treatment Manual for Primary Health Care in the District, distributed by Health Learning Materials Center, Tribhuvan University, Nepal.
- Dhungel S., & Pathak, U., Textbook of Medicine. Educational Enterprises, Kathmandu. Current edition.
- Dhungel S., & Pathak, U., Communicable Disease. Educational Enterprises, Kathmandu. Current edition.
- Pathak, U., Differential Diagnosis. Educational Enterprises, Kathmandu. Current edition.
- Dhungel S., & Pathak, U., Textbook of Medicine. Educational Enterprises, Kathmandu. Current edition.
- Sayami, P., Medical Problems for Health Post Workers. HLMC Kathmandu.
- Edwards, C.R.W. and Bouchier, I.A.D., Davidson's Principles and Practice of Medicine. Churchill Livingstone, London. Current edition.
- L.M. Tierney, L.M. et al., Current Medical Diagnosis and Treatment. Appleton & Lange, Stamford, Conn. Current edition.
- Dr Tilak Pathak, Textbook of medicine Akshav Publication

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
Unit hours	3	25	18	8	7	9	10	2	2	3	20	2	3	5	10	4	2	3	4	140
Marks	2	14	10	5	4	5	6	1	1	2	11	1	2	3	6	2	1	2	2	80

Medicine I (Practical)

Practical: 105 Hours

- Demonstrate the process of general physical examination: PILCCOD
- History and physical examination in the aspects of Inspection, Palpation, Percussion and Auscultation.
 - Respiratory system
 - Cardiovascular system
 - Gastrointestinal system
 - Central Nervous System
 - Genitourinary system
- Observe and assist in the management of medical cases (Hospital visit) at least.
 - Pneumonia at least 5 cases
 - COPD and Asthma at least 5 cases
 - Pleural effusion at least 2 cases
 - Diabetes mellitus at least 5 cases
 - Chronic liver disease/ Cirrhosis at least 2 cases
 - Myocardial Infraction at least 1 case
 - Hypertension at least 5 cases
 - Pulmonary tuberculosis at least 3 cases
 - Gastritis and Peptic Ulcer Disease at least 2 cases
 - Poisoning (Organophosphorus poisoning) at least 2 cases
 - Gout at least 3 cases
 - Infectious disease cases at least 5 cases
- Observe the procedures for PAP smear, VIA (Visual examination under acetic acid), TVS (Transvaginal USG), HSG (Hysterosalpingography), colposcopy and biopsy.
- Observe the demonstration of the use of vaginal speculum.
- Examination of genital prolapse and application of ring pessary.

Surgery I (General Surgery, Orthopedics and Physiotherapy)

Total: 7hours /week

Lecture: 3 hours/week

Tutorial: 0 hour/week

Practical: 0 hours/week

Lab/clinical: 4 hours/week

Course Description:

This course introduces the student to basic knowledge and skills necessary to identify and manage simple surgical conditions at the Clinical. The content includes wound care, and abdominal, respiratory, genitourinary, skeletal, and malignant conditions. The student will learn to recognize conditions that require surgical interventions at a higher-level facility, to stabilize such cases, and manage the referral.

Course Objectives

- On completion of the course, the student will be able to:
- Identify and utility of common surgical instruments.
- Discuss simple suturing for skin approximation.
- Discuss simple incision and drainage of a superficial abscess.
- Identify and manage the different kinds of shock.
- Identify and manage cysts, fistulas, sinus cavities.
- Evaluate and manage poor wound healing, gangrene and necrosis.
- Identify, manage, and make referrals as necessary for abdominal disorders.
- Identify, manage, and make referrals as necessary for potentially malignant conditions.
- Identify, manage, and make referrals as necessary for Ano-rectal conditions.
- Identify, manage, and make referrals as necessary genitourinary conditions.
- Identify, manage, and make referrals as necessary Brain or Spinal cord injury.
- Identify, manage, and make referrals as necessary Chest injuries.
- Identify, manage, and make referrals as necessary for Orthopedic patients e.g. fractures and osteomyelitis.
- Identify common types of anesthesia, the precautions for each, and methods of administration, and principles for selection of suitable anesthesia.
- Describe the antenatal examinations to identify normal/abnormal progress of pregnancy.
- Counsel pregnant women regarding safe motherhood practices.
- Manage common uncomplicated pregnancy related.
- Identify indications that a pregnancy is high risk or requires expert management and make appropriate referral.
- Identify abnormal conditions of labor, delivery and neonate and manage the cases using health post resources when necessary.
- Identify complications which require immediate referral; stabilize and transport such cases to a higher-level facility.
- Implement the policies of the National Guidelines for Maternity Care.

Course Content

Unit 1: Introduction to surgery

3Hrs

- Difference between laparoscopic and open surgery along with their indication, advantages and disadvantages. Discussion on principle, effects and complications of diathermy
- Surgical ethics, autonomy, informed consent, matters of life and death, research and confidentiality.
- Parenteral and enteral nutrition. Complications of enteral feeding. Nutritional requirements for a surgical case (micronutrients, vitamins and minerals).
- Disaster management and sequence of relief efforts after a disaster including establishing a chain of command, damage assessment, mobilizing resources, rescue operation, coordination with relief agencies, safety of the helpers, triage.
- Basics of transplantation and organ donation.

Unit 2: Wound and Hemorrhage

4Hrs

- Wound: Definition, types, clinical features, management of different types of wounds, principle of normal wound healing and various factors affecting wound healing.
- Describe types of chronic wounds including pressure sores, leg ulcers, diabetic gangrene and gas gangrene along with their etiology, clinical features, management and complications.
- Define scars, types and medical and surgical management methods.
- Hemorrhage: Definition, types, management and effects of hemorrhage.

Unit 3: Emergency Treatment

4Hrs

- Discuss the concepts of primary and secondary survey. Use of Triage while managing emergency cases.
- Basics of triage. Discuss the investigations performed for trauma victims, FAST scan, CT scan and diagnostic laparoscopy.
- Describe the types, history, examination, and classification according to GCS (Glasgow Coma Scale), investigation, management and complication of Head injury with special emphasis on hematomas (extradural, subdural, subarachnoid and intracerebral bleeding), skull fractures and procedures of stabilization before referral.
- Anatomy, pathophysiology, examination, diagnosis, management and transport of a patient of spinal cord injury.

Unit 4: Shock

4Hrs

- Definition, types, etiology, pathophysiology, sign and symptoms, investigation and management of various types of shock.
- Hypovolemic shock, anaphylactic shock, septic shock, cardiogenic shock, distributive shock, SIRS (Systemic Inflammatory Response Syndrome), anaphylactic shock, neurogenic shock obstructive shock]
- Effects of electric shock on cardiac muscle and mention its management.

Unit 5: Fluid and electrolyte**4Hrs**

- Normal distribution and composition of body fluid: Total body water volume, intracellular and extracellular water fluid and average water intake and loss.
- Volume regulating hormones: Aldosterone and ADH. Discuss Renin-Angiotensin-Aldosterone system with special emphasis of their role in maintaining fluid balance via the kidneys.
- Describe hydrostatic and oncotic pressure of the capillaries and interstitium along with their role in edema.
- Discuss causes of edema, classification of edema and examination of edema.
- Describe the acute and chronic acid base balance between the lungs and kidneys.
- Dehydration: Causes, classification, diagnosis, Management of mild, moderate and severe dehydration including first aid management.
- Principles of parenteral fluid replacement therapy: Composition of various crystalloid and colloid solutions, selecting appropriate intravenous fluid and calculating maintenance fluid therapy.

Unit 6: Surgical conditions in children**6Hrs**

- Identification of common congenital anomalies.
- Hernia: Anatomy of the inguinal canal, definition, types, clinical features, differential diagnosis, investigations, management and complications.
- Hydrocele: definition, types, etiology, clinical features, diagnosis and management
- Intussusception: Definition, etiopathogenesis, clinical findings, diagnosis, management and complications.
- Undescended testis: definition, normal pathway for testis descent, clinical findings, diagnosis, management and complications.
- Testicular torsion: definition, etiology, clinical findings, diagnosis, management and complications.
- Phimosis, Paraphimosis: definition, etiology, clinical findings, diagnosis, management and complications.
- Tracheoesophageal fistula: definition, etiopathogenesis, clinical findings, diagnosis, management and complications

Unit 7: Chest disorders**4Hrs**

- Thoracic injuries: Classification of the thoracic injuries, causes, clinical features, investigation, treatment and complications of rib fracture, flail chest and hemothorax.
- Pneumothorax: Definition, etiology, types, clinical features, pathology, differential diagnosis, investigations, complications and management of pneumothorax.
- Lung abscess and empyema: Definitions, etiology, pathophysiology, clinical features, and treatments for lung abscess and empyema,
- Lung cancer: Classification, etiology, clinical features, investigations, staging and management.

Unit 8: Abdominal conditions**12Hrs**

- Anatomy and physiology of the abdomen: Terminologies related to abdomen and gastrointestinal tract, characteristics of nine quadrants of the abdomen. Physiology of secretions from stomach, small and large intestine.
- Acute abdomen: Definition, etiology, clinical features, investigations and management of disease entities causing acute abdomen. Describe the basic principles of management of acute abdominal conditions.
 - Acute gastroenteritis
 - Acute cholecystitis
 - Peptic ulcer perforation
 - Acute appendicitis
 - Acute peritonitis.
 - Bowel obstruction
- Acute and Chronic pancreatitis: Definition, etiology, clinical features, investigations, management, complications and prognosis.
- Discuss Irritable bowel syndrome.
- Hepatobiliary disease Anatomy and physiology of liver, gallbladder and pancreas.
- Causes, Clinical features, management and complications of liver injury.
- Definition, causes, pathogenesis, Clinical features, differential diagnosis and treatment of.
 - Cholelithiasis (gall stones)
 - Amoebic liver abscess
 - Pyogenic liver abscess
 - Cholangitis
 - Cholecystitis
 - Benign and Malignant tumors of the liver.

Unit 9: Rectal and Anal Conditions**3Hrs**

- Anatomy of the rectum, anus and anal sphincter
- Definitions, etiologies, clinical features, investigation and management for:
 - Rectal bleeding
 - Hemorrhoids,
 - Anal fissure,
 - Fistula-in-ano,
 - Rectal prolapse,
 - Rectal polyp,
 - Anorectal abscesses.

Unit 10: Genitourinary Conditions**10Hrs**

- Applied anatomy and physiology of kidney, ureter, urinary bladder and urethra. Describe the process of urine formation.
- Urinary tract injuries: Causes, clinical features and emergency management before referral.
- Urinary tract infection: Definition, etiology, clinical features, investigations and management of infections of the urinary tract.
 - Urethritis,
 - Cystitis,
 - Pyelonephritis,

- Epididymo-orchitis.
- Prostatitis
- Urinary stone: Formation and classification of kidney stones, predisposing and contributing factors of urinary stone formation, symptoms, signs and treatment of urinary stones.
- Describe cause, clinical features, investigations and management of hydronephrosis.
- Acute retention of urine: Causes, symptoms and signs, investigations, management of acute urinary retention.
- Definition, etiologies, clinical features and treatments for benign prostatic hypertrophy (BPH). Lower urinary tract symptoms (LUTS) and investigations for assessment.
- Vasectomy: Procedure, indications, contraindications and complications

Unit 11: Burn and scald

3Hrs

- Anatomy and physiology of skin and appendages.
- Discuss regarding the classification of burns according to etiology and depth, application of the “Rule of Nine” to estimate extent of burn.
- Elaborate on the immediate pre-hospital management for burn victims, fluid resuscitation, burn wound treatment including pain, nutrition, infection control and physiotherapy.
- List the prognosis, mortality, complications and proper referral after stabilization of burn victims.
- Discuss electrical and chemical burns.
- Discuss various options of plastic surgery including skin grafts and flaps for burn victims.

Unit 12: Surgical breast diseases

2Hrs

- Anatomy and physiology of the breast.
- Common causes of breast lump.
- Differentiate breast abscesses from other breast masses.
- Definition, etiologies, clinical features, investigation, management and differentiation of;
 - Acute mastitis and breast abscess
 - Benign and Malignant breast tumor.

Unit 13: Malignant & benign disorders

10Hrs

- Definition and differentiation of benign and malignant tumors; examples of benign, premalignant and malignant tumors of the oral cavity.
- Tumors of gastrointestinal tract: Etiology, clinical features, investigations, differential diagnosis, staging, treatment and prevention of
 - Carcinoma tongue
 - Benign and Malignant tumor of Salivary gland,
 - Esophageal carcinoma,
 - Gastric carcinoma,
 - Colorectal carcinoma.
- Tumors and swellings in neck region: causes, clinical features, investigations, differential diagnosis, treatment and prevention of
 - Tubercular lymphadenitis,

- Benign thyroid swellings including goiter.
- Thyroid carcinoma,
- Thyroglossal cyst and fistula
- Skin tumors: Discuss examples of benign, premalignant and malignant tumors along with definition, causes, clinical features, investigations, differential diagnosis, treatment, prognosis and preventions of
 - Squamous cell carcinoma of skin,
 - Basal cell carcinoma and
 - Malignant melanoma

Unit 14: Orthopedics and anesthesia

10Hrs

- Orthopedics:
 - Define fracture and classify fracture.
 - Mention the signs and symptoms of fracture.
 - Assessment of fractures and dislocations.
 - 4 Rs of fracture management: Resuscitation, Reduction, Retention and Rehabilitation
 - Stages of healing of fracture.
 - Principles of fracture management (closed, displaced and open fracture with or without associated external injuries). Discussion on splints, casts, slab, tourniquet, traction, internal fixations (screws, plate, nail) and external fixators.
 - Complications of fracture healing.
 - Definition, etiology, clinical features, investigations, management and complications of osteomyelitis and septic arthritis.
 - Anesthesia: Definition, classification, technique of administration, monitoring, indications, contraindications and complications.
- Approach to low back pain.
 - List common causes of low back pain.
 - Indications for referral.

Unit 15: Physiotherapy

4Hrs

- Introduction to Physiotherapy and Rehabilitation: Different modalities of physiotherapy
 - Exercise therapy,
 - Therapeutic Massage,
 - Electrotherapy,
 - Magnetotherapy,
 - Hydrotherapy
 - Cryotherapy
- Indication and contraindications of physical therapy and chest physiotherapy.
- Concept of rehabilitation and its application.

Obstetrics:

Unit 16: Antenatal examination

6 Hrs.

- Physiology of normal pregnancy and fetal development.
- Signs and symptoms of pregnancy: presumptive signs, probable signs and positive signs.
- Use of formula to estimate Period of gestation and expected date of delivery (EDD).

- Antenatal examination
 - History taking and physical examination.
 - Obstetric examination
 - Investigations
- Assessment of fetal well-being in ANC
 - Fetal heart sound
 - Quickening and fetal heart sounds.
- Special care of women during pregnancy.
 - Diet
 - Hygiene
 - Clothes and shoes
 - Exercise
 - Ante-natal visit.
 - Immunization
 - Deworming
 - Sexual intercourse
 - Smoking, alcohol
 - Travelling
 - Drugs
- Describe common minor health conditions of pregnancy and methods to reduce these problems.

Unit 17: Complications of pregnancy

8 Hrs.

- Major and minor disorders: Sign and symptoms, etiology, clinical features, investigations, prevention and management.
- Minor symptoms
 - GI symptoms: Morning sickness, heartburn, indigestion, constipation
 - Circulatory symptoms: Varicose vein
 - Skin: Itching
 - Musculoskeletal: Backache
 - Leucorrhea
 - Urinary symptoms: Frequency of micturition
- Major symptoms
 - Hyperemesis gravidarum
 - Pregnancy induced hypertension (PIH)
 - DIC (Disseminated Intravascular Coagulation)
 - HELLP syndrome
 - Oligohydramnios and Polyhydramnios
 - Rh incompatibility
 - Gestational Diabetics Mellities

Unit 18: Normal labor and delivery

4Hrs

- Definition of labor normal labor, abnormal labor.
 - Physiological changes in labor
 - Stages of labor
 - Signs and symptoms of different stages of labor.

