CURRICULUM FOR
BACHELOR OF MEDICINE &
BACHELOR OF SURGERY
(MBBS)

KATHMANDU UNIVERSITY
DHULIKHEL, KAVREPLANCHOWK
NEPAL
2011
Kathmandu University, already functioning with the Faculties of Sciences, Management, Arts, Engineering, was presented with a fresh challenge of setting up a Faculty for Medical Sciences in 1994. The Vice-Chancellor of the university convened a meeting on September 5, 1994 with representatives of the Ministry of Health, senior medical doctors of the country and the medical colleges seeking affiliation with Kathmandu University, for discussion about designing a curriculum for the Bachelor Degree Medical Science program.

The stated mission of Kathmandu University, emphasis is given to ‘High Quality Education’ relevant to contemporary society. To quote the Kathmandu University Bulletin: “The University is truly a national institution, established to provide for the long term needs of Nepal, by supplying persons with qualifications that are widely recognized and highly in demand in the job market.”

These laudable objectives can be achieved by a high quality education of international standards. The first step is to design a curriculum that will be the firm foundation on which to build the academic program.

To be in harmony with the objectives of Kathmandu University, it was decided that the curriculum should provide academic accomplishment to produce a medical graduate who will have the skills to practice successfully in a variety of career situations, be it government service, private practice, academics or research. This graduate should be able to contribute to society, compete with his peers and be equipped to hold his own anywhere in the world.

Accordingly expert groups were appointed at various times to devise and recommend the topics for the curriculum. The mandate for the expert groups of Pre-Clinical Medical Sciences and Clinical Sciences was to prepare the curriculum that has integrated mode of teaching of the medical subjects, encourage problem based learning and oriented to the health needs of the community.
The First Version of the MBBS Curriculum Part-One for Pre-Clinical Sciences came into effect from December 1994, when the first batch of students was admitted to the Manipal College of Medical Sciences (MCOMS), Pokhara. The First Version of the MBBS Curriculum Part-Two for Clinical Sciences was implemented from December 1996. Pediatrics was excluded from Medicine and allied subjects and introduced as a separate subject from the batch admitted since August 1999.
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KATHMANDU UNIVERSITY MISSION

The Kathmandu University has the mission to:

a) promote all-round development of students’ abilities and personalities.

a) develop an awareness of the role of sciences and its application in the understanding of problems of contemporary society.

b) extend and disseminate knowledge and encourage its application.

c) develop a community of scholars, students and staff in which understanding and wisdom can grow and flourish.

OVERALL GOALS OF THE SCHOOL OF MEDICAL SCIENCES

The School of Medical Sciences of Kathmandu University is headed by the Dean and has the following overall goals:

1. conduct and give permission to conduct academic programs of certificate, bachelor, masters and doctoral levels in medical sciences including other branches of health sciences.

2. collaborate and coordinate with medical schools of other universities for the growth and development of academic programs, research undertakings and health care services.

3. promote and conduct research for the growth of new scientific knowledge.

4. participate and provide health care to the people.
GENERAL DESCRIPTION OF THE CURRICULUM

This curriculum, which has been designed embracing modern Educational Science Technology – as applied to Medical Education, provides for acquisition of

♦ a core knowledge, the basic medical doctor must possess.
♦ clinical skills to diagnose and manage disease.
♦ desirable characteristics and attitudes ingrained in the profession.
♦ competency to determine and resolve health problems of the community.
♦ proficiency to function in diverse health care settings.
♦ interest in continuing medical education.

FEATURES OF THE CURRICULUM

The curriculum is

Student centered (rather than teacher centered)
Problem based (rather than subject based)
Integrated (rather than discipline based)
Community oriented (rather than hospital centered)
Electives embodied (rather than standard program oriented)
Systematic (rather than apprentice based)
THE CURRICULUM OUTLINE

The aim of this curriculum for the MBBS degree is to produce a well-rounded medical graduate, who as a result of the five and half years of undergraduate education program in medical sciences will be competent to carry out preventive, promotive and curative functions expected of a basic doctor. The accent of the curricular approach is community orientation, integrated teaching-learning and problem-based learning.

The curriculum synthesized initially (in 1994) consulting the curricula of medical institutions in Nepal is aptly revised and presented here.

The four-and-half year span of the MBBS course of study is divided into nine semesters, each of six months duration. The first four semesters are devoted to the Pre-Clinical Sciences. The next five semesters are devoted to Clinical Sciences. After successful completion of the course of study of four-and-half years, and having passed the final MBBS examination, the student will have to complete one year of compulsory Rotating Residential Internship to become eligible for being conferred with the degree of MBBS of the Kathmandu University.

The MBBS curriculum is divided into two Parts. Pre-Clinical sciences include the curriculum of the first and the second year. Whilst, the Clinical Sciences include the curriculum of the remaining two and a half years.

Pre-Clinical Sciences (first year and second year):

The First year and the Second year instruction cover Integrated Pre-Clinical Sciences, Community Medicine and Introduction to Clinical Medicine.

Pre-Clinical Sciences include Anatomy, Biochemistry, Microbiology, Pathology, Pharmacology and Physiology. These subjects will be taught in an integrated manner and would be threaded into Community Medicine and Introduction to Clinical Medicine, as appropriate. Also, during this phase the student will be introduced to clinical knowledge and skills utilizing a problem solving approach. Medical Informatics will provide computer literacy relevant to medical education.
OBJECTIVES OF THE MBBS PROGRAM

On completion of the five and a half year of MBBS program, the Medical Graduate should be able to:

a) Demonstrate the understanding of principles and practice of modern medicine with an in-depth knowledge of structure and functions of human body.

b) Develop a holistic approach to the practice of modern medicine.

c) Advance ones own knowledge and skills through higher education via continuing medical education programs and research.

d) Demonstrate an understanding of contemporary knowledge and skills.

e) Possess qualities of a compassionate and socially accountable human being.

f) Discharge job responsibilities with concern and care.

g) Provide immediate management care to life threatening situations by self.

h) Identify common health problems, manage them initially, ask opinion from seniors or refer to appropriate health institutions when required.

i) Provide education to people on health and health related matters.

j) Participate in immunization programs and in health camps.

k) Communicate well with patient and patient’s relatives by explaining matters known and refer them to appropriate persons when matters are not clear to self.

l) Provide all information on matters of management of patients to the patient and the relatives.

m) Identify medico legal cases and function as required.

n) Develop a health care team-approach and give respect to all the other members of the team.

o) Give due care to children, elder citizens and women.

p) Provide health care by becoming aware of the ethos of medical ethics.
## CURRICULUM FLOWCHART
### CLINICAL SCIENCES

### Third Year (SEMESTERS V & VI)

#### Semester V
- Medicine
- Pediatrics
- Surgery
- Obstetrics & Gynaecology

#### Semester VI
- Community Medicine
- Forensic Medicine
- Oto-rhinolaryngology
- Ophthalmology
- Medicine and allied subjects
- Surgery and allied subjects
- Obstetrics & Gynecology
- Pediatrics

### Fourth Year (SEMESTERS VII & VIII)

#### Semester VII
- Community Medicine
- Forensic Medicine
- Ophthalmology
- Surgery and allied subjects
- Obstetrics & Gynecology

#### Semester VIII
- Medicine and allied subjects
- Surgery and allied subjects
- Oto-rhinolaryngology
- Obstetrics & Gynecology
- Medicine and allied subjects
- Pediatrics
Fifth Year (SEMESTER IX)

Semester IX
Medicine and allied subjects
Surgery and allied subjects
Obstetrics & Gynecology
Pediatrics

INTERNSHIP
One year rotating
COURSE REGULATIONS

(Eligibility; Attendance; Examinations)

1. The candidate must complete Intermediate Science or 10+2 years of education or equivalent with English, Biology, Physics and Chemistry as main subjects and having secured not less than 50% of marks in the subjects mentioned above put together and an aggregate of 50% overall. The candidate should have completed 17 years of age on or before the date of admission, or completed B.Sc. Degree recognized by the university with one of the following subjects viz. Physics, Chemistry or Biology and at least one other prescribed science subject of study up to the ancillary level and should have scored not less than aggregate of 50% marks and provided that such candidate shall have passed the earlier qualifying examination (I. Sc. or equivalent) with the subjects English, Biology, Physics and Chemistry.