- Onset of labor
- True labor and false labor
 - Premonitory signs of labor.
- Mechanism of normal labor
 - Engagement
 - Descent
 - Flexion of the head
 - Internal rotation of the head
 - Crowing of the head
 - Extension of the head
 - Restitution of head
 - Internal rotation of the shoulder
 - External rotation of head
 - Lateral flexion of the body (Restitution)
- Management of normal labor
 - General management
 - Management of Second stage of labor
 - Preparation of delivery
 - Instrument preparation.
 - Mother
- Steps of conducting normal delivery
- APGAR Score
 - Meaning
 - Importance
 - Scoring technique

Unit 19: Postpartum care:

4 hrs

- Postnatal examination of mother
 - History and examination including vital signs.
- Daily assessment of mother
 - General wellbeing
 - Temperature, pulse and blood pressure
 - Urine examination and weight
 - Uterus Lochia
- General care of mother
 - Rest and sleep.
 - Diet and nutrition.
 - Care of bowel and bladder
 - Post natal exercise.
 - Perineal care
- Minor and major disorder of puerperium
- Minor disorders of puerperium
 - Sign and symptom and management of
 - Retention of urine
 - Maternal blues
 - Constipation and hemorrhoids

- Perineal pain
- Major disorders of puerperium
 - Puerperal sepsis and pyrexia
 - Puerperal hemorrhage
 - Urinary tract infection
 - Vulval hematoma
 - Postnatal depression and psychosis

Reference books

- Sharma, A.K., Principles of Surgery at the District Hospital. WHO, current edition.
- Tierney et al., Current Medical Diagnosis and Treatment. Appleton & Lange, Stamford, Conn. Current edition.
- Williams NS, Bullstrode CJK, O'Connell PR. Bailey & Love's Short Practice of Surgery, 25th edn. Ann R Coll Surg Engl. 2010 Mar;92(2):178. doi: 10.1308/003588410X12628812459094. PMCID: PMC3025222.
- Edwards, C.R.W. and Bouchier, I.A.D., Davidson's Principles and Practice of Medicine. Churchill Livingstone, London. Current edition.
- Kings, M., et al., Primary Surgery, Vol. I. Oxford Medical Publications, Oxford. Current edition.
- Kafle, K.K. & Pinniger, R.G., Diagnostic and Treatment Manual for Primary Health Care in the District. Health Learning Materials Center, Tribhuvan University, Nepal.
- Dr Tilak Pathak, Textbook of medicine Akshav Publication

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
Unit Hours	3	4	4	4	4	6	4	12	3	10	3	2	10	10	4	6	8	4	4	105
Marks	2	3	3	3	3	5	3	9	2	8	2	1	8	8	3	5	6	3	3	80

Surgery I Practical

Practical: 140 Hrs

- Observe the history and physical examination of surgical cases in the hospital setting.
- Demonstrate diagnostic investigations and their utilities.
 - Blood investigations: CBC, RFT, LFT, Uric acid, HbA1C, Lipid profile, Cardiac enzymes (CK-MB, Troponin I and T), Thyroid function test, Urine REME, Stool REME, Stool for occult blood, Sputum AFB, Gene Xpert, Mantoux test, Widal test and other antigen-antibody tests (serological tests).
 - Radiological investigations: X-ray, CT scan, MRI, Nuclear medicine, USG, Barium studies, IVU(IVP), contrast materials, ERCP, MRCP.
 - Biopsy: FNAC, Core-cut biopsy and excisional biopsy.
 - Invasive procedures: Endoscopy, colonoscopy, bronchoscopy, Cystography.
- Interpretation of X-ray film of different surgical and orthopedic conditions.
- Demonstrate of preoperative preparation and evaluation of a patient including history, examination, premedication, investigation, NG tube, Foley catheter and informed consent
- Demonstrate of utility and handling of common surgical instruments:
- Demonstrate of aseptic dressing of wound and closure of wound according to clean or contaminated type. Observe the debridement of contaminated wounds.
- Alternatives to suture, adhesive strips, staples, clips, etc.
- Procedure of incision and drainage of abscess with special emphasis on guidelines of I and D of breast abscess.
- Demonstration of technique of extraction of ingrowing toenail.
- Exam of different head and neck swellings
- Exam of inguino-scrotal mass.
- Perform digital rectal examination (D.R.E)
- Demonstrate protocols of primary survey (ABCDE) and secondary survey according to BLS guidelines.
- Procedure of applying splint and observe demonstration of cast and slab in fracture.
- Perform simple suturing for skin approximation.
- Perform simple incision and drainage of a superficial abscess.
- Perform Breast examination.
- Perform Antenatal examination.
- Demonstrate the partography
- Demonstrate the Mechanism of normal labour
- Demonstrate the puerperium care.

Basic Medical Procedure and First Aid theory

Total: 5hours /week

Lecture: 2 hours/week

Tutorial: 0 hour/week

Practical: hours/week

Lab/clinical: 3 hours/week

Course Description

This course is designed to introduce the students to basic medical procedures, skills, and attitudes. It also included the professional history within and outside the country, its scope, and the physiological, Psychological, and social need for safety, comfort, and therapeutic measures for individual families and communities.

Course Objectives:

- Discuss a history taking and physical examination of the patient efficiently and thoroughly.
- Identify vitals sign of the patient.
- Maintain medical or surgical asepsis during procedures as needed.
- Discus medications by each route safely and efficiently
- Discus selected basic invasive procedures according to guidelines.
- Identify aseptic technique during wound care.
- Respond appropriately to first aid situations at the health post or elsewhere in the community.

Course Content

Unit 1: History taking and physical examination

4 hrs

- History taking
 - Purpose of history taking
 - Subjective and objective data
 - Strategies for obtaining history of patient.
 - Components of history taking
- Physical examination
 - Purpose of physical examination
 - General examination PILCodd including from head to toe.
 - Systemic examination various organ system
 - Inspection
 - Palpation
 - Percussion
 - Auscultation

Unit 2: Assessment of Vitals sign**6 hrs**

- Vital signs: Definition and Purposes
- Temperature
 - Definition
 - Factors affecting body temperature.
 - Common sites for taking temperature.
 - Procedure of measuring and body temperature: Oral, Axillary and Rectal
 - Different types of fever (Constant, Remittent, Intermittent, Relapsing)
- Pulse
 - Definition
 - Characteristics of pulse
 - Factors affecting pulse rate.
 - Common sites of taking pulse
 - Principle and Procedure of taking pulse.
- Respiration
 - Definition and types of respiration
 - Characteristics of normal respiration
 - Factors affecting respiration.
 - Procedure of counting respiration
 - Abnormal respiration
- Blood Pressure
 - Definition and Factors affecting blood pressure.
 - Sites and technique of measuring BP
 - Korotkoff sound and its significance.
- Oxygen saturation:
 - Definition, technique and factors affecting blood oxygen level.

Unit 3: Infection Prevention**5 hrs**

- Terminology of infection prevention
- Universal precaution
 - Define Universal precaution and Standard precaution.
 - Procedures of Medical and surgical asepsis including clean environments.
 - Respiratory hygiene/ cough etiquette
 - Hand-washing technique, types (medical, surgical, alcohol-rub)
 - Use Personal protective equipment (procedure of gloving and gowning)
 - Safe needle management and post exposure prophylaxis against needle prick injuries (against Hepatitis B and C, HIV).
 - Safe injection practices (i.e. aseptic technique for parenteral medications)
 - Processing of instrument for disinfection (Decontamination,
 - Cleaning, Sterilization, High level disinfection, Storage)

Unit 4: Administration of drug**7 hrs.**

- Definition, purpose of drug administration
- 5 Rights in administration of drugs

- Medicine calculation according to body weight.
- Different routes of drug administration
 - Types- Oral, Parental- (IV, IM, SC, ID), Inhalation and Instillation
 - Purpose, advantages and disadvantages
 - Procedure of drug administration according to the various routes.
- Oxygen inhalation
 - Purpose, Indication, method and hazards of oxygen therapy
 - Various devices used for oxygen delivery (nasal prongs, face mask, rebreather mask, venturi mask and endotracheal tube).
- Nebulization: Indication, principles and procedure of nebulization.

Unit 5: Invasive Procedure

6 hrs

- Intravenous cannulation: Indication, procedure, color coding, contraindication and management of complications.
- Ryle's (nasogastric) tube insertion and care
 - Indication, size, procedure and complications of NG tube insertion.
- Catheterization
 - Definition, indication and size of Foley's catheter.
 - Procedure and complication of catheterization (difference between male and Female catheterization).
- Enema
 - Definition and indications.
 - Method of administering enema and local method preparation of enema in the peripheral setting.

Unit 6: Wound Care

8 hrs

- Dressing: Definition, principles and procedure while maintaining surgical asepsis.
- Suturing:
 - Types of sutures and their characteristics.
 - Parts of a needle.
 - Types of suturing technique (simple, interrupted, vertical mattress, continuous, running locked and subcutaneous)
 - Procedure of suturing and removal of sutures.
 - Basic knowledge regarding the various surgical sets available for dressing and suturing.
- Bandaging:
 - Bandage and its types (Roller, Triangular, T bandage, Many tailed)
 - Purpose and principles of bandaging.
 - Applying different types of bandages.
 - Removal of bandaging in various clinical scenarios.

Unit 7: Hot and Cold Application**3Hrs**

- Definition, purposes and Principal
- Effect of hot and cold application
- Type and Methods of hot and Cold application.
- Sitz bath

Unit 8: First aid**30 Hrs**

- First aid
 - Definition aims and principle of first aid.
 - Importance of First aid
 - Explain about the first aid box.
 - Qualities of First aider (resourceful, skillful, tactful, knowledgeable and a good observer)
 - Responsibility of first aider
 - Procedures for assessment (ABCDE methods of assessment) and intervention according to clinical condition of the patient.
- Different emergency condition and their first aid management
 - Definition, types, causes, sign and symptoms, first aid treatment and prevention of following emergency medical condition
 - Drowning
 - Burn and scald.
 - Pre-hospital management includes ensuring the safety of the rescuer.
 - Fluid therapy for burn victims.
 - Referral after stabilization
- Hemorrhage
 - First aid management of external hemorrhage.
- First aid management in case of traumatic patients.
- Foreign bodies in ear, nose and throat
 - Heimlich maneuver for choking.
 - First aid procedures for foreign bodies according to the site.
- Epistaxis
 - First aid methods to control nosebleeds and some common misconceptions.
- Seizure
 - First aid management in case of active seizure.
- Fracture and Dislocation
 - Procedures for first aid splinting and immediate referral.
- Poisoning (Insecticide – Organophosphorus poisoning, Rodenticides, Drugs and Alcohol poisoning)
- Heat stroke, Hypoxia and Hypoglycemia
- CPR (Cardio-pulmonary Resuscitation)
- High Altitude sickness
- Snake bite.

- Insect bite
- Rabid animal bite
 - First aid procedures for cleaning and referral for post-exposure prophylaxis.
 - Principles of Pre-exposure prophylaxis for the vulnerable group (e.g. healthcare professionals, animal handlers)
- Frost bite and hypothermia.
- Hypersensitivity reactions

Unit 9: Care of Dead Body

1Hrs

- Definition
- Signs of Death
- Care of the body after death

Reference Books

- Dr Tilak Pathak and Anil Pukar shah Textbook of Basic medical Procedures Akshav Publication
- Pathak S, Devkota R. A Textbook of Fundamental of Nursing. 4th ed. Bhotahiti, Kathmandu: VidyarthiPustakBhandar; 2015.
- erghese A, Shrestha N, Singh S, Shrestha S, Thapa S, bhantawa S. Fundamental of Nursing. 2nd ed. Kathmandu: health learning material center, TUIOM; 2002.
- First aid: the Authorized Manual of St. John's Ambulance Association (current edition)
- Gupta, Rajesh kumar and Sharma, Rajiv Kumar, "Basic Pathology First Aid and Basic Public Health", Revised and Updated 2nd edition, 2016

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	Total
Unit Hours	4	6	5	7	6	8	3	30	1	70
Marks	2	3	3	4	3	5	2	17	1	40

BMP and First Aid Practical

Practical 105 Hrs.

- Perform History taking and Physical examination.
- Perform vitals sign.
- Perform simple hand washing and surgical hand washing.
- Demonstrate procedures for donning a gown and open and closed gloving.
- Perform processing and handling of surgical instruments.
- Calculate needed dose from the available drugs according to body weight.
- Demonstrate procedure of Oral, inhalation and instillation of drugs
- Demonstrate procedure of parenteral medication i.e., IM, IV, SC and ID at different sites under aseptic technique
- Demonstrate Oxygen inhalation and nebulization procedure.
- Perform the procedure of IV cannulation and removal using aseptic techniques.
- Perform the procedure of NG tube insertion.
- Perform the procedure of Catheterization in male and female patient.
- Perform the procedure of enema.
- Perform procedure of Dressing
- Perform the procedure of Bandaging by using different types.
- Perform the procedure of Suturing techniques (continuous and interrupted) and removal of sutures.
- Perform the Hot and Cold application.
- Perform the procedure of CPR in adults, child and infant.
- Perform the Heimlich maneuver in choking patient.
- Demonstrate first aid management of the following medical emergency condition, referral and transfer.
 - Drowning
 - Epistaxis
 - Burns
 - Hemorrhage
 - Poisoning
 - Fracture and dislocation.
 - Heat illness.
 - High altitude sickness
 - Frost bite and hypothermia.
 - Animal bites
 - Snake bite.
 - Insect stings
 - Seizure
 - Foreign body in ear, nose and throat
 - Dyspnea

Clinical Pathology (Theory)

Total: 4hours /week

Lecture: 2 hours/week

Tutorial: 0 hour/week

Practical: 0 hours/week

Lab/Clinical: 2 hours/week

Course Description:

This is an introductory course to basic clinical pathology and is divided into four different units. Unit first is about medical microbiology and immunology. It includes morphology of different categories of microorganisms, their relation to human diseases, basic identification techniques and their growth & sterilization properties. Immunology deals with different defense mechanisms of the human body. Unit two contains medical parasitology and deals about mode of infection, disease, laboratory diagnosis & preventive measures of important intestinal as well as blood & tissue parasites of man. Unit three deals with human blood & its constituents together with different hematological techniques. Unit four is about medical biochemistry including the biochemical processes of - digestion & absorption of foods, metabolism of different kinds of foods & their disturbance effects in our body together with the physiological roles of different kinds of vitamins, enzymes, hormones and list of certain tumor markers.

Course objectives

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

- Describe different kinds of microorganisms related to human diseases.
- Describe different kinds of parasites and their pathogenic effects on a human body.
- Describe the composition and functions of different components of blood.
- Identify the role of vitamins & enzymes in our body.
- Perform basic microbiological, biochemical and hematological tests in the laboratory setting and interpret their results.

Course Content

Section: A Microbiology and Immunology

Unit: 1 General Introduction to Microbiology

5 Hrs

- Give Morphological classification of bacteria: cocci, bacilli, vibrio, spiral, mycoplasma and spirochaetes, rickettsia and chlamydia with examples.
- Give Morphological classification (Icosahedral, helical, complex) and genomic classification (RNA, DNA) of viruses.
- Give Morphological classification of fungi: Yeast, Yeast like fungi, Mold, Dimorphic fungi with examples.
- Give Morphological classification of protozoa (Amoeba, Ciliates, Flagellates, coccidia, microsporidia) and Helminths (Platyhelminthes and Nematodes) with examples.
- List diseases caused by bacteria, virus fungi, protozoa and helminths.

Unit:2 Basic bacteriological investigations**5 Hrs**

- Introduction to basic bacteriological investigations and sample collection techniques for microbiological investigation (Sputum, Pus, blood, urine, body fluids)
- Explain theory, principles and procedure for Gram staining.
- Explain theory, principles, procedure and interpretation of AFB staining.
- Identify types of bacteriological culture media and cultivation techniques of bacteria
- Mechanism of antibiotic resistance
- Discuss different methods of antimicrobial susceptibility testing of bacteria.

Unit :3 Bacterial growth and sterilization**6Hrs**

- Define Bacterial growth.
- Describe different phases of bacterial growth curve (Lag phase, Log phase, Stationary phase and Death phase)
- Definition of sterilization and disinfection
- Outline physical and chemical methods of sterilization and disinfection.
 - Dry Heat (Incineration, Hot air oven, flaming)
 - Moist heat (Boiling, Autoclaving)
 - Radiation (Ionizing and Nonionizing radiations)
 - Filtration
 - Chemicals (Sterilant, Disinfectants and Antiseptics)
 - Glutaraldehyde, Formaldehyde, Plasma gas, ethylene oxide
 - Alcohols, Chlorine and chlorine compounds, Iodine and Iodine compounds, Hydrogen peroxide, phenolic compounds

Unit :4 Immunology**5 Hrs**

- Define immunity.
- Describe the defense mechanisms of the body (specific and non-specific).
 - Identify external defense mechanisms of body.
 - Skin, mucous membranes and other mechanical barriers.
 - Coughing, sneezing, perspiring and related processes.
- Identify internal barriers (non-specific defense mechanisms) of body (interferon, phagocytosis, complement, Natural Killer (NK) cells, inflammation, fever).
- Describe specific defense mechanisms of body (Natural and Acquired; Active and Passive immunity).
- Define antigens (exogenous, endogenous, complete, incomplete)
- Define antibodies and explain types of antibodies with their functions (IgM, IgG, IgA, IgD and IgE)
- List common immunological tests used in disease diagnosis.

Section: B parasitology**Unit 5: Medical parasitology****15 Hrs.**

- Define parasites.
- List intestinal, urine, blood and tissue parasites.

- Introduction, mode of infection, pathogenesis, laboratory diagnosis, prevention, and treatment of intestinal protozoa (Entamoeba, Giardia) and helminthic parasites (Ascaris, Hookworm, Trichuris, Enterobius, Taenia, Echinococcus),
- Introduction, mode of infection, disease, laboratory diagnosis and preventive measures and treatment of Trichomonas vaginalis
- Introduction, mode of infection, disease, laboratory diagnosis and preventive measures and treatment of blood and tissue parasites (Plasmodium, Leishmania, Wuchereria)

Section: C Hematology and Blood Banking

Unit 6: Hematology

9 Hrs

- Describe the general composition and functions of blood.
- List functions of WBC, RBC, platelets and plasma cells and their normal reference values.
- Describe formation of RBC, WBC and platelets.
- Describe the structure, function, normal values of hemoglobin and abnormalities associated with it.
- Define anticoagulants, their types and uses.
- List normal value of Erythrocyte Sedimentation Rate (ESR) of blood and Packed cell volume (PCV)
- Explain principle and procedure of determination of ESR by Wintrobe's method.
- Interpretation of RBC indices.
- Introduction to Blood Banking, ABO blood grouping and Rh typing, cross matching

Section :D Clinical Biochemistry

Unit: 7 Carbohydrates

6 Hrs

- Define carbohydrates.
- Outline classification of carbohydrates.
- Describe glycolysis and Krebs's citric acid cycle.
- Define glycogenesis, glycogenolysis and gluconeogenesis. Explain its clinical significance (Fasting, Starving and Well-fed state)
- Explain role of insulin in carbohydrate metabolism
- List reference ranges of: Blood Sugar (Fasting, random & Post Prandial). Introduction to Glycosylated Hemoglobin and its clinical significance.
- Enlist inborn errors of carbohydrate metabolism (Lactose intolerance, Galactosemia, Glycogen storage diseases, Hereditary fructose intolerance)

Unit: 8 Proteins

5 Hrs

- Define proteins.
- Outline classification of proteins based on function (defense, contractile, respiratory, structural, enzymes, and hormones).
- Define transamination and deamination.
- Describe urea cycle and its clinical significance.
- Explain clinical significance of blood urea, Blood Urea Nitrogen (BUN).
- List reference ranges of Urea, Creatinine, Uric Acid, Bilirubin

- Enlist inborn errors of protein/amino acid metabolism (Phenylketonuria (PKU), Tyrosinemia, Homocystinuria)

Unit: 9 Lipids

5 Hrs

- Define lipids.
- Outline classification of lipids
- Define and classify fatty Acids (Saturated & unsaturated with example)
- Define essential fatty acids with examples.
- Define cholesterol and list its physiological roles.
- Define HDL, LDL and VLDL, their normal serum values and their clinical significance.
- Introduction and types of ketone bodies with their clinical significance.
- Define ketogenesis (synthesis), Ketolysis (utilization) & clinical significance.

Unit: 10 Enzymes

4 Hrs

- Define enzymes.
- Classify enzymes into the seven basic types – oxidoreductases, hydrolases, ligases, transferases, lyases, isomerases, translocase with examples.
- Define different units of enzymes (Katal, IU)
- Define isoenzymes with examples.
 - List isoenzymes of LDH, ALP and CPK and mention their clinical significances.

Unit: 11 Vitamins

2 Hrs

- Define vitamins.
- Differentiate between water soluble and fat-soluble vitamins.
- Classify vitamins – fat-soluble (A, D, E and K) and water-soluble (B and C).
 - List common diseases associated with vitamins deficiency (Keratomalacia, Night blindness, Scurvy, Beri-beri, Rickets, Pellagra, Vitamin B12 deficiency anemia)

Unit: 12 Hormones

2 Hrs

- Define hormones.
- List hormones of each endocrine glands
- List diseases in association with hyper and hypo secretions of different hormones.

Unit: 13 Tumor Markers

1 Hrs

- Define Tumor markers,
- List biochemical tumor markers with their clinical significance [Alpha-fetoprotein (AFP), Beta-human chorionic gonadotropin (Beta-hCG), CA15-3, CA-125, Carcinoembryonic antigen (CEA), CA 19.9, PSA]

Reference Books:

- Textbook of Microbiology –R. Anantnarayan & C.K.J. Panikar
- Biochemistry – U. Satyanarayan
- Medical Parasitology - K.D. Chatterjee MD

- Textbook of Medical Parasitology -Paniker, C.K.
- District laboratory Manual for developing Countries (Volume I and II) -Monica Cheesbrough
- Laboratory Practical Haematology -K. Parajuli

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	Total
Unit hours	5	5	6	5	15	9	6	5	5	4	2	2	1	70
Mark	3	3	3	3	9	5	3	3	3	2	1	1	1	40

Clinical Pathology (Practical)

Practical: 70 Hrs

- Handling of different instruments and equipment used in laboratory.
- Sterilize articles and culture media by using autoclave and hot air oven.
- Prepare chemical disinfectants (alcohol, bleach)
- Perform gram staining.
- Perform AFB staining.
- Collect blood samples for various lab investigations using both syringe and vacutainer system.
- Prepare thin and thick blood smears and stain it.
- Examine reducing sugar and occult blood in the stool.
- Conduct physical, chemical, and microscopic examination of stool samples: naked eye examination, preparation of wet mount smear (saline and iodine) and observation of smear under the microscope for parasites.
- Estimate hemoglobin by Sahli's method.
- Demonstrate TLC, DLC and ESR of blood.
- Demonstrate blood glucose (Fasting, random & Post Prandial) by GOD-POD method.
- Demonstrate Renal Function Test (RFT): Urea, Creatinine, sodium, potassium.
- Demonstrate Liver Function Test (LFT): Bilirubin total and direct, SGPT, SGOT, Alkaline Phosphatase, Total Protein, albumin, Globulin and A: G Ratio
- Demonstrate Lipid Profile: Total Cholesterol, Triglycerides, HDL Cholesterol, LDL Cholesterol, VLDL Cholesterol.
- Demonstrate Cardiac profile: CPKMB, LDH, SGOT, CPK-NAC.
- Demonstrate Thyroid Function Test (TFT): T3, T4 and TSH
- Demonstrate Urine R/M/E.
- Perform ABO blood grouping and Rh Typing.
- Perform Urine pregnancy testing.

Pharmacology and Pharmacy

Total: 4 hours /week
Lecture: 3 hours/week
Tutorial: 0 hour/week
Practical: 0 hours/week
Lab/Clinical: 1 hours/week

Course Description:

This course introduces the student to the rational use of drugs commonly used in Hospitals, health posts, primary health centers, community health units and other health facilities. This course teaches students about the prescribing patterns of drugs and to choose the rational and appropriate drugs for various diseases along with identifying adverse drug reactions and drug interactions. The practical portion focuses clinical case studies on drugs in accordance to diseases, prescribing patterns, adverse drug reactions and drug interactions.

Course Content

Unit 1 General pharmacology

14 Hrs

- Introduction to Pharmacology
- Different terms used in Pharmacology (Clinical Pharmacology, Drug, Drugs, Prodrugs, Orphan Drug, Medicine, Side effects Drug Addiction, Drug Dependence, Toxicology)
- Source Of Drugs
- Nomenclature Of Drugs
- Classification Of Drugs
- Dosage Form
- Introduction to dosage form, excipients, Active pharmaceutical ingredients
 - Definition and its classification of different dosage forms with examples Solid dosage form, semisolid dosage form, liquid dosage form: liquid dosage form for internal and external use and others: aerosol, inhalants, suppositories, pessaries
- Routes of Drug Administration
 - Factors governing route of administration, Classification (local and systemic), Advantage and disadvantage.
- Dose, Loading and Maintenance Dose, Fixed Dose Combination

Pharmacokinetics

- Absorption
 - Introduction, Drug Transport Process, Bioavailability and Its Types, Bioequivalence, Factors Affecting Absorption
- Distribution
 - Introduction, volume of distribution, Plasma protein Binding and its significance & factors affecting drug distribution of drugs.
- Metabolism

- Introduction, Site of Drug Metabolism and Types with Examples(Phase I And Phase II Reactions),First Pass Metabolism, Factors Affecting Metabolism of Drugs
- Excretion
 - Introduction, Routes of Excretion of Drugs, Plasma Half-Life, Clearance,

Pharmacodynamics

- Introduction, Principles and Mechanisms of Drug Action, Drug Affinity, Agonist, Antagonist,
- Drug Response relationship and factor influencing drug response
- General introduction to receptor and its classification (GPCR), Risk benefit ratio, Combined Effect of Drugs.
- Drug Tolerance, types and Mechanism of Development of Tolerance

Unit 2 Drugs acting on Autonomic Nervous System

6 Hrs

- Pharmacological action of Acetylcholine
- Discuss acetylcholine receptors., Adrenergic receptors (location and action).
- Classification indication, side effects, Contraindication, and dose of drug.
 - Parasympathomimetics (Cholinergics): Pilocarpine
 - Parasympatholytics (Anticholinergics): Atropine, Hyoscine Pralidoxime, ipratropium bromide
 - Sympathomimetics (Adrenergics): Adrenaline, Noradrenaline, Dobutamine
 - Sympatholytics (Antiadrenergics): Phentolamine, Tamsulosin, prazosin, timolol

Unit-3 Drugs acting on peripheral nervous system

2 Hrs

- Skeletal muscle relaxant drugs: Tizanidine, Chlorzoxazone,
- Local anesthetics: Lignocaine, bupivacaine,

Unit-4 Drugs acting on Central Nervous system

10 Hrs

- Introduction to General Anesthesia
- Stages Of General Anesthesia
- Classification Indication, Side Effects, Contraindication, Precaution and Dose of General Anesthetics:
 - Nitrous Oxide, Halothane, Ketamine
- Classification mechanism of action indication, side effects, contraindication, and dose of
 - Sedatives-Hypnotics (Benzodiazepines and Barbiturates): Diazepam, Alprazolam, Lorazepam, Clonazepam Phenobarbitone
 - Antiepileptic Drugs: Carbamazepine, Phenytoin, Valproic Acid
 - Antipsychotics and antianxiety: Olanzapine, Haloperidol Chlorpromazine, Chlordiazepoxide
 - Antidepressants drugs and mood stabilizer: Fluoxetine, Escitalopram, Paroxetine, amitriptyline, Lithium salt
 - Management of migraine headache: Ergometrine, Sumatriptan
 - Indication, side effects, contraindication, and dose of
 - Levodopa, Carbidopa, Morphine, Pethidine, Amphetamine, Naloxone

Unit-5 Drugs used in cardiovascular system**10 Hrs**

- Classification mechanism of action, indication, side effects, contraindication, and dose of
 - antihypertensive drugs:
- Diuretics: Hydrochlorothiazide, Furosemide, Spironolactone, Acetazolamide
- ACE inhibitors: Captopril, Enalapril, Ramipril,
- Angiotensin (AT1 receptor) blockers: Losartan, Telmisartan
- Calcium channel blockers: Nifedipine, Amlodipine
- β Adrenergic blockers: Propranolol, Metoprolol, Atenolol
- Classification mechanism of action, indication, side effects, contraindication, and dose of
 - Anti-Anginal Drug: Nitroglycerin (Sodium nitroprusside)
 - Cardiac Glycosides: digoxin (process of digitalization), toxicity
 - Lipid lowering: Atorvastatin, Fenofibrate
- Indication, side effects, contraindication, and dose of
 - Labetalol, Prazosin, Phentolamine, Methyldopa, Mannitol, Vasopressin, Aspirin, Clopidogrel, Heparin, Warfarin, Vitamin K

Unit-6 Drugs acting on Respiratory System**8 Hrs**

- Define the following terms: cough, demulcents, expectorants, antitussives, bronchodilator, asthma, COPD.
- Classification Mechanism of Action, Indication, Side Effects, Contraindication, and Dose of
- Bronchodilators: Salbutamol, Terbutaline, Salmeterol, Theophylline, Ipratropium Bromide
- Leukotriene Antagonists: Montelukast
- Central Cough Suppressants (antitussives): Codeine, Dextromethorphan
- Antihistamines: Chlorpheniramine, Cetirizine, Levocetirizine, Fexofenadine, Promethazine
- Decongestants: Oxymetazoline, Phenylephrine,
- Indication, Side Effects, Contraindication, and Dose of
 - Corticosteroids: (Betamethasone, Mometasone, Fluticasone, Hydrocortisone, Budesonide), Levodropropizine, Omalizumab, Ketotifen, Ammonium Chloride

Unit-7 Hormones and related drugs**10 Hrs**

- Discuss Hormone, Hormone Replacement Therapy, thyroid disorder, diabetes mellitus, contraceptives.
- Mechanism of Action, Indication, Side Effects, Contraindication, and Dose of Thyroxine and Anti-thyroid drugs: Carbimazole
- Discuss Types, pharmacological action, Mechanism of Action, Indication, Side effects, contraindication and Dose of Insulin,
- Classification, Mechanism of Action, Indication, Side Effects, Contraindication, and Dose of Anti-diabetic drugs: Glipizide, Glimeperide, Sitagliptin, Linagliptin, Metformin, Pioglitazone, Voglibose
- Pharmacological Actions, Indication, Side effects, contraindication, precaution and dose of Corticosteroids: Prednisolone, Methylprednisolone, Dexamethasone,

- Pharmacological Actions, Mechanism of Action, Indication, Side effects, contraindication precaution and dose of Oxytocin
- Indication, Side effects, contraindication precaution and dose of
 - Androgen and its anti-androgen: Testosterone, Finasteride, Danazol
 - Progestins and anti-Progestin: Progesterone; - [Depo-Provera (medroxyprogesterone)], Mifepristone
 - Estrogen, and antioestrogens: Clomiphene, Tamoxifen
 - Discuss Hormonal Contraceptives: OCP, Injectable and implants.

Unit -8 Drugs used in Gastrointestinal System

6 Hrs

- Classification, Mechanism of Action, Indications, Side Effects, Contraindications and Dose of Drug used in Peptic Ulcer
 - H₂ antihistamines: Ranitidine, famotidine
 - Proton Pump Inhibitors: Pantoprazole, Rabeprazole, Esomeprazole, Ilaprazole, omeprazole
- Discuss about Triple Drug therapy for Treatment of Peptic Ulcer
- Classification, Mechanism of Action, Indications, Side Effects, Contraindications and Dose of
 - Metoclopramide, Domperidone, Ondansetron, Promethazines
- Classification, Mechanism of Action, Indications, Side Effects, Contraindications and Dose of Drug used in Constipation:
 - Ispaghula husk, Bisacodyl, Lactulose, Sorbitol
- Indications, Side Effects, Contraindications and Dose of
 - Antacids (Magnesium hydroxide, Aluminium hydroxide, Sodium Bicarbonate), Sucralfate, Ipecacuanha, Itopride, Loperamide, Hyoscyamine, sulfasalazine,
- Oral Rehydration therapy and WHO recommended formula of Oral Rehydration Solution (ORS)
- Electrolyte Rehydration Therapy, Composition and indications for Normal Saline, Ringer Lactate, Dextrose Normal Saline (DNS)

Unit: 9 Antimicrobial Drugs

16 hrs

- Define the following terms Antibiotic, Superinfection, Bacteriostatic and Bactericidal
- Discuss Antibiotic resistance, and prevention of resistance.
- Different Mechanism action of Antibiotics
- Antibiotic Spectrum
- Rationale of Combinations of antibiotic
- Classification of Antibiotics on the basis of Mechanism of action
- Classification, Mechanism of Action, Indications, Side Effects, Contraindications, precaution and Dose of
 - β-lactam antibiotics
- Penicillin: Benzyl penicillin, Ampicillin, flucloxacillin, Amoxycillin, Cloxacillin
- Cephalosporins: Cefadroxil, Cefuroxime Axetil, Cefixime, Ceftriaxone, Cefotaxime, Cefodoxime
- β-lactamase inhibitor: Clavulanic acid, Tazobactam
- Macrolides: Azithromycin, Clarithromycin, Clindamycin

- Tetracycline: Tetracycline Hcl, Doxycycline, Minocycline
- Chloramphenicol
- Aminoglycosides: Streptomycin, Gentamycin, Amikacin, Neomycin, Tobramycin
- Quinolones and Fluoroquinolones: Ciprofloxacin, Norfloxacin, Levofloxacin, Ofloxacin And Nitroimidazole
- Sulfonamides: Silver Sulfadiazine, Cotrimoxazole
- Antitubercular drugs: Rifampicin, Isoniazide, Pyrazinamide, Ethambutol, Streptomycin, Ethionamide, PAS
- Antileprotic Drug: Dapsone, Clofazimine
- Antiamoebic Drugs: Metronidazole, Tinidazole, Secnidazole and Diloxanide Furoate
- Anthelmintic Drugs: Mebendazole, Albendazole,
- Antifungal Drugs: Griseofulvin, Fluconazole, Ketoconazole, Itraconazole, Luliconazole, Salicylic Acid, Terbinafine
- Antimalarial Drugs: Chloroquine, Primaquine, Artemesin
- Antiviral drugs: Acyclovir, Zidovudine
- Miscellaneous: Mupirocin, Fusidic Acid, Nitrofurantoin, Meropenem, Amphotericin-B, DEC, Sodium Stibogluconate
 - Anti-Cancer drugs
 - General principle for handling anti-cancer drug.
 - Classification, Mechanism of Action, Indications, Side Effects, Contraindications and Dose of Anti-cancer Drugs: Methotrexate, Doxorubicin, Paclitaxel
 - Indications, Side Effects, Contraindications and Dose of Cyclophosphamide, Bleomycin, Vincristine, Cisplatin

Unit 10: Nonsteroidal Anti-inflammatory Drugs (NSAIDs)

3 hrs

- Definition of pain, pyrexia, inflammation, analgesics, antipyretics
- Classification, Mechanism of Action, Indications, Side Effects, Contraindications and Dose of
 - NSAIDs: Aspirin, Paracetamol, Ibuprofen, Naproxen, Ketorolac, Indomethacin, Mefenamic acid, Nimesulide, Diclofenac, Aceclofenac, etoricoxib
 - Anti-gout Drugs: Colchicine, Allopurinol, febuxostat

Unit 11 Vaccines, Antisera and Immunoglobulin

5Hrs

- Vaccine: Definition, Importance, and its types with examples.
- Antisera: Definition, Importance and its types with examples.
- Immunoglobulin: Definition and its types with examples.
 - Type, dose, indications, time of administration, adverse effect of: BCG, DPT, OPV, MR-Vaccine, TT, hepatitis-B, J.E., TCV, cholera, Antitetanic serum (ATS), ASV, Anti-Rabies serum (ARS), Anti-D Immunoglobulin, Covid-vaccines, FIPV, HPV

Unit 12 Nutritional Supplements: Vitamins and Minerals

2Hrs

- Definition of vitamins and classification of vitamins as Fat-Soluble and Water-Soluble Vitamins.
- Source, deficiency syndrome, therapeutic use of vitamin A, B, C, D, E

- Definition of Mineral & Source, Deficiency syndrome, therapeutic use of Calcium, Potassium, Magnesium, Iron

Unit 13 Locally Acting drugs

4 Hrs

- Definition of Local Route, Local Application, Local Anaesthetic, Germicide, Keratolytic Agent, Soothing Agent, Astringent and Oxidizing Agents, Scabies and Pediculosis
- Indications, Contraindications, Adverse effect, Dose of Gentian Violet, Mercurochrome, Acriflavin, Potassium Permanganate, Zinc Permanganate, Aromatic Water, Spirit, Calamine Powder, Zinc Oxide, Zinc Sulphate, Calamine Lotion, Sulfur, Benzoic Acid, Whitfield Ointment, Benzyl Benzoate, Chlorhexidine, Cetrimide, Chloroxylenol and Iodine, Nystatin, Clotrimazole.