2. In order to derive maximum benefit from integrated teaching the student is expected to have 100% attendance in all the subjects; however to meet unavoidable contingencies the student should have not less than 75% of the attendance separately in theory and practical / clinical to be eligible for the university examination.

3. If a student is deficient in attendance in one or more subject/s he/she will not be allowed to appear for the examination in that or that subject/s of that particular examination. Such student should make up the attendance in the subject/s before being permitted to appear for the examination.

5. A student should clear all the subjects of Pre-Clinical Sciences, before he/she is allowed into Semester V.

6. A student must complete the different subjects of the Pre-Clinical Sciences - I MBBS Examination within three years of admission. Similarly, a student must complete the different subjects of the Pre-Clinical Sciences - II MBBS Examination (excluding Community Medicine) within four years of admission.

7. A student will not be allowed into Semester IX until he/she has passed Community Medicine, Forensic Medicine, Otorhinolaryngology and Ophthalmology.

8. Internal assessment: At the end of every system, formative evaluation may be conducted to enable the students to learn
and to get a feed back of the progress in all subjects. Average of these marks should constitute 50% of an individual's internal assessment for theory component. The average of marks obtained in the semester examinations (two in a year) in that subject should account for the remaining 50%. The average of the sessional marks in practical shall constitute the internal assessment for practical. To qualify for the University examination a student is required to obtain a minimum of 40% internal assessment in both theory and practical separately in each subject.

9. The mandatory minimum mark for passing the theory examination in any subject is 50% of the marks in the theory segment (i.e. written, viva-voce and internal assessment components put together), including not less than 40% of the maximum marks in the written component. Both written and viva-voce are compulsory components of university theory examination.

The mandatory minimum mark for passing the practical examination in any subject likewise is 50% of the maximum marks in the practical segment (i.e. practical plus internal assessment).

10. The evaluation scheme for Kathmandu University School of Medical Sciences will be according to the KUSMS Evaluation Scheme.

**General Recommendations**

- Each semester consists of 20 weeks of 6 working days per week, 7 hours/day. The time frame may not be relevant for hospital postings.

- Curriculum should be approached in a manner so that not more than one third of the time allotted for each subject is spent as didactic teaching.

- The examinations in theory and practical will be as objective and structured as possible.

- The University will maintain Question Bank for every system subject wise, consisting of different types of questions.

- The University will conduct workshops for faculty development (teaching-learning and student evaluation) as necessary.
GUIDELINES TO MEDICAL COLLEGE AND THE FACULTY

- The Medical College should follow the curriculum guidelines in imparting knowledge to the undergraduate student.
- Emphasis should be laid to ensure that the undergraduate student grasps the basic concepts throughout the course.
- When time-tabling the semester schedules, the concerned academic departments should get together and identify in an integrated manner, the instructional objectives to be covered.
- As a rule, the departments concerned should ensure integration of related subject matter of a particular System / Topic by carrying out teaching synchronously.
- In instruction, common clinical problems should form the prologue to establish relevance of basic sciences to clinical medicine.
- In correlation seminars, the student should be guided to address common problems / common clinical problems serving as themes, around which discipline-wise subject is threaded coherently.
- Pre-Clinical sciences should be revisited as a rule whilst implementing Clinical Sciences of the curriculum of clinical disciplines.
- Clinical symptoms and clinical signs must be emphasised upon and should be explained, referring to Pre-Clinical sciences, wherever possible.
CLINICAL SCIENCES
CLINICAL SCIENCES

Third Year (SEMESTERS V & VI)

Semester V

Medicine
Surgery and allied subjects
Obstetrics & Gynaecology
Pediatrics

Semester VI

Community Medicine
Forensic Medicine
Oto-rhinolaryngology
Ophthalmology
Medicine
Obstetrics & Gynecology
Surgery and allied subjects
Pediatrics