Unit 14 - Clinical Pharmacy

8 Hrs

- Pharmacy, Clinical Pharmacy, role and responsibilities of clinical pharmacy
- Concept of Essential drug and their list
- Definition, aims, importance of patient counseling.
- Concept of Patient Compliance
- Definition and step involved in drug dispensing.
- Prescription and its components including Pharmaceutical Abbreviations used.
- Hospital Formulary and its importance
- Hypersensitivity reactions and its classification
- Pharmacovigilance and pharmacovigilance centers in Nepal.
- Drug interactions and types.
- Adverse Drug Reactions and various classification
- Teratogenic drugs (Teratogenicity) with example
- Guidelines for safe use of drug in pregnancy and Pregnancy category of drugs according to WHO
- Therapeutic Drug monitoring
- Drug and therapeutic committee.
- Standard Treatment Guidelines
- Child Dose Calculation

Unit 15 Drug Regulation

1 Hrs

- Introduction to Drug Act 2035
- Introduction to Narcotic control Act
- Drug Standard regulation, 2043- Group Ka, Group Kha, Group Ga (Classification of Drugs)
- Drugs banned in Nepal and the Reason of drug banning.

Reference Books:

- Katzung Basic and Clinical Pharmacology, Published by McGraw- Hill Medical, India, Current Edition
- Goodman G. A, Rall, T.W, Nies A.I.S, Taylor P. Goodman and Gilman's The pharmacological Basis of therapeutics. McGraw Hill, Pergamon press
- Craig, C.R, Stitzel R.E. Modern Pharmacology. Little Brown Co.

- Tripathi, K.D., Essentials of Medical Pharmacology. Published by Jaypee Br. , New Delhi. Current edition.
- Satoskar, R.S. et al. Pharmacology and Pharmacotherapeutics. Published by Popular Prakashan, Mumbai.or current edition.
- Laurence, D.R., et al., Clinical Pharmacology 8th ed.Published by Churchill Livingstone, London. current edition.
- Rang H.P, Dale M.M. Pharmacology. Churchill Living stone.
- Satoskar R.S, Bhadarkar S.D. Pharmacology and pharmacotherapeutics. Popular, Dubai.
- Handbook for Drug Retailers and Wholesalers. Produced by Government of Nepal, Department of Drug Administration. current edition.
- Dr. Satish Kumar Deo, *Deo's Basics of Clinical Pharmacology, First Edition*, Published by:. Ultimate Hi-Tech Press (P.) Ltd., Lazimpat, Kathmandu

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
Unit hours	14	6	2	10	10	8	10	6	16	3	5	2	4	8	1	105
Marks	10	2	2	10	10	5	10	5	10	2.5	2.5	2	2	5	2	80

Clinical Pharmacology and Pharmacy (Practical)

Practical: 35 Hrs

- Prepare of Drug profile (at least 10)
- Prepare gentian violet, Mercurochrome, potassium permanganate solution according to accepted formula-
- Prepare Whitfield and sulfur ointment according to accepted formula.
- Prepare Calamine lotion according to accepted formula.
- Prepare Lugol's solution and tincture of iodine according to accepted formula.
- Prepare antacid according to accepted formula.
- Prepare tooth powder according to accepted formula.
- To prepare and submit gargle.
- Dose calculation according to age, body weight and body surface area.
- Case Study.
 - Hypertension
 - Depression
 - Diabetes Mellitus
 - Thyroid Disorder
 - Asthma and COPD

Environmental Health (Theory)

Total: 4hours /week

Lecture: 3 hours/week

Tutorial: 0 hour/week

Practical: 0 hours/week

Lab/clinical: 1 hours/week

Course Description:

This course introduces the student to the specialized skill and knowledge needed to provide environmental health services. The content is taught using classroom instruction and practical experiences in community-based programs and primary health care services during field practice at the Health Post and home visits. This course includes information about the relationship between environment and health, water resource management and conservation, waste management, food hygiene, healthful and sanitary housing, air quality management, control of rodents, arthropods and insects, occupational health, climate change.

Course Objectives:

At the end of the course, the learner will be able to:

- Describe the relationship between the environment and health and show the impact of environment on health.
- Describe water resources conservation and water quality management.
- Explain proper waste management in urban and in rural areas.
- Describe how to maintain food hygiene.
- Describe standards of safe housing and effects of poor housing.
- Explain air pollution and its management.
- Describe methods of controlling rodents, arthropods and insects.
- Identify occupational diseases and strategies for their prevention.
- Describe climate change.

Course Contents

Unit 1: Environmental Health Concepts

6 Hrs.

- Definition of Terminologies
 - Definition of Environment, Environmental Health, Environmental Sanitation and Environmental Pollution.
 - Examples of environmental health, sanitation and pollution.
 - Describe the relationship between environment and health.
- Environmental hazards and effects
 - Definition of environmental hazards
 - Types of hazards
 - Describe the effects due to chemical Hazard.
- Climate Change
 - Climate change and its causes.

- Effects of climate change on health.

Unit 2: Water

14Hrs.

- Water
 - Safe and wholesome water.
 - Uses of water
 - Domestic use
 - Public purpose
 - Industrial purpose
 - Agriculture purpose
 - Power production
 - Tourism
- Source of water
 - Sources of water
 - Rain
 - Surface water
 - Ground water.
 - Shallow wells
 - Deep wells
- Water pollution
 - Definition of water pollution and water contamination
 - Causes of water pollution and different types of pollutants.
 - Physical
 - Chemical
 - Biological
 - Name types of disease
 - Water borne.
 - Water based.
 - Water related.
 - Water washed.
 - Disease due to chemical
 - Describe the preventive measure of water pollution.
 - Arsenic water pollution in Nepal: - Affected area and problem.
- Purification of water
 - Water purification in large scale & small scale
 - Household water purification
 - Boiling
 - Household water purifier: - Filtration, Reverse osmosis, total dissolve substance reduction (TDSR) and UV.
 - Chemical
 - Filtration
 - SODISH
 - Disinfection of well
 - Large scale water purification
 - Slow sand filtration
 - Rapid sand filtration
 - Features of sanitary well

- Water quality
 - Water quality standards in regarding.
 - Physical quality
 - Chemical quality
 - Biological quality
- Drinking water programs in Nepal
 - Drinking water program of both rural and urban area with examples.
 - Coverage and access of safe drinking water in Nepal.

Unit 3: Waste

20 Hrs

- Introduction of waste
 - Types of waste with examples
 - Solid waste
 - Liquid waste
 - Hazardous waste
- Solid waste
 - Definition of solid waste
 - Types of solid waste
 - Differentiate between biodegradable and non-biodegradable waste.
- Solid waste Management
 - Minimizing waste 3R concept:
 - Reduce waste.
 - Reuse waste.
 - Recycle waste.
 - Process of waste disposal
 - Collection
 - Storage
 - Transportation
 - Ultimate disposal
 - Management of waste disposal
 - Sanitary land filling
 - Dumping
 - Composting
 - Incineration
 - Burial pit
 - Manure pit
- Hazards of solid waste
 - Health hazards and environmental hazards from unhygienic or careless disposal of solid waste.
- Hospital waste management
 - Hospital waste
 - Classify hospital waste.
 - Describe health hazards due to hospital waste.
 - Management of hospital waste
 - separation of waste
 - using incineration
 - management of mercury

- Hospital waste management guideline according to WHO
- Excreta disposal in the community
 - Fecal borne diseases.
 - Sanitary barrier.
 - Methods of excreta disposal
 - Unsewered areas
 - Sewered areas
 - Excreta disposal ways in public places and transportation.
 - Features, structure, advantages and disadvantages of Water sealed latrine.
- Liquid waste management
 - Sources and components of liquid waste
 - Liquid waste management:
 - Household/Institution level
 - Biogas plant with structure
 - Septic tank.
 - Others:
 - Soak well.
 - Seepage pit
 - Kitchen garden
 - Dispersion trench
 - Wastewater treatment plant.

Unit 4: Food hygiene

20 Hrs.

- Food hygiene
 - Define food hygiene.
 - Describe the different types of food hygiene.
 - Discuss rules for food handling which ensure sanitary, hygienic conditions of eating places.
 - Discuss government responsibility and authority for evaluating sanitation of public eating places and food preparation industries.
- Food borne diseases.
 - Discuss the incidence of food poisoning.
 - Identify common food borne diseases.
 - Identify foods which carry a high risk of containing toxins.
 - Give examples of bacterial, plant, and chemical poisons, which are ingested with food.
 - Differentiate between food borne infections and bacterial food poisoning.
 - Food borne disease:
 - Food intoxication
 - Food infection.
 - Food intoxication (food poisoning)
 - Bacterial food poisoning
 - Plant poisoning.
 - Chemical poisoning
 - Food borne infection.
- Sources of food contamination.

- Define food contamination.
- Sources of food contamination
 - Human factors
 - Environmental factors.
- Food Preservation.
 - Define food preservation.
 - Identify purpose of food preservation.
 - Describe different methods of food preservation.
 - Drying
 - Smoking
 - Cooking
 - Pickling
 - Fermentation
 - Pasteurization
 - Parboiling
 - Refrigeration/freezing
 - Canning & bottling
 - Discuss the role of the health post manager in community education about safe food preservation.
- Food additives, food fortification and food adulteration.
 - Define food fortification.
 - Explain the importance of food fortification.
 - Explain different food fortification practices in Nepal.
 - Define food additives and describe different types of food additives.
 - State the hazards of using food additives.
 - Define food adulteration and discuss its hazards.
 - Describe different food adulteration practices in Nepal.
 - Differentiate between food fortification, food additives and food adulteration.
- Milk hygiene.
 - Define milk hygiene.
 - Identify milk borne diseases.
 - Describe the processes/components of milk hygiene.
 - Healthy animal
 - Hygienic milking
 - Preliminary treatment
 - Pasteurization
 - Methods of Pasteurization
 - Holder method
 - High Temperature and Short Time (HTST) method
 - Ultra-High Temperature (UHT) method
 - Handling before consumption.
- Meat hygiene.
 - Introduction to meat hygiene.
 - Identify meat borne disease.
 - Describe the process of meat inspection.
 - State the characteristics of sound & unsound meat.

- Identify the requirements for safe storage of meat.
- Describe the minimum standards of slaughterhouse.

Unit 5: Housing

10 Hrs

- Concepts of housing.
 - Definition of housing, human settlement, residential environment and slum.
 - Social goals of housing.
 - Types of housing.
- Housing standards
 - Define the term “standards.”
 - Describe criteria for healthy housing.
 - Describe important housing standards used in urban areas.
 - Explain how housing standards can help improve living conditions.
 - Discuss the health hazards of housing which lacks good ventilation and lighting.
 - The state accepted standards with respect to overcrowding.
 - Describe the housing standards used in rural areas and explain why these are different from urban housing standards.
- Housing, Health and National Housing Policy
 - Discuss the increased health risks to people who live in sub-standard housing.
 - Describe the negative effects which poor housing has on a person’s social and psychological health.
 - Describe current National Housing Policy.

Unit 6: Air

6 Hrs.

- Air pollution.
 - Describe air and its composition.
 - Define air pollution.
 - Describe sources of air pollution.
 - Describe indicators of air pollution.
 - Describe effects of air pollution on health and society.
 - Identify people who are at risk when air pollution is high.
 - Analyze the air pollution in your own community.
 - Describe measures for the prevention and control of air pollution.
- The major issue is air pollution.
 - Definition, causes and effects of
 - Greenhouse effects
 - Ozone layer depletion
 - Acid rain.
 - Global warming

Unit 7: Noise pollution

5 Hrs.

- Noise and radiation pollution
 - Definition of noise pollution
 - Safe noise level
 - Sources of noise pollution
 - Effects of chronic exposure to noise.
 - Preventive and control measures of noise.
 - Sources, types, effects, and protection from radiation exposure.

Unit 8: Rodentology

6 Hrs.

- Rodents and their effects
 - Define rodentology.
 - List out rodents borne diseases.
 - Describe economic destruction by rodents.
 - Describe preventive and control measures of Rodent.
- Rodents Control Measures.
 - Describe rodents control measures.
 - Identify the advantages of each method.
 - Describe the role of the health post manager in community efforts to control rodents.
 - Rodents control measures:
 - Environmental Sanitation
 - Trapping
 - Rodenticides
 - Fumigation
 - Chemosterilants
 - Biological Control
- Role of health post manager in community efforts to control rodents.

Unit 9: Entomology

5 Hrs.

- Introduction to Entomology.
 - Define entomology and medical entomology.
 - Identify characters of arthropods of medical importance.
 - Identify arthropods and insect borne diseases.
 - Describe the transmission of each of the common arthropod/insect borne diseases.
 - Modes of transmission:
 - Direct contact
 - Mechanical transmission
 - Biological transmission
 - i. Propagative
 - ii. Cyclo-propagative
 - iii. Cyclo-developmental
- Describe the measures to control arthropods.
- Identify the actions of different types of insecticides and repellents.

Unit 10: Occupational Health

10 Hrs.

- Occupational health
 - List the common occupational diseases in Nepal.
 - Different types of occupational Diseases
 - a. Diseases due to physical agents.
 - b. Diseases due to chemical agents.
 - c. Diseases due to biological agents
 - d. Occupational dermatitis
 - Describe three forms of prevention of occupational diseases and give an example of each.
 - a. Medical Measures
 - b. Engineering measures

c. Legislation

- Analyze different occupational hazards which occur in your own community.
- Describe the role of the health post manager in preventing occupational diseases.

Reference Books:

- Park's Textbook of Preventive and Social Medicine, by K. Park. Published by M/S Banarasidas Bhanot, Jabalpur, India. Current edition.
- United Nations Environment Program (UNEP) Publications International Center for Integrated Mountain Development, (ICIMOD) Publications
- State of Environment, Published by ICIMOD

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	8	9	10	Total
Unit Hours	6	14	20	20	10	6	5	6	10	8	105
Marks	5	10	15	15	8	5	4	4	8	6	80

Environmental Health Practical

Practical: 35 Hrs

Perform all the tasks given below.

- Disinfection of well using bleaching powder.
- Chlorination of water by using chlorine solution and chlorine tablets
- Demonstration of chlorine test in a sample of water
- Observe household water purification by candle filter/Ceramic filter.
- Draw a structural diagram of sanitary latrines and biogas plant.
- Field trip for water treatment plant at municipal level large scale
- Observation of safe insecticide spray for arthropod control
- Field trip for observation of municipal waste disposal system
- Dumping, Burial and Burning of solid waste.
- Observation of a slaughterhouse or a meat shop at local community
- Dairy observation, manufacturing industry visit

Health Education (Theory)

Total: 4hours /week
Lecture: 3 hours/week
Tutorial: 0 hour/week
Practical: 0 hours/week
Lab/Clinical: 1 hours/week

Course Description:

This course is designed to teach the educational aspects of public health management, which is an indispensable component for preventive health, a chief responsibility of the health post manager. The course teaches the concepts and theories of health behaviors and the procedure for planning, implementation and overall management of health education programs. The aim of this course is to develop the necessary skills for effective application of health education at the health post level.

Objectives:

Upon completion of the course the learner will be able to:

- Appreciate the significance of health education and health promotion in preventive, promotive, curative and rehabilitative health care.
- Identify and apply the theories and principles of health behavioral sciences in the process of health education.
- Identify, select and utilize suitable health education and health promotion methods and media for successful implementation of health service programs.
- Plan, implement and evaluate health education and health promotion programs.

Course contents:

Unit 1: Introduction to Health Education

18 Hrs

- Overview of health education
 - Meaning and definition of health
 - List the factors that influence health.
 - Meaning and definition of health education
 - Key point from definition
 - Knowledge,
 - Attitude,
 - Skill and behavior
 - Approaches to Health Education
 - Describe objectives and importance of health education.
 - Enlist aims and purposes of health education
 - Role of health education in preventive, promotive, curative and rehabilitative health services

- Principles and scope of health education
 - Describe principles of health education
 - Describe scope of health education
 - Identify significance of health education
 - Enlist persons responsible for health education.

Fundamental Factors of Health Education

Unit 2: Perception

3 Hrs

- Meaning and definition of perception
- Describe perception process.
- Describe elements of perception
- Describe factors affecting perception.

Unit 3: Learning

8 Hrs

- Meaning and definition of learning.
- Explain different ways/Techniques of learning and their effectiveness.
- Describe steps of learning process
- Describe factors affecting learning.
- Describe Ralph Gary's principle of learning.
- Describe theories of learning
- Explain Bloom's Taxonomy of learning domains.

Unit 4: Change process

4 Hrs

- Concept of change and change process.
- Describe theories of change process
- Describe ways of bringing change
- Define resistance to change.
- Discuss ways of overcoming the resistances.

Unit 5: Motivation

10 Hrs

- Meaning and definition of motivation
- Discuss nature and technique of motivation.
- Describe factors affecting motivation.
- Describe theories and Principles of motivation.
- Explain the importance of motivation in health education.

Unit 6: Communication

6 Hrs

- Meaning and definition of communication.
- Explain types, scope and importance of communication.
- List out elements of communication.

- Describe principles of communication.
- Explain barriers of communication
- Describe different models of communication.
- The concept of behavior change communication.

Unit 8: Methods of Health Education

12 Hrs

- Meaning and importance of health education methods
- Meaning, feature, use, advantages, disadvantages and limitations of various
- Types of health education methods:
 - Individual method: Interview, Counseling
 - Group methods: Group discussion, Demonstration, Role play, Field trip, brainstorming, symposium, workshop, mini-lecture and buzz session.
 - Mass methods: Lectures, Exhibition and Campaign
- Describe criteria for the selection of appropriate methods.

Unit 9: Media of Health Education

6 Hrs

- Meaning, needs and importance of media of health education.
- Meaning, feature, uses, process of preparing/ production, use, advantages, disadvantages and limitations of various types of health education media:
 - Audio media: Radio cassette player.
 - Visual media: Poster, pamphlet, flip chart, model, real objects, bulletin board, wall chart, flannel graph.
 - Audio visual media: Film, Television, multimedia projectors, video
- Describe measures to use each media effectively.
- Describe Criteria for the selection of media.

Unit 10: Planning of Health Education Programmes

12 Hrs

- Definition, concept and importance of planning of health education programme.
- Describe steps of planning of health education programme

Unit 11: Implementation of Health Education Programmes

4 Hrs

- Definition, concept and importance of Implementation of Health Education Programmes.
- Describe the strategies of implementation.

Unit 12: Evaluation of Health Education Programmes

14 Hrs

- Definition, concept and importance of evaluation of Health Education Programmes.
- Describe the stages and types of evaluation.
- Describe Types. Methods, process and criteria of evaluation:

Unit 13: Health Promotion

8 Hrs

- Definition and concept of health promotion
- Scopes and principals of health promotion

- Overview the health promotion strategies and actions as proposed by Ottawa Charter
- Overview the Jakarta declaration on health promotion with five priorities for health promotion in the 21st century.

References Books

- Pradhan, H.B., A textbook of Health Education and Health Promotion: Philosophy, Principles and Methods; Educational Publishing House, Kathmandu. Recent Publication
- Pathak, R.P. and Giri, RK: A Textbook of Public Health and primary Health Care Development, Vidhyarthi Prakasan (P) Ltd. Recent Publication
- Park, J.E. and Park, K., Textbook of Social and Preventive Medicine, M/S Banarsidas Bhanot Publishers, Prem Nagar, Jabalpur, India, Recent Publication
- Ramchandran, L. and Dharmalig T. Textbook of Health Education, Bikash publishing House Pvt.Ltd. 1983.
- Shrestha, D.B and Pradhananga, YP., Samudaya Swasthya Shikshyako Ruprekha. Kathmandu: Educational Publishing House
- Sapkota, S.P and Pahari D.P. A Textbook of Health Promotion and Education Vidyarthi Prakashan (P.) LTD. 2013
- Aswin Acharya and Sunny Yadav Textbook of Health Education Akshav Publication

Final written exam marking scheme.

Unit	1	2	3	4	5	6	8	9	10	11	12	13	Total
Unit Hours	18	3	8	4	10	6	12	6	12	4	14	8	105
Marks	14	2	6	3	8	5	9	5	9	3	10	6	80

Health Education (practical)

Practical 35: Hrs

- Apply the planning, implementation and evaluation process to develop a
- Health education program for a selected health problem
- Make a health education plan on any of the health problems in the community.
- Collect health education materials from different organizations.
- Prepare material for use of multimedia.
- Prepare a Poster
- Prepare a pamphlet.
- Prepare a flip chart.
- Prepare a leaflet.
- Perform a role play in a classroom setting.
- Plan and conduct an exhibition at college settings.
- Plan and conduct workshops at college settings.
- Perform Group discussion in classroom settings.
- Perform Demonstration in classroom settings.
- Perform lecture/ instruction in classroom settings.
- Perform interviews in classroom settings.
- Perform counseling in classroom settings.

Primary Health Care/Family Health (Theory)

Total: 5 hours /week

Lecture: 3 hours/week

Tutorial: 0 hour/week

Practical: 0 hours/week

Lab/Clinical: 2 hours/week

Course Description:

This public health course is organized into five units. The first unit provides an overview of primary health care including primary health care services in Nepal. It also teaches the basic concepts of health and health care of populations. The second unit addresses current issues and concepts in nutrition, related to health. In the third unit major health issues of mothers and children are taught, the problems and the solutions. In unit four the principles and applications of family planning services are discussed in full. Unit five presents the foundations of applied population science, including mathematical calculations of data. The practical components are taught in Maternal Child Health and Family Planning clinics and during community field practicum at Primary Health Care Centers and Health Posts.

Course Objectives

Upon completion of this course the student will be able to:

- Discusses the fundamental concepts of health and health care.
- Identify principles and strategies of Primary Health Care and PH.C. services.
- Summarize the components of a nutritious diet and the health consequences of deficiencies.
- Assess the nutritional status of an individual or a community and solve common nutritional problems of public health importance through Primary Health Care activities.
- Identify common maternal child related problems found in Nepal and resolve these through implementation of Nepal Government programs at the Health Post level.
- Counsel clients for family planning services by assessing client needs, assisting with appropriate choice, teaching and providing materials for family planning, and arranging for follow up service.
- Implement Nepal Government Family Planning Programme from the health post level.
- Calculate common demographic indicators such as population growth, rate, population pyramid.
- Illustrate the effects of population overgrowth in its different aspects.
- Identify measures for controlling population overgrowth and conduct population education at the community level.

Course Content

Unit 1: Primary Health Care (PHC)

15Hrs

- Health care of people: Concept of health
 - Concept of health given by WHO.
 - Physical, mental and social dimensions of health.
 - Characteristic features of physically, mentally and socially healthy person
- Health care of people: determinants of health
 - Determinants of health.
 - Relationships between disease and the determinants of health with examples
 - Scope of health care: promotive, preventative, curative, rehabilitative.

- Level of health care: primary, secondary and tertiary
- Functions and goals of public health.
- Concept of prevention
 - Levels of prevention with examples
- Health care of people: indicators of health
 - Different types of health indicators.
 - Uses of health indicators.
- Health profile of Nepal.
 - Primary Health Care and Health for All
 - Principles and goals of the “Health for All” program.
 - Health as a right for all citizens.
 - History and elements of Primary Health Care.
 - Relationship between Health for All and Primary Health Care.
 - Scope of PHC services.
 - Components of essential health care service in Nepal.
- PHC related national health programs in Nepal
 - Community participation in PHC
 - Concept of community participation.
 - Importance of community participation.
- Components of community participation.
 - Major challenges of PHC in context of Nepal.
 - Population overgrowth
 - Malnutrition
 - Poor environmental sanitation
 - Infectious diseases
 - Economic status
 - Educational status
 - Gender discrimination
 - Health service delivery
 - Infrastructures

Unit: 2 Nutrition

20Hrs

- Nutrition
 - Definition of nutrition
 - Relationship between nutrition and health
 - Growth and development
 - Specific deficiencies
 - Resistance to infection
 - Mortality and morbidity
- Main function of food
 - Provision of energy
 - Body building and repair
 - Maintenance and regulations of tissue functions
- Nutrients
 - Definition, functions, classification, sources, deficiencies diseases
 - Macro nutrient: Protein, fats and carbohydrate
 - Micronutrient: Vitamins and minerals

- Meaning of balanced diet
- Food security- Policy of Government of Nepal
- Food adulteration
 - Define food adulteration.
 - Various food adulteration practices
 - Public health significance of food adulteration
 - Food act and laws
- National Nutrition programme
- Assessment of nutritional status.
 - Methods for assessment of nutritional status:
 - Clinical examination
 - Anthropometry
 - Biochemical method
 - Dietary survey.
 - Interpretation of anthropometry.
 - Interpretation of biochemical tests used to assess nutritional status.
- Under and over nutrition
 - Definitions
 - Vicious cycle of malnutrition.
 - Effects of malnutrition and over nutrition
 - Classification of malnutrition.
 - Control and prevention of malnutrition and over nutrition in community.
- Nutritional problems of public health
 - Identify fetal abnormalities and maternal risks associated with malnutrition before and during pregnancy.
 - Magnitude of problem, distribution and risk groups for LBW, PEM, Vitamin A deficiency, nutritional anaemia and iodine deficiency disorders.
- Nutrition education and food taboos and myths
 - Definition of nutrition education
 - Benefits of nutrition education
 - Contents that should be emphasized in nutrition education.
 - Reasons for poor nutritional status of woman in Nepal.
 - Prevailing food taboos and myths in Nepal.
- Weaning
 - Concept of weaning.
 - Time and process of weaning
 - Preparation and frequency of feeding weaning recipes from locally available foods: Sarbottampitho, satu, roti, jaulo, khichari and lito
 - Common problems of weaning and their management

Unit 3: Maternal and Child Health

10Hrs

- Introduction of Maternal and Child Health
 - Rationale of MCH services
 - Factors contributing to the vulnerable health status of women and children.
 - Mortality rates

- Percent of population
- Physical and physiological stress
- Susceptibility of disease
- Immunity
- Gender discrimination
- Definition and scope of MCH
- Maternal mortality
 - Incidence and trends in maternal mortality.
 - Estimation of maternal mortality rate
 - Causes of maternal mortality and morbidity.
- Safe motherhood
 - Concept of safe motherhood.
 - Scope of maternity care.
 - Antenatal, delivery, postnatal and newborn care at health post level as recommended by national maternity care guidelines.

Unit 4: Reproductive Health

2Hrs

- Concept of reproductive health.
- Scope of reproductive health.
- Activities of reproductive health at HP, and PHCC level.

Unit 5: Immunization

20Hrs

- Immunization
 - Immunity
 - Definition
 - Classification of immunity
 - Natural immunity
 - Acquired immunity.
- National Immunization Programme (NIP)
 - Introduction, types of immunization, target, indication/contraindication, route, side effects and national immunization schedule o BCG, DPT-HepB-Hib, Oral polio vaccine (OPV), Inactivated polio vaccine (IPV), Pneumococcal conjugate vaccine (PCV), Measles-Rubella (MR), Japanese Encephalitis (JE), Low dose Diphtheria Toxoid (Td), Human Papilloma Virus (HPV)
 - Health teaching for mothers/parents and pregnant women
 - Concept of immunization.
 - Effects on morbidity/mortality due to immunization efforts.
 - Immunization schedules.
 - Doses, route of administration and common adverse effects.
 - Consequences of improper vaccine storage.
 - Cold Chain methods.
- Preventive and control measures for child morbidity and mortality
 - Measures for reducing child morbidity and mortality:
 - ANC
 - Immunization
 - Growth monitoring
 - Breast feeding

- Family planning
- Female education
- Proper management of acute respiratory infections and diarrheal diseases.
- Newborn care
- Environmental sanitation
- Health education

Unit 6: Family Planning

18Hrs

- Family Planning
 - Definition family planning
 - Health aspects of family planning
 - Women's health and women's empowerment
 - Perinatal health
 - Infant and child health
- Population problems and need for family planning in Nepal.
 - Definition of Contraception, Contraceptive
 - Types/methods: Modern and traditional contraceptive methods - Modern Contraceptive methods: Short-acting contraceptives, long-acting reversible contraceptives (LARC), and permanent methods - Traditional contraceptive methods: Natural methods
 - Mechanism of action
 - Impact of high fertility
 - Advantages and disadvantages
 - Family planning service and programme available in Nepal
- Use of "ABHIBADAN" for family planning counseling
 - Definition of FP counselling
 - Principles, Benefits
 - ABHIBADAN Process (GATHER)
 - Approach for FP counseling.
 - Process of counselling using ABHIBADAN process
 - Counselling skill in informed choices process
 - Temporary and permanent methods of family planning.
- Temporary modern contraceptive methods: Introduction, advantages, disadvantages, action, side effect, management and referral
- Short acting contraceptive - Condom (Male and female) - Oral contraceptive pills - Injectable hormones - Spermicides: Foam tab, jelly and paste - Mechanical methods: Diaphragm and cervical caps
- Long-action reversible contraceptive (LARC) methods - Intrauterine contraceptive devices (IUCD) - Mechanical and chemical combination - Physiological - Norplant implant
- Traditional contraceptive methods
 - Behavioral methods: Coitus interrupt, safe period, basal, body temperature, calendar method, LAM
- Permanent contraceptive methods/voluntary surgical sterilization
 - Introduction, advantages, disadvantages, action side effects
 - Minilap/Tubectomy
 - Vasectomy,

- Laparoscopy /Laparatomy
- Emergency Contraception
 - Indication and Type
 - Administration and follow up.
- Post abortion contraception.
- Contraception for adolescent and women of above 35 Years
- • Health education

Unit 7: Demography

20Hrs

- Introduction of Population Science
 - Definition of population science/demography.
 - Demographic processes.
 - Population composition:
 - Principal measurements.
 - Estimation of sex ration
 - Construction and interpretation of different types of population pyramid.
 - Population pyramid of Nepal
 - Population profile of Nepal. (size, distribution, growth and composition)
- Population distribution, population size
 - Common measurements of population distribution.
 - Population distribution of Nepal.
 - Word population size and trend of population growth
 - Size and trend of population growth of Nepal.
 - Comparison of population growth between developed countries and Nepal.
- Population Growth
 - Positive and negative aspects of population growth.
 - Calculation of annual population growth rate.
 - Formula for assessing population doubling time.
- Effects of population overgrowth
 - Definitions and concepts of overpopulation
 - Classification of population growth rates.
 - Effects of population overgrowth on economy and per-capita income, health, education and environment.
- Population growth control
 - Principles and methods for the application of measures of population growth control.
 - Family planning services
 - Late marriage.
 - Women's empowerment
 - Economic development
 - Economic rewards and penalties
 - Regulation of migration
 - Population education
- Population education in community
 - Concepts of population education.
 - Components of population education for community people.
 - Scope of population education for specific social settings.

Reference Books:

- Park's Textbook of Preventive and Social Medicine, by K. Park. Published by M/S Banarasidas Bhanot, Jabalpur, India. Current edition.
- Child Nutrition and Health by Ramesh K. Adhikari & Miriam E. Krantz. Published by Health Learning Materials Center, Tribhuvan University, Institute of Medicine, Kathmandu, Nepal. Current edition.
- Essential Preventive Medicine, by O.P. Ghai, Piyush Gupta. Published by Vikas Publishing House, India. Current edition.
- Reproductive Health, National and International Perspectives, Dhira Raj Shrestha
- National Health Policy (current), Ministry of Health, Nepal.
- Tapaiko Swastha Tapaiko Hatma, by Aruna Upreti, Ashmita Mahila Prakashash Griha.
- National Maternity Care Guidelines Nepal, by the Department of Health Services, Nepal, Family Health Division. Published by Nepal Government-Current edition.
- National Reproductive Health Strategy, by the Department of Health Services, Nepal, Family Health Division. Published by Nepal Government- Current edition.
- Nepal Safe Motherhood Policy, by Family Health Division, DOHS, MOH, Kathmandu, Nepal. Current edition.
- Demography and Population Studies, by O.S. Srivastava. Published by Vikas Publishing House, India.

Final written exam marking scheme.

Unit	1	2	3	4	5	6	7	Total
Unit Hours	15	20	10	2	20	18	20	105
Marks	11	15	8	2	15	14	15	80

Primary Health Care/Family Health (Practical)

Practical: 70 Hrs

- Measure weight, height and mid-upper arm circumference (MUAC) of the children and interpret data.
- Demonstrate Immunization card including Road to health card.
- Estimate Body Mass Index (BMI) of adults.
- Prepare recipe of balanced diet from locally available food for different age groups
- Prepare the profile of staple foods with their nutrient value.
- Counsel individual/couple for F P
- Demonstrate use of contraceptives
- Prepare health indicators from currently available data.
- Prepare population profile of Nepal.
- Prepare population pyramid and interpret.

Third Year

Medicine II (Pediatrics including Neonatology, Psychiatry and Dermatology)

Total: 12 hours /week
Lecture: 8 hours/week
Tutorial: 0 hour/week
Practical: 0 hours/week
Lab/Clinical: 4 hours/week

Course Description:

This course provides the knowledge and skills necessary to assess the sick child, Neonatology manage the uncomplicated cases, multifactorial etiologies of mental health conditions (neurobio chemical, environmental stresses, learned psycho-social behaviors and beliefs) and to prescribe, counsel or refer cases as necessary ,common skin diseases and conditions, their diagnostic features, etiologies, management and prevention measures at the health post level, and identify indications for referral to a higher level facility for expert treatment. Emphasis is given to community health education for prevention or early treatment of childhood, neonates and all age groups of patient.

Course Objectives:

On completion of the course the student will be able to:

- Assess, diagnose, and treat the common pediatric and neonates' disorders and identify indications for referral of complex conditions.
- Apply the IMNCI approach to assess, classify and manage the illness of children ages up to 21 days to 5 years.
- Apply strategies for health promotion and prevention of illness among children.
- Apply fundamental principles for health promotion of neonates and children within the community.
- Describe the current statistics and resources for mental health in Nepal.
- Describe the multifactor causes of mental health conditions.
- Identify and manage common mental health conditions of adults and children.
- Maintain the safety of patients and others when persons become actively suicidal or violent towards others.
- Identify, manage and counsel families in cases of epilepsy, mental retardation, and alcohol or drug abuse.
- Identify indications for referral of severe cases and cases resistant to treatment.
- Identify the clinical features of common skin diseases and conditions.
- Perform a smear for laboratory investigation in the diagnosis of leprosy.
- Describe the role of the health worker in contact tracing and follow up for leprosy cases.
- Select appropriate treatment and medication for skin and sexually transmitted infections and conditions.
- Describe the role of the health worker in preventing skin and sexually transmitted infections conditions.
- Identify indications for referral to specialty services.

Course Content

Part 1: Pediatrics including Neonatology.

Unit 1 Pediatrics including Neonatology

38Hrs

Sub-unit 1.1: Introduction to Pediatrics

- Define neonate, infant and child.
- Normal growth and its disorders in pediatric age group.
- Normal development
- Minor clinical problems with newborns.

Sub-unit 1.2: Pediatric examination

- Modifications in history taking & physical examinations in child.
(General appearance: alertness to environmental stimuli, crying, flaccid, hyper-responsive to stimuli, hydration status)
- Normal ranges for infants and children of vital signs.
- IMNCI guidelines:
 - General danger signs & referral
 - Assessment of dangerous symptoms
 - Interpretation of dangerous symptoms
 - State the IMNCI sequence of treatment.
 - Assess and classify disorder.
 - Identify treatment.
 - Treat the child.
 - Counsel the mother.
 - Provide management of sick infant 1 week-2 months
 - Follow up.

Sub-unit 1.3: Neonatal disorders

- Causes, pathogenesis, clinical features, danger signs, investigations & management.)
 - Neonatal sepsis,
 - Umbilical infection,
 - Neonatal tetanus
 - Ophthalmia neonatorum
 - Neonatal seizure
 - Jaundice (physiological & pathological)
 - Assessment of congenital defects and referral
 - Disorders of lipid metabolism (Tay-Sachs, Gauchers and Refsums disease)

Sub-unit 1.4: Gastrointestinal disorders of children

- Oral thrush
- Gastro-oesophageal reflux
- Vomiting

Sub-unit 1.5: Respiratory disorders

- ARI (definition, causes, classifications, clinical features, management, complications)

Sub-unit 1.6: Fever

- List common causes of fever.

Sub-unit 1.7: Infectious diseases – Measles, chickenpox and rubella

- Etiology,
- Epidemiological determinants (host, agent, environment factors, mode of transmission, incubation period)
- Clinical features,
- Classification,
- Complications
- Management,

Sub-unit 1.8: Infectious diseases – Mumps, diphtheria, whooping cough, poliomyelitis

- Etiology,
- Epidemiological determinants (host, agent, environment factors, mode of transmission, incubation period)
- Clinical features,
- Classification,
- Complication
- Management,

Sub-unit 1.9: Skin disorders

- Normal skin conditions in neonate
- Diaper rash.

Sub-unit 1.10: Nutritional disorders

- Describe Protein energy malnutrition. Classify PEM, complications and treatment of malnutrition. Difference between marasmus, marasmic kwashiorkor and kwashiorkor.
- Anemia & vitamin deficiency

Sub-unit 1.11: Conditions of the ear

- Congenital anomalies of the ear, nose and throat.

Sub-unit 1.12: Central nervous system disorders

- Common causes and management of unconsciousness & coma in children
- Causes of convulsions in children and management.
- Meningitis & encephalitis

Sub-unit 1.13: Developmental disorders

- Down's syndrome
- Cerebral palsy

Sub-unit 1.14: Introduction to neonatal health

- Neonatal and Safe motherhood Health strategy and policy.
- Terminologies related to newborns [(still birth, newborn period, neonate, term baby, preterm baby, post-term baby, low birth weight (LBW) baby, perinatal period, post neonatal period.]
- Proper handling of newborn to prevent infection.
- Evaluation of a baby immediately after birth.
- Features of the normal and low birth weight (LBW) babies

Sub-unit 1.15: Essential Care for Newborn

- Essential care of newborn at birth.

- Postnatal care assessment/examination of newborn within 24 hours & before discharge from the health institution
- Assessment/examination of newborn at follow up visit (3 days to 7 days)
- Counsel and teach the mother & family on newborn care.

Sub-unit 1.16: Breastfeeding

- Physiology
- Successful breastfeeding includes exclusive breastfeeding.
- Problems and management including expressing breast milk, cup/palladia feeding and storage of breast milk.
- HIV positive mother and breastfeeding.

Sub-unit 1.17: Birth Asphyxia

- Introduction of fetal hypoxia & asphyxia
- Preparation for, methods & steps of newborn resuscitation.
- Care after resuscitation

Sub-unit 1.18: Hypothermia

- Definition, classification, prevention, complication and management.
- Kangaroo mother care (KMC).

Part II: Psychiatry

Unit 2: Psychiatry

30Hrs

Subunit 2.1 Introduction

- Brief history on psychiatry and discuss the psychiatric terminologies.
- Classify mental illness utilizing the latest International Diagnostic Criteria (ICD) provided by WHO.
- Multi factorial causation theories of mental illness.
- Psychological function and responses to stress.
- Stressful psycho-social conditions which contribute to mental illness.

Subunit 2.2 Causes of Mental Illness

- Describe the normal neurochemistry and functions of various neurotransmitters.
- Discuss the brain chemistry changes related to the following conditions: psychosis, mania, depression, anxiety and related disorders.
- Pathophysiology of mental illness symptoms.
- Describe the kinds of childhood or adult experiences that contribute to poor mental health. (Malnourishment, parental/societal violence, punitive, unpredictable or inconsistent care giving to children, abandonment.)
- Genetic or congenital causes of mental illness.
- Causes of chronic stress: shortages of food/shelter, guilt, rejection by family/community, fear, powerlessness.

- Vulnerable populations: women and children, low socio-economic groups, selected ethnic/cast groups, refugees.

Subunit 2.3: Mental health assessment

- History taking
- Mental status examination (MSE)
- Strategies & importance of assessing dangerousness to self or others.
- Differentiation of conversion disorder symptoms from organically based symptoms.
- Describe why & how to create trust and gather information when interviewing the mentally disturbed person and their family.

Subunit 2.4: Psychosis and Schizophrenia related disorder

- Definition and classification of Psychotic disorders.
- Etiology, diagnostic criteria, clinical features treatment and management of psychosis.
- Side effects and control of medications
- Follow up care and counselling to the patient and family members.
- Proper referral system for treatment

Subunit 2.5: Neurotic, Stress related and somatoform disorders

- Definition and classification.
- Etiology, diagnostic criteria, clinical features, treatment and management of
 - General Anxiety disorder
 - Panic disorder.
 - Obsessive Compulsive disorder
 - Dissociative (Conversion) disorder
 - Post-Traumatic Stress disorder (PTSD)
 - Phobias
 - Psychosomatic disorder

Subunit 2.6: Adult Personality disorder

- Definition and classification.
- Etiology, diagnostic criteria, clinical features, treatment and management of
 - Paranoid personality disorder
 - Schizoid personality disorder
 - Histrionic personality disorder
 - Obsessive compulsive personality disorder
 - Antisocial personality disorder

Subunit 2.7: Developmental disorders

- Intellectual disability: Adaptive domain of assessing Intellectual disability.
- Autism and autism spectrum disorders

Subunit 2.8: Mood disorders

- Definition and classification of mood disorders.
- Neurochemical basis of mood disorders, etiology, diagnostic criteria, clinical features treatment and management of mania and depression.
- Discuss major depressive disorder with and without psychotic symptoms.

Subunit 2.9: Bipolar disorder

- Causes
- Neuropathology
- Clinical features
- Management
- Social, financial and physical harm
- Counseling

Subunit 2.10: Mental and Behavioral disorder due to Psychoactive substance use

- Types of commonly abused substances.
- Discuss acute intoxication symptoms, withdrawal symptoms of the following substance, complications and its management.
 1. Alcohol
 2. Benzodiazapines
 3. Psychostimulants
 4. Cocaine
 5. Opiates
 6. Hallucinogens
 7. Marijuana
- Programs (including counseling) for control of drug & alcohol abuse.
- Dependence criteria of substance abuse.
-

Subunit 2.11: Childhood Mental disorders

- Definition, etiology, classification, diagnostic criteria, clinical features, treatment modalities.
- Intellectual disability (Mental Retardation)
- Attention deficit Hyperactivity disorder.
- Emotional disorders
 - Separation anxiety
 - School phobia
- Other behavioral and emotional disorders
 - Enuresis, encopresis, pica
- Sleep disorder-nightmares, night terror.

Subunit 2.12: Mental Health problem in old age

- Define, types, etiology, classification, diagnostic criteria, clinical feature, treatment and management of following geriatric disease.
 - Dementia: Alzheimer's
 - Depression in the elderly

Subunit 2.13: Psychiatric emergencies

- Clinical features, treatment and management of following psychiatric emergency conditions.
 - Aggression, excitement and violence
 - Suicide: Recognition of suicidal risk in vulnerable patients, counselling for the patient and family members and preventive measures.

Subunit 2.14: Treatment modalities for various mental illness

- Medical therapy
 - Antipsychotic
 - Antidepressant
 - Anti-anxiety
 - Mood stabilizer
 -
- Physical therapy
 - Indication, contraindication and complications associated with ECT (Electro-convulsive therapy)
 -
- Psychological therapies in psychiatric and substance abuse disorders
 - Individual, Group and family therapy
 - Behavior therapy
 - Cognitive behavioral therapy
 - Occupational therapy
 - Restraining
 - Counselling

Subunit 2.15: Psychological trauma

- Types of abuse/Components of family abuse: physical (beating, denial of food or shelter, burning, cutting), sexual (forced sexual intercourse, forced oral or anal sex), psychological (threats, name-calling, social isolation), neglect (abandonment, failure to give medical care, failure to provide food or shelter, failure to provide for education, failure to keep a safe environment).
- Socio-cultural factors that contribute to family abuse and trafficking.
- Identify clinical features which indicate a child may be experiencing neglect or abuse (physical, sexual or psychological) at home or school.

Part III: Dermatology/Sexually Transmitted Infections (STI)

Unit 4: Dermatology

19Hrs

Sub-unit 3.1: Introduction to Dermatology

- Characteristics of primary & secondary lesions:

Sub-unit 3.2: Bacterial Infections of the skin

- Definition (boil, furuncle, folliculitis impetigo, cellulitis and erysipelas)
- Etiology
- Clinical features
- Investigation

- Management
- Sub-unit 3.3: Fungal infection of the skin
 - Common superficial infections
 - Etiology
 - Clinical features
 - Diagnosis
 - Management & prevention of
 - Tinea infection
 - Pityriasis versicolor
 - Candidiasis
- Sub-unit 3.4: Viral infections of skin
 - Common viral infections of skin (molluscum contagiosum, herpes zoster, herpes simplex, wart)
 - Etiology
 - Clinical features
 - Management
- Sub-unit 3.5: Parasitic infestations of the skin
 - Scabies & lice (pediculosis)
 - Etiology
 - Clinical features
 - Management
- Sub-unit 3.6: Leprosy
 - Etiology
 - Cardinal features
 - Classifications according to WHO and Ridley-Jopling
 - Clinical features
 - Investigations
 - Type 1 and Type 2 Leprosy reaction
 - Complications
 - Management according to WHO guidelines (Pauci and multibacillary)
- Sub-unit 3.7: Allergic conditions of the skin
 - Eczema and dermatitis
 - Definition
 - Classification
 - Clinical features
 - Management
 - Difference between eczema and dermatitis
- Sub-unit 3.8: Urticaria and drug eruptions
 - Definition
 - Etiology
 - Clinical features and triggers
 - Management
- Sub-unit 3.9: Other disorders in dermatology
 - Acne vulgaris, Psoriasis, Vitiligo, Lichen planus

- Etiology
- Classification
- Clinical features
- Complications
- Management

Sub-unit 3.10: Bullous disorders

- Clinical feature and treatment of
 - Bullous pemphigoid
 - Pemphigus vulgaris

Reference Texts:

- Mental Health for the Primary Health Care Worker, distributed by HealthLearningMaterialsCenter.
- Joshi, M.P. and Adhikari, R.K., Manual of Drugs and Therapeutics. Distributed by HealthLearningMaterialsCenter, Kathmandu, Nepal. 1996.
- Tierney, L.M. et al., Current Medical Diagnosis. AppletonLange, Stamford. Current edition.
- American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders, 4th ed. Washington, D.C. 1994.
- Fortinash, K.M. & Holoday Worret, P.A., Psychiatric Mental Health Nursing, 2nd ed. Moseby, St. Louis. 2000.
- Kafle, K.K., & Pinniger, R.G., Diagnostic and Treatment Manual for Primary Health Care. HealthLearningMaterialsCenter, Kathmandu. 1999.
- Tierney, L.M., et al., Current Medical Diagnosis and Treatment. Appleton Lange, Stamford CT, USA. Current edition.

Final written exam marking scheme.

Part	1	2	3	Total
Part Hours	38	30	19	87
Marks	35	28	17	80

Medicine II(Pediatrics including Neonatology, Psychiatry and Dermatology) Practical

Practical: 44Hrs

- Perform examination and care of newborns according to IMNCI guidelines.
- Observe and assist in management of cases of Psychiatry.
- Observe Stridor, wheeze, chest in drawing.
- Procedure for assessing the condition of unconsciousness.
- Perform diagnosis of Diseases all Group, Setting on Health post Level

Surgery II (ENT, Dentistry, Ophthalmology)

Total: 12 hours /week

Lecture: 8 hours/week

Tutorial: 0 hour/week

Practical: 0 hours/week

Lab/Clinical: 4 hours/week

Course Description

This course provides a foundation in the assessment and management of common conditions of the ear, nose, throat, dental and eye. The student learns to examine these structures and to identify abnormal findings. In addition, this course prepares the student to manage uncomplicated conditions with health post resources or refer cases which require expert attention.

Course Objectives

On completion of the course the student will be able to:

- Discuss the history taking and physical exam of the ear, nose and throat and identify abnormalities.
- Identify hearing impairment in children and adults.
- Manage common and uncomplicated conditions of the ear, nose and throat.
- Identify persons who exhibit signs of cancer of the mouth and advise for expert management.
- Manage simple infections of the gums and mouth using health post resources.
- Identify persons at risk for complications of eye disease and advise for expert management.
- Manage eye trauma using health post resources.
- Promote dental and eye health through community education programs.

Course contents:

Part I: Otorhinolaryngology (Ear, Nose and Throat)

20Hrs

Unit 1: Ear

- Anatomy and physiology of the external, middle, and inner ear.
- Hearing loss and deafness:
 - Types and classification of deafness according to WHO.
 - The pathophysiology and etiology of hearing loss.
 - Magnitude of disability from deafness.
 - Communication methods for deaf persons.
 - Components of community education aimed toward prevention of hearing loss.
- Ear trauma:
 - Sites, types, Causes, clinical features and management of ear trauma.
 - Indications for referral.
- Foreign body in ear and ear wax:
 - Types of foreign body, clinical presentation, different methods of removal of foreign bodies
 - Ear wax: formation, consistency of ear wax, clinical findings and management.
 - Syringing: Introduction, indication, contraindications and complications
- Ear infections:
 - Definition, types, etiology, pathogenesis, clinical findings, investigations, prevention and management.
 - Otitis externa (bacterial, viral, fungal and allergic)

- Otitis media (OME, ASOM and CSOM)
- Discuss the classification and complications of CSOM
- Barotraumas

Unit 2: Nose

10Hrs

- Nose trauma:
 - Common nasal injuries and their management.
 - Cartilage fracture
 - Foreign body
 - Penetration wound.
 - Common causes and management of epistaxis
- Common nasal conditions:
 - Definition, causes, clinical features and management of common nose and sinus conditions.
 - Nasal obstructions
 - Deviated nasal septum.
 - Rhinosporidiosis
 - Nasal polyps
 - Nasopharyngeal carcinoma
- Nose infections and inflammations.
 - Definition, types, etiology, pathogenesis, clinical findings, investigation, preventions, complications and management
- Acute & chronic rhinitis:
 - Acute & chronic sinusitis,
 - Atrophic rhinitis

Unit 3: Throat

12Hrs

- Trauma, foreign body in throat,
Clinical features, Indication, contraindication of common throat conditions. and referral for foreign body in throat.
- Throat infections and inflammations:
 - Definition, etiology, pathogenesis, clinical findings, investigations and management. Indications for referral preventions and complications of;
 - Acute & chronic tonsillitis,
 - Acute and chronic pharyngitis,
 - Acute and chronic laryngitis,
 - Epiglottitis,
 - CROUP,
 - Tonsillar and peritonsillar abscess,
 - Retropharyngeal abscess.
- Laryngeal neoplasm:
 - Definition of laryngeal neoplasm,
 - Etiology and pathology of laryngeal neoplasm.
 - Risk factors and preventive education:
 - Complications of laryngeal neoplasm.
 - Components of community education in prevention of laryngeal neoplasm

Part II: Dentistry

Unit 4: Dentistry

28Hrs

- Introduction:
 - Definition and specialties of dentistry
Promotion of dental health, prevention of dental disease, patient rights for safe, caring and competent treatment.
 - Normal sequence and eruption time of deciduous and permanent teeth.

- Anatomical characteristics of teeth and related parts: Enamel, Dentin, pulp and cementum and Periodontium, Gingiva, periodontal ligament and alveolar bone.
 - Functions of mastication.
 - Medical considerations during dental procedures in cases of systemic diseases like diabetes mellitus, hypertension, liver cirrhosis.
- Dental health:
 - Relationship of dental hygiene and dental health.
 - Health risks of poor dentition and gum disease.
 - Importance of nutrition for healthy teeth. Factors contributing to oral cancer.
 - Principles of teaching/learning that promote good oral hygiene behaviors.
 - Promotion of good dental hygiene through health education
- Plaque, calculus and caries
 - Definition of plaque, calculus and caries
 - Etiologic theories of plaque and calculus and caries formation.
 - Classification, composition and squal of dental plaque and calculus.
 - Prevention of plaque, calculus and caries.
 - Clinical features, complications and prevention of dental caries formation.
 - Indications for referral
- Diseases and disorder of teeth and gum
 - Definition, Etiology, Classification, composition, sequelae, prevention of plaque and calculus formation.
 - Acidogenic and proteolytic theories of dental caries formation, Clinical features, complications, prevention of dental caries and Indications for referral.
 - Etiologies, clinical features, management and complication of common gum diseases.
 - Periodontitis
 - Gingivitis
 - Periodontal pockets and abscess
 - Pericoronitis
 - Pulpitis
 - Osteomyelitis
 - Aphthous ulcer
 - Indications for referral of gum diseases.
 - Health education to prevent gum diseases.
- Cleft lip and palate
 - Introduction, etiology, diagnosis and management in infancy and early childhood.
- Cancer of the mouth:
 - Classification of precancerous lesions of the oral cavity.
 - Etiological and clinical features of oral cancers.
 - Management and referral for oral cancer.
 - Early detection of oral cancer and its prevention measures.
- Tempo mandibular joints (TMJ):
 - Etiology and management of dislocation of tempomandibular joint.
 - Etiologies and differential diagnosis of trismus.
 - Management of trismus and TMJ dislocation.
- Tooth extraction, dental malocclusion 5Hrs
 - Indications, contraindications, and complications of tooth extraction.

- Procedure for tooth extraction.
- Procedure for use of anesthesia.
- Patient instructions before and after tooth extraction.
- Indications for follow-up care.
 - Clinical features of various forms of dental malocclusion.
 - Effects of dental malocclusion.
 - Referral of persons with dental malocclusion.

Part III: Ophthalmology

Unit 5: Lid diseases and conjunctivitis

18Hrs

- Lid diseases.
 - Discuss the glands of eyelids.
 - Definition, Etiologies and pathology, clinical features, investigations, differential diagnosis and management for common lid diseases:
 - Chalazion,
 - Styel,
 - Blepharitis,
 - External and internal hordeolum
 - Entropion,
 - Ectropion
 - Trichiasis
 - Discuss the complications and indications for referral.
- Conjunctivitis:
 - Definition, Etiology, types, pathology, clinical features, differential diagnosis and management of conjunctivitis.
 - Infection control of contagious conjunctivitis.
- Trachoma:
 - Definition, predisposing factors and causative organism, clinical features, treatment and prevention of trachoma.
 - Discuss the complications and indications for referral.
- Xerophthalmia:
 - Definition, causes, classification, sign and symptoms of xerophthalmia.
 - Treatment and prevention of xerophthalmia.
- Corneal ulcer:
 - Etiologies, pathology, clinical features, treatment, complications and prevention of corneal ulcers
 - History taking and clinical examination of client of corneal ulcer.
 - Indications for referral.
- Visual Acuity:
 - Examination of visual acuity using Snellen's chart and referral in cases of low visual acuity.
 - Definition and types of refractive errors:
 - Myopia
 - Hypermetropia
 - Astigmatism.
 - Clinical features, complications, management, prevention and Indications for referral.
- Cataract:
 - Etiology, pathology, classification, clinical features, treatment and prevention of cataracts.
 - Community education measures for prevention of cataracts among the population.

- Indications for referral.
- Uveitis and Iridocyclitis:
 - Causes and clinical features, treatment and referral for uveitis and iridocyclitis.
- Glaucoma:
 - Etiology, pathology, classification, clinical features, complications, treatment and prevention of glaucoma.
 - Indications for referral.
- Foreign body in the eye and Pterygium
 - Foreign body in the eye:
 - Principles and procedures for removal of foreign body.
 - Irrigation of the eye following chemical trauma.
 - Preventive health education of eye.
 - Indications for referral.
 - Measures for protecting the eye from injury by wearing protective eyewear.
- Pterygium:
 - Incidence, etiology, clinical features and management of pterygium.
 - Indications for referral.

Reference Books

- Dhingra, P.L., Diseases of the Ear, Nose and Throat. B.I. Churchill Livingstone, New Delhi, India. Current edition.
- Magbool, M., Textbook of Ear Nose and Throat Diseases. Jaypee Bros. India. Current edition.
- Hall & Coleman, Diseases of the Nose, Throat and Ear. Churchill Livingstone, Current edition.

Final written exam marking scheme

Unit	1	2	3	4	5	Total
Unit Hours	20	10	12	28	18	88
Marks	18	9	11	26	16	80

Surgery II (ENT, Dentistry, Ophthalmology) Practical

Practical: 44Hrs

- History taking and clinical examination of patient in ENT OPD.
- Identify instruments used in ENT.
- Examination of the ear using an otoscope and tuning fork
- Demonstrate technique of removal of foreign body from the external ear canal, nose and throat
- Demonstration of procedure of syringing
- History, technique, procedure and equipment for nasal as well as sinus examination.
- History, technique, procedure and equipment for throat examination.
- Aseptic measures for dentistry.
- Procedure of oral examination. Interpretation of finding of oral examination and identification of plaques, calculus, dental carries and gums. Procedures for documentation of dental assessment and care.
- Procedure for proper tooth brushing and flossing
- Procedure for safely inspecting the exterior eye and conjunctiva.
- Observe the normal and abnormal findings of a visual inspection of the eye.
- Procedures for removal of foreign body. History taking and clinical examination of client of foreign body in the eye.

Health Management (Theory)

Total: 6 hours /week
Lecture: 6 hours/week
Tutorial: 0 hour/week
Practical: 0 hours/week
Lab: 0 hours/week

Course Description:

This course introduces the student to concepts about management of health care services, as it applies to the operations of a Health Post or Primary Health Care Center. This course teaches about the health care system in Nepal, fundamental principles of management, national health policy and health programmes, health manpower in Nepal, health related organizations and agencies, logistics management, leadership and personnel management, health issues and professional practice. The student will acquire the necessary knowledge and skill to deal effectively with the diverse challenges of health service management.

Course Objectives:

- On completion of the course the student will be able to:
- Identify health care systems in Nepal.
- Explain the theories, principles and components of health management.
- Describe the national health policy, tell its philosophy, and identify its strengths and weaknesses.
- Explain various health programmes of the Department of Health Services.
- Apply the principles of logistics management and quality assurance to health post management.
- Apply the principles of supervision and leadership to management of Health Post staff.
- Manage a health post in the real setting.
- Identify the different levels of health manpower in Nepal and describe the functions of the Health Manpower Development Institute.
- Explain the goals and functions of the health-related governmental organizations, non-governmental organizations (NGO's), international non-governmental organizations (INGO's) and international agencies which serve in Nepal.
- Identify current national and international health issues.
- Explain the code of ethics of the Health Assistant.

Course Contents

Unit 1: Health care system in Nepal

2Hrs

- The definition, characteristics, and purpose of a health care system.
History of health system in Nepal.
- Health care approaches:
 - Ayurveda
 - Homeopathic
 - Allopathic
 - Naturopathy, Acupuncture

Unit 2: Fundamentals of Health Management

15Hrs

- Introduction to Health Management
 - The definitions of management & health management.
 - Principles of management.

- Concepts of management versus administration.
 - Function of management in the Health Post
- Planning of Health service context.
 - Definition of planning.
 - Types of planning.
 - Planning cycle (PIE cycle)
 - Planning steps.
 - Current health planning system at local, provincial and federal levels.
- Organizing Health Service.
 - Definition of organization.
 - Types of organizations and their organograms.
 - Organograms of MoH, DoHS, Provincial health ministry, Municipal Public Health section, PHCC, HP.
- Principles of leadership
 - Characteristics, benefits and disadvantages of styles of leadership, circumstances when each style is most appropriate.
 - Relationship between chosen leadership styles and cultural history (feudalism, recent development of representative government)
 - Responsibility of the leader as role model; ways to demonstrate consistency, transparency, integrity and fairness.
 - Characteristics and remedies for low motivation of workers.
 - Principles of management by policy.
- Staffing
 - Definition and purpose of staffing.
 - Essential elements of a job description.
 - Staffing patterns of a Primary Health Care Center and Health Post.
- Directing
 - Definition of directing.
 - Purpose of directing.
 - Ways of directing.
- Supervision
 - Supervision: definition, purpose, importance, techniques and tools
 - Quality of a good supervisor
 - Monitoring: definition, purpose, importance, process and tools
- Coordination
 - Definition of coordination.
 - Types of coordination
 - External and internal
 - Horizontal and vertical
 - Techniques and processes of coordination.
 - Selecting styles of coordination at various level (Local, Provincial and federal levels)

Unit 3. Disaster coordination

6Hrs

- Historical events and potential for future disasters from earthquakes, flooding and nuclear explosion.
 - Definition, concepts and types of disasters.
 - Risks to public health created by these disasters.
 - National activities for earthquake, landslide, wildfire storms Preparedness.
 - Disaster management cycle.
 - National guidelines for the management of major disasters.

- Coordination of community resources and leadership responsibility for disaster management.
- Structure and responsibility of District Disaster Coordination Committee Composition, role and mobilization mechanism of Rapid response team in disaster.
- Preparedness and response activities
- Reporting
 - Definition and purpose of reporting.
 - Types of report
 - Characteristics of reporting: complete, accurate, sequential, timely and understandable
- Budgeting and Financial Management
 - Budgeting: Definition and functions
 - Types of budgets (capital and recurrent) and characteristics of various budgets.
 - Preparation of fiscal budgeting at Health Post Level.
 - Auditing
 - Definition, Types, Process.

Unit 4: Health Post Management

14Hrs

- Training
 - Definition of training.
 - Different types of training.
 - Training Need Assessment (TNA).
 - Training plan, training conduction & training evaluation.
- Conduct staff meeting.
 - Planning and organizing of staff meeting.
- Logistic Management
 - Definition and function of logistic management.
 - Six” rights of logistic management.
 - Logistic cycle (Serving customer, product selection forecasting and procurement and inventory management).
 - Procedures for LMIS forms and records use.
 - Inventory management
 - Inventory goals and procedures.
 - Classifications of materials.
 - Specialized storage treatment for vaccines, essential drugs, contraceptives, equipment/instruments.
 - Essential data concepts:
 - Maximum/minimum stock levels
 - Authorized stock level and emergency order point
 - Lead time stocking.
 - Losses/adjustments
 - Emergency and regular calculation and procurement of commodities.
 - Procedures for distribution of commodities.
- Quality assurance
 - Components and concepts of quality health care.
 - Rationale for quality assurance implementation.
 - Characteristics of quality at the health post:
 - Technical competence effective service
 - Efficient service
 - Accessible site
 - Good interpersonal relationships

- Continuity of services
 - Safe environment
 - Pleasant environment
 - Team approach
- List the 4 “focus areas” of quality assurance principles.
- Explain why the process of quality assurance is viewed as a cycle.
- Use the methods and principles of QA to identify and plan a solution to a real health care problem.
- Using standards to improve service:
 - Write standards (performance
 - Rules/measurements) for quality health care.
 - Communicate these standards to all workers.
 - Plan ways to regularly check if standards are being met.
 - Identify and solve the problems that interfere with “high standard quality.”
- The focus of quality assurance principles:
 - Focus on patient/staff needs.
 - Focus on how things are done (process/systems) – do not blame the individual.
 - Focus on facts (don’t make assumptions or guesses).
 - Focus on the team approach to problem solving.
 - The cycle of quality improvement
- Time Management
 - Concept of time management.
 - Tools of time management with example.
- Health Management Information System (HMIS)
 - Function and purpose of MIS and HMIS.
 - Importance of HMIS
 - The Process of HMIS / DHIS-II with example of national system.
 - Application of the HMIS forms.
 - Differences between types of records and reports.
 - Monthly, quarterly & annual health reportingsystem

Unit 5: Health related organization

1Hrs

- International Non-Governmental Organizations (INGO’s)
 - Concept of NGOs, INGOs, Bilateral and Multilateral organization.

Unit 6: National Health Policy and Health Programs

10Hrs

- National Health Policy and Plan
- Current National Health Policy (Objective, targets and components).
- Current periodic (three/five-year) plan (targets and area covered).
- Health Insurance
- Describe health profile of Nepal according to the latest Nepal Demographic and Health Survey.
- Priority Health Programs
 - Objectives, targets and activities (to be carried out at health post level) of National health programs including:
 - Family welfare
 - Child Health and Immunization Service
 - Integrated Management of Neonatal & Childhood illness (IMNCI)
 - Nutrition
 - Safe Motherhood and Newborn Health (SMNH)

- Family Planning and Reproductive Health
- Adolescent Sexual and Reproductive
- Primary Health Care Outreach

Unit 7: Epidemiology and Diseases control,

10Hrs

- Malaria
- Kala-azar
- Lymphatic Filariasis (LF)
- Dengue 5.1.5 Leprosy
- Disability Inclusive Health, Rehabilitation, Assistive Technology & Injury Prevention
- Scrub Typhus
- Zoonotic Diseases
- Tuberculosis
- HIV/AIDS and STI
 - Non-communicable Diseases & Mental Health
 - Epidemiology and Disease Outbreak Management
 - Surveillance and Research
- Nursing and social Security
 - Geriatric and Gender Based Violence
 - Social Health Security
 - Bipanna Nagrik Aushadhi Upchar
 - Female Community Health Volunteer (FCHV)
 - Supportive Programs
 - National Health Education, Information and communication (NHEICC)

Unit 8: Health Manpower in Nepal

4Hrs

- Development of Human Resources in Health (HRH) in Nepal
 - Various institution involved in HRH development.
 - formation and responsibilities of Nepal Health Professional Council (NHPC)
- Human Resources for Health (HRH)
 - HRH positions in Nepal: Medical Doctor, Public Health Professional, Health Assistant, Optometrist, General Nursing, midwifery, Lab Technologist, Radiography, Dental, Pharmacist and alternative medicine practitioner.
- Job description of Health Post In charge.

Unit 9: Health Issues and Professional Practice

4Hrs

- Entrepreneurship
 - Goals and process of small health related business establishment and community welfare.
 - Business opportunities which meet community needs.
 - Ethical considerations of entrepreneurship and Health Post Manager role.
 - Possible areas and success stories for entrepreneurship in health sectors.

Reference Texts:

- Shrestha, B.M. Basic Principles of Management, Akshyulak Publication, Nepal. 2039B.S.
- Modern Management Methods and the Organization of Health Services, Public Health Papers #55.WHO. 1974.
- Inventory Control and Basic Logistics Procedure Manual on Store Management for PHC/HP and SHP Personnel. HMG/JSI.2054B.S.

- Park, K. Textbook of Preventive and Social Medicine, Bhandrasidas Bhanot, Jabalpur, India. 2000.
- Health Logistics Procedure Manual, NHTC/LMD/USAID JSI, Nepal 2057.
- Health Statistics and EPI Cold Chain Management Procedure Manual, NHTC/LMD/USAID JSI, Nepal 2057.
- Aswin Acharya and Sunny Yadav Textbook of Health management Akshav Publication

Final written exam marking scheme

Unit	1	2	3	4	5	6	7	8	9	Total
Unit Hours	2	15	6	14	1	10	10	4	4	66
Marks	2	18	6	17	1	12	12	6	6	80

Epidemiology and Community Diagnosis (Theory)

Total: 10 hours /week

Lecture: 6 hours/week

Tutorial: 0 hour/week

Practical: 4 hours/week

Lab: 0 hours/week

Course Description:

This course of community health practice is designed to develop the competencies and attitudes for application of epidemiological principles in community health diagnosis and health care practices. The course focuses on the primary health care practices among the diverse ethnic's groups of Nepal.

Course Objectives

- On completion of the course the student will be able to:
- Describe disease causation and modes of transmission, identifying the agent, host, and environmental factors, as the basis for environmental health of the community.
- Use epidemiology to identify health problems of the community.
- Investigate and manage epidemic outbreaks in the community.
- Conduct a community diagnosis identifying the roles and function of health assistant in community setting.
- Describe the various health practices among the diverse ethnic groups of Nepal.

Course Content

Part 1: Basic Epidemiology

Unit 1. Concept of health and disease

15 Hrs

- Definition with example: infection, infestation, contamination, Pollution, opportunistic infection, nosocomial infection, iatrogenic infection, epidemic, endemic, sporadic, outbreak, pandemic, zoonosis, epizootic, enzootic, exotic, Incubation Period (IP), Latent Period, Serial Time, Second attack, SAR, rate, ratio, proportion, surveillance, Isolation, Quarantine, Herd immunity, control, eradication, elimination,
- Concepts of disease causation
 - Germ theory
 - Epidemiological triad/ Triangle
 - Multifactorial causation
 - Web of causation
- Definition of risk factors & risk groups.
 - Illustrate risk factors & risk groups in relation to particular diseases.
 - Natural History of Diseases
 - Iceberg Phenomenon of Diseases
 - Spectrum of disease

Unit 2: Concepts and method of epidemiology

6Hrs

- History and Definition of epidemiology.
- Aims and uses of epidemiology.
- Basic Measurement of Epidemiology

- Describe epidemiological studies.
 - Observational Studies
 - Experimental Studies
- Principles, purposes, characteristics and methodology of descriptive epidemiology.
- Define Confounding with example. Describe how we can prevent confounding.
- Define Bias. Describe the types of bias.

Unit 3: Screening for diseases 2Hrs

- Concept of screening.
- Purposes and Types 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 4 Infectious disease epidemiology 6 Hrs

- 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:
 - Describe methods for controlling the reservoir, interruption of transmission and protecting the susceptible host.
 - Discuss each method of control with relationship to a specific disease.

Unit 6: Investigation and management of an epidemic 2 Hrs

- Characteristics of infectious disease epidemics.
- Investigation and management of infectious disease epidemics.
 - Objectives of Investigation of an epidemic
 - Steps for Investigation of an Epidemic

Part 2: Culture and Health

Unit 7: Concepts of culture and health 2Hrs

- Definitions and meanings of the term culture.
- Elements of culture
 - Beliefs
 - Norms
 - Taboos
 - Traditions
 - Customs
 - Superstitions
 - Religious practices
 - Social boundaries
- Relationship between health, illness, behavior and culture.

Unit 8: Culture of ethnic groups in Nepal 2 Hrs

- Definition of ethnic group.
- Ethnic groups living in Nepal and their main cultural features.

Unit 9: Effects of culture on health 2 Hrs

- Nepalese 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.

Unit 10: Community Diagnosis

14 Hrs

- Definition aims and benefits of the community diagnosis.
- 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 their utilization.
 - Community resources
 - Community leaders
 - Culture and tradition
- Differences between community diagnosis and clinical diagnosis
- Steps of the community diagnosis process:
 - Preparation of tools(questionnaire), techniques and work plan.
 - Pre-testing of instruments
 - Rapport building
 - Data collection:
 - Introduction to primary and secondary data
 - Methods of data collection: use of questionnaire, observation with check list, interview

Unit 11: Methods of sampling:

10Hrs

- Probability Sampling -
 - Simple random sampling
 - Systematic (random) sampling
 - Stratified sampling
 - Cluster sampling.
 - Multistage sampling
- Non-probability sampling
 - Judgmental sampling
 - Convenience sampling
 - Snowball sampling.
- Data processing (data editing, data tabulation, data analysis and interpretation)
- Data presentation and Steps of a community presentation:
- Health needs assessment: a. felt health needs b. observed health needs c. real health needs. Introduction of a micro health project. Steps of an MHP: a. Planning of the MHP b. Implementation of the MHP c. Evaluation of the MHP
- Report Writing
 - Benefits of report writing.
 - Components of report writing:
 - Title/title page.
 - Acknowledgement

- Preface/forward.
- Executive Summary
- Table of contents
- Map (study area)
- Summary:
 - Introduction
 - Findings and discussion
 - Conclusion and recommendations
- References / Bibliography
- Annex

Reference Texts:

- Park, K. Park's Textbook of Preventive and Social Medicine. M/S Banarasidas Bhanot, Jabalpur, India. Current edition.
- Parker, D.J.P., Practical Epidemiology. ELBS Publications. Current edition.
- Essential Preventive Medicine, by O.P. Ghai, Piyush Gupta. Vikas Publishing House, India. Current edition.
- Basic Epidemiology. WHO publication.
- Aswin Acharya and Sunny Yadav Textbook of Epidemiology and Community Diagnosis Akshav Publication

Final written exam marking scheme

Unit	1	2	3	4	5	6	7	8	9	10	11	Total
Unit Hours	15	6	2	6	5	2	2	2	2	14	10	66
Marks	19	8	2	8	6	2	2	2	2	17	12	80

Epidemiology and Community Diagnosis (Practical)

Practical: 44Hrs

- Sketch a diagram showing Spectrum of health and disease.
- Sketch a diagram showing the Iceberg phenomenon of Diseases.
- Sketch a diagram showing natural history of disease.
- Calculate different epidemiological indicators.
- Calculate sensitivity and specificity of a screening test.
- Prepare a Social map by visiting a community.
- Perform at least three home visits and fill up the
- Community diagnosis tools
- Questionnaire Discussion
- Proceed the data processing steps in group settings.
- Prepare at least five dummy tables by using filled up tools.
- Prepare at least five frequency tables by using filled up forms.
- Prepare pie charts and Bar charts by using a computer.
- List any five cultural practices of own ethnic group having health impact.

Third Year

Comprehensive Clinical Practicum

Sixteen weeks (96 days excluding Saturdays)

S. No.	Subject	Duration (days)
1	Emergency	9
2	Medicine	24
3	Surgery: ENT, Eye, General Surgery, Dental	24 (3+3+15+3)
4	Clinical Pathology (Observation) Lab	3
5	Pharmacy, Pharmacology (Dispensing)	3
6	Obs/Gyane and Maternity	9 (6 + 3)
7	Family Health (MCH,FP)	12 (6+6)
8	Basic Medical Procedures (Injection and dressing/minor OT)	9
9.	Physiotherapy	3

Clinical Objectives for Surgery - I & Medicine – I

A. History & Physical

1. Take history:
 - a. Establish trust with the patient/family.
 - b. Elicits complete data related to chief complaint, social/personal/demographic data, immunization/diseases history.
2. Perform physical examination:
 - a. Vital signs per guidelines
 - b. Assesses Jaundice, Anemia, Lymph node enlargement, Clubbing, Cyanosis, Oedema and Dehydration (JALCCOD)
 - c. Assesses hydration status in all ages.
 - d. Evaluate mental status/cognition/mood.
 - e. Recognize normal/abnormal growth & development.
 - f. Identify normal/abnormal conditions of the body systems through inspection, auscultation, percussion and palpation of heart and lungs, abdomen, nervous system, integumentary system, renal system, gastrointestinal system, circulatory system, lymphatic system, musculo-skeletal system.
3. Use abstract reasoning to correlate the abnormal findings with provisional/differential diagnoses.
4. Identify the appropriate laboratory tests for confirming diagnoses.
5. Select appropriate response for conditions: treatment of simple conditions/ referral of complex cases.

Note: Minimum ten cases in each sub-topics and maintain records

B. Asepsis/Sterile Technique

1. Identify which activities require sterile or aseptic techniques.
2. Apply principles of asepsis/sterile technique when performing procedures that require this.
3. Sterilize instruments and other materials according to protocol.
4. Implement measures for control of contagious disease.

Note: Minimum ten cases in each sub-topics and maintain records

C. Wound Care

1. Clean, debride, drain wounds per protocol.
2. Suture wounds and remove stitches.
3. Apply various types of aseptic/sterile dressings, compresses, bandages.

Note: Minimum ten cases in each sub-topics and maintain records

D. Invasive Procedures

1. Pass a feeding tube and administer tube feedings.
2. Give various types of enemas.
3. Safely administer medications via IM, IV, intradermal, subcutaneous routes
4. Draw blood for specimens.
5. Start IV infusions.

Note: Minimum five cases in each sub-topic and maintain scientific records)

E. Emergency and First Aid

1. Identify and respond to interferences with patient's airway, breathing, circulation.
2. Identify and treat impending shock according to protocol.
3. Identify and respond to epileptic seizure according to protocol.
4. Control hemorrhage.
5. Administer blood transfusion according to protocol.
6. Immobilize the patient with potential fracture.
7. Identify and respond to ingestion of toxic substances.
8. Identify protocol for treatment of injury/bites of snakes, mammals, insects.
9. Apply the principles of triage care to a multiple victim situation.
10. Stabilize and transport complex cases to a higher care center.

Note: Maintain records of each case.

Clinical Objectives for Medicine - II

Psychiatry

1. Identify the clinical features of psychosis, depression, bipolar mood disorders, anxiety disorders.
2. Assess the mental and psychological status of clients.
3. Assess the risks for suicide by a client.
4. Maintain a safe, comforting environment for the suicidal client and counsel the family to do the same.
5. Treat the client who has attempted suicide by overdose.
6. Differentiate between actual physical disease and somatoform (hysterical) symptoms.
7. Medicate the client who presents with severe symptoms of psychosis, depression or anxiety.
8. Identify indications for referral to a specialty center for treatment.
9. Existing recording and reporting system of DHO.

Note: Minimum one cases in each sub-topics and maintain records

Dermatology

1. Identify common skin lesions and conditions.
2. Differentiate between the common skin conditions.
3. Advise for the treatment and prevention of skin disorders.
4. Identify and refer complex conditions.
5. Implement measures to prevent transmission of contagious conditions.
6. Existing recording and reporting system of DHO.

Note: Minimum one case in each sub-topic and maintain scientific records)

Pediatrics including Neonatology.

1. Assess the infant/child regarding growth and development, congenital abnormalities, injuries.
2. Conduct complete history taking including birth history from guardian.
3. Perform a complete physical examination according to Integrated Management of Childhood. (IMCI).
4. Implement treatment according to guidelines.
5. Identify and refer cases requiring higher level care.
6. Administer immunizations according to guidelines.
7. Counsel mothers regarding nutrition, safe drinking water, hygiene, hypo/hyperthermia, how to use oral rehydration, symptoms requiring medical attention, family planning.
8. Distribute vitamin supplements as needed.
9. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topic and ten cases for no six and maintain scientific records.

Neonatology

1. Care of newborn at birth (5 babies)
2. Hand washing
3. Assessment of newborn at different period
4. Identification of LBW using weighing scale
5. Identification of hypothermia using thermometer
6. Observe management of Asphyxiated babies (Resuscitation)
7. Kangaroo mother care.
8. Counseling family on need of referral, after care of resuscitation, discharge counseling on KMC , breast feeding
9. Expressed breast milk and Cup feeding.
10. Observe management of PSBI baby including introduction of antibiotic ie gentamycine , cotrimetec
11. Baby bath
12. Postnatal visit /Home visit
13. Existing recording and reporting system of DHO.

Note: Minimum five cases in each sub-topics and maintain neonatal records.

Clinical Objectives for Surgery - II

Ophthalmology

1. Perform a basic eye examination, visual acuity, gross appearance of upper & lower conjunctiva and cornea.
2. Identify and advise for treatment simple eye disorders of the eyelids including blepharitis, sty, chalazion, trichiasis, entropion, ectropion.
3. Identify various causes of conjunctivitis, advise treatment, and take measures to prevent the spread of contagious conjunctivitis.
4. Identify and advise treatment for trachoma; take actions to prevent trachoma.
5. Identify corneal ulcer, institute appropriate therapy, and refer for expert care.
6. Identify ocular manifestations of vitamin A deficiency, advise treatment and take measures to prevent this disease.
7. Identify symptoms or presence of cataract, iridocyclitis, glaucoma, refractive errors, and refer these cases for expert care.
8. Perform removal of foreign bodies from conjunctiva and cornea in simple cases.
9. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topics and maintain scientific records.

Otorhinolaryngology (ENT)

1. Elicit history of ear, nose, and throat conditions
2. Demonstrate basic methods of examination of the ear, nose & throat.
3. Identify and treat common simple conditions of the ear, nose & throat.
4. Assess for gross hearing impairment and refer as indicated.
5. Intervene with foreign bodies or hemorrhage of ear, nose & throat.
6. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topics and maintain scientific records

Dentistry

1. Demonstrate the techniques and counsel the purpose of oral health care.
2. Perform loose teeth extractions.
3. Identify and treat simple conditions of the mouth, teeth, and jaw.
4. Identify complex cases for referral to higher level care.
5. Manage simple post-extraction hemorrhage or tooth pain.

6. Perform local anesthetic procedures.
7. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topics and maintain scientific records

Clinical Objectives for Obstetrics & Gynecology, Maternity and Neonatology

A. Labor & Delivery (L&D):

1. Confirm labor and perform a complete antenatal assessment.
2. Identify the stages of normal L&D for primipara and multipara women.
3. Assessment of the progress of labor: cervical changes, effacement, dilation, mucus show, amniotic release, crowning, duration & frequency of contraction, desire to push.
4. Implement measures to promote comfort and the progression of labor.
5. Observe the assessment of the presentation, rotation & descent of the fetal occiput, both vaginal and abdominal examination.
6. Assist with the procedures for the management of second stage labor.
7. Assist with the procedures for the active management of third stage labor.
8. Assess the signs & symptoms of prolonged labor/fetal distress/maternal distress.
9. Assist with the process for assessment and treatment of retained placenta, cervical or vaginal tears, uterine atony.
10. Differentiate the causes of post-partum hemorrhage and observe/assist with the treatment for each.
11. Conduct normal deliveries and assist with abnormal deliveries.
12. Demonstrate the procedure for removal of retained placenta.
13. Demonstrate the procedure for suturing of a simple episiotomy
14. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topics and maintain scientific records

B. Newborn Care/Postpartum Care

1. Assist with newborn care.
2. Assess the postpartum patient for complications.
3. Examine the newborn according to the assessment guidelines.
4. Evaluate the ability of the infant to breastfeed successfully.
5. Counsel the new mother/family regarding breastfeeding, hygiene, nutrition, immunizations, family planning.
6. Teach newborn danger signs and postpartum danger signs to the new mother.
7. Assess the symptoms and assist with management of postpartum complications.
8. Existing recording and reporting system of DHO.

Note: Minimum one case in each sub-topic and maintain scientific records.

C. Complications of Pregnancy

1. Assist with management of various types of abortion.
2. Assist with the management of the various causes of vaginal bleeding.
3. Assess the symptoms of pre-eclampsia and eclampsia.
4. Assist with the treatment for eclampsia.
5. Existing recording and reporting system of DHO.

Note: *Minimum one case in each sub-topic and maintain scientific records.*

D. Gynecology

1. Identify the clinical features of common gynecological conditions that require hospital treatment.
2. Administer the prescribed treatment for gynecological conditions requiring hospitalization.
3. Evaluate the effectiveness of prescribed treatments.
4. Counsel clients regarding prevention of gynecological disorders.
5. Existing recording and reporting system of DHO.

Note: *Minimum one cases in each sub-topics and maintain scientific records*

Clinical Objectives for OB-GYN, MCH and FP Outpatient Services

A. Antenatal/Postpartum Care OPD

1. Identify signs and symptoms of normal pregnancy.
2. Assess the symptoms of complications of pregnancy that will require hospital management.
3. Identify risk factors that require treatment or special monitoring and prescribe that treatment.
4. Counsel pregnant women regarding preparation for delivery, nutrition, healthy behaviors, warning signs to report, immunization schedule, breastfeeding, family planning.
5. Document the progress of pregnancy according to agency procedure.
6. Assess the postpartum client for complications of delivery.
7. Existing recording and reporting system of DHO.

Note: *Minimum five cases in each sub-topics and maintain scientific records*

Immunizations/Well Baby OPD

1. Assess the infant regarding: growth and development, congenital abnormalities, injuries.
2. Identify and refer cases requiring higher level care.
3. Administer immunizations according to guidelines.
4. Counsel mothers regarding nutrition, safe drinking water, hygiene, hypo/hyperthermia, how to use oral rehydration, symptoms requiring medical attention, family planning.
5. Distribute vitamin supplements as needed.
6. Existing recording and reporting system of DHO.

Note: *Minimum two cases in each sub-topics and maintain scientific records*

Gynecology OPD

1. Identify and treat simple conditions of the female reproductive tract: vaginal discharge, prolapsed uterus, pelvic inflammatory disease, sexually transmitted diseases.
2. Give contraceptive teaching and refer for sterilization as needed.
3. Identify and refer conditions requiring surgical treatment: intra-abdominal mass, fibroid, tumors, Bartholin abscess.
4. Identify and respond to abnormal vaginal bleeding, pre & post menopause.
5. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topics and maintain gynecological history, clinical examination, provisional diagnosis and management

Family Planning OPD

1. Identify the benefits of family planning to clients.
2. Assess the client who seeks family planning assistance: to rule out pregnancy, to determine ability to use certain methods, to determine family/individual desires.
3. Describe the advantages and disadvantages of the available methods of contraception in terms which are understandable to clients.
4. Assist the client to freely select an appropriate method of contraception.
5. In simple terms, explain how to correctly use each method of birth control.
6. Identify strategies for dealing with undesired effects of each method.
7. Identify medical conditions that indicate use of a contraceptive method to prevent pregnancy.
8. Existing recording and reporting system of DHO.

Note: Minimum two cases in each sub-topic and maintain family planning detail records.

Third Year

Comprehensive Community Field Practicum

(HP/PHCC attachment & community health diagnosis)

Community Health Diagnosis and HP/PHCC attachment - 48 days (Saturdays are not included)

Community Health Diagnosis - 24 days

- a. Epidemiology, Community health diagnosis and Micro Health Project- 6+5+4=15 days
- b. Community environmental health related activities- 4 days
- c. School and community health education- 5 days

PHC/Health post attachment- 24 days

- a. Client assessment - 9 days
- b. Injection, dressing and dispensing – 5 days.
- c. MCH/FP/Nutrition – 5 days
- d. Recording and reporting (Monthly and annual), logistic, meeting - 5 days

The student performs self-study/problem base learning on case studies and recording and reporting. The ratio of theory and practical and case study recording and reporting is 2:3.

On completion of this course the student will be able to:

Primary Health Care Services

1. Provide competent middle-level health care: diagnosis and treatment for uncomplicated mental & physical, acute & chronic health care problems.
2. Perform a complete history taking and physical exam on children and adults, to identify abnormal conditions.
3. Make home visits to fully assess the health care needs of the family situation.
4. Direct community outreach services.
5. Identify and respond to the needs of vulnerable populations (children, the poor persons without family, mentally disturbed, retarded, homeless, aged & infirm).
6. Intervene with the trafficking of vulnerable persons.
7. Identify the constraints, limitations and potentials of the health post situation when giving primary health care.
8. Use problem solving and adaptation to meet the health care needs of individuals or families.
9. Identify indications for referral to a higher-level health care facility.

Note: Minimum 5 cases in each sub-topic and maintain appropriate records according to heading.

Community Diagnosis

1. Develop a project timetable which sets the schedule for a community diagnosis project.
2. Develop and pretest a community survey questionnaire for the Community Diagnosis project.
3. Establish good rapport with the community members of the target population.
4. Create a geographic map of the selected community.
5. Collect data using a representative sample and appropriate techniques (questionnaire, interview, observation, others).

6. Process the data and perform an interpretation and needs assessment.
7. Present the community with an analysis of the problem.
8. Design and implement solutions in partnership with the community (Micro Health Project).
9. Evaluate the effectiveness of the solutions.

Community Environmental Health related activities

1. Promote public responsibility for environmental sanitation through health education.
2. Identify and resolve contamination of drinking water within the community.
3. Promote the construction of pit latrines.
4. Counsel individuals and community to promote personal hygiene habits.
5. Identify and advise individuals and community about hygienic methods for maintaining domestic animals.
6. Identify occurrences of threats to the eco-system of the community and promote public support for sound environmental management.
7. Apply environmental sanitation principles in controlling communicable disease.

Note: Minimum 1 case in each sub-topics implementation and maintain records.

Health Education

1. Identify and prioritize community health needs based on data collection.
2. Plan and implement health education programs that promote wellness, prevent illness, and teach curative and rehabilitative health care.
3. Use health education methods and media appropriately, creatively and effectively.
4. Monitor the implementation of health education programs.
5. Evaluate the effectiveness of health education programs and modify them as needed.

Family Health

1. Implement motivational strategies for selection of suitable family planning methods by individuals and couples.
2. Provide family planning materials, education and follow-up care.
3. Implement national guidelines for the care of mothers and children.
4. Provide antenatal, perinatal, and postnatal care to mothers and infants.
5. Promote and provide the recommended immunizations for children and mothers.
6. Execute and manage EPI and PHC outreach clinics.
7. Promote healthy nutrition among all family members.
8. Identify, treat and resolve the problem of childhood malnutrition among community children.
9. Identify, treat and prevent the common diseases of young children.
10. Maintain records of family planning methods, ANC and relevant forms
11. Demonstrate Balanced and mixed diet.
12. Demonstrate preparation of Jeevan Jal and weaning foods

School Health

1. Identify and analyze the occurrence of health problems among school age children.
2. Identify and analyze environmental health problems of the schools.
3. Present a data-based needs analysis of school health problems to school authorities.
4. Implement solutions to school health problems.
5. Provide health instruction to students including nutrition, sex education and prevention of communicable disease.
6. Provide regular health checkups to school children.

Health Post Management

1. Describe the functions of the national public health care agencies, public health NGO's and INGO's and tell how the health post cooperates with each.
2. Analyze and describe community dynamics as they relate to community health.
3. Promote community partnership in health post activities.

4. Take appropriate measures to prevent/control communicable disease.
5. Maintain accurate records of health post activities.
6. Prepare monthly reports accurately and promptly and maintain records.
7. Supervise and direct the health post staff.
8. Maintain communications with all coordinating agencies,
9. Maintain health post supplies, inventories and logistics according to LMIS.
10. Promote quality assurance principles in health post activities.
11. Maintain a safe and pleasant health post environment.

Note: Develop a community diagnosis and community health practicum written report and give an oral presentation.

Internal Evaluation Scheme for Community Field Practicum

Attendance:	25%
Participation in PHCC/HP activities:	25%
Participation in community activities:	25%
<u>Report preparation and presentation:</u>	<u>25%</u>

Total: 100

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