Fourth Year SEMESTERS VII & VIII)

Semester VII

Community Medicine
Forensic Medicine
Oto-rhinolaryngology
Ophthalmology
Medicine and allied subjects
Obstetrics & Gynecology

Semester VIII

Medicine and allied subjects
Surgery and allied subjects
Oto-rhinolaryngology,
Obstetrics & Gynecology
Pediatrics
Fifth Year (SEMESTER IX)

Semester IX
Medicine and allied subjects
Surgery and allied subjects
Obstetrics & Gynecology
Pediatrics

INTERNSHIP
One year rotating

Throughout the clinical course students will be posted in the hospital in addition to the lecture classes. This will be augmented by daily sessions devoted to seminars, group discussion; problem based learning and integrated teaching sessions etc.
COMMUNITY MEDICINE
SEMESTER - VI

Theory - 40 hours / Practical – 40 hours + 3 weeks field posting.

**Theory**

**Module 17:** Communicable Diseases, IMCI, Neonatal Health Strategy – 20 hours

**Module 18:** National Plans for Communicable Diseases – 10 hours

**Module 19:** Occupational Health – 5 hours.

**Module 20:** Mental Health – 5 hours.

**Theory**

**Module 21:** Non-communicable Diseases – 12 hours.

**Module 22:** National Plans for Non-communicable Diseases – 8 hours.

SEMESTER - VII

Theory – 30 hours / Practical – 40 hours, includes field placements.

**Theory**

**Module 23:** Reproductive Health, IMCI – 10 hours.

**Module 24:** National Health programs for Reproductive Health and specific age group - 5 hours

**Module 25:** EPI – Info – 5 hours.

**Module 26:** Health Planning and Management – 6 hours.

**Module 27:** Health delivery system in Nepal – 3 hours.

**Module 28:** Inferential Statistics – 12 hours.

**Module 29:** Disaster Management – 5 hours.

**Module 30:** International Health – 2 hours.

**Module 31:** Research Methodology – 2 hours.
Module 17:

Communicable Diseases

(Note: Integrated with clinical teaching. The epidemiology and other relevant aspects of the communicable diseases will be taught at the same time when these are being taught by the clinical disciplines.)

Themes and Topics:

- Respiratory Diseases (TB, Influenza, SARS)
- Vector Born Diseases (Malaria, filaria, Dengue, Leismaniasis)
- Intestinal infection (Acute Diarrheal Diseases, Viral Hepatitis, Typhoid fever, Cholera)
- Zoonosis (Rabies, Japanese Encephalitis, Chikungunya, Yellow Fever, Plague, Leptospirosis)
- Surface infections (STDs, HIV/AIDS, Leprosy)
- Emerging and re-emerging diseases
- Hospital acquired infections

Objectives:

- Describe the epidemiology, prevention and control of communicable diseases of public health importance in the country and importance of neonatal health.
- To be able to apply this epidemiology knowledge in real life situations

Principal teaching-learning methods to be used:

Lecture discussion, Small group discussion. Simulated practical exercise in class room

Problem based learning: Seminars will be held together with the
clinical specialties during which Community Medicine will stress important epidemiological features of the diseases.

Visit to Infectious Diseases Hospital & District Tuberculosis Centre.

Module 18:
NATIONAL PLANS – COMMUNICABLE DISEASES MODULE

(Note: Integrated with clinical teaching. The epidemiology and other relevant aspects of the communicable diseases will be taught at the same time when these are being taught by the clinical disciplines.)

Themes and Topics

Malaria
STD / AIDS
Pulmonary Tuberculosis
Leprosy
Kala-azar

Vaccine preventable diseases (VPDs) included in the Expanded Program of Immunization: cold chain and surveillance of VPDs

Diarrhoeal diseases

Objectives:
- Describe the national health programs for communicable diseases of the country
- Plan and investigate an epidemic of a communicable diseases in a hospital / community
- Setting and also suggest / carry out control measures
- Describe the immunization schedule
- Describe the cold chain and the importance of maintaining the cold chain
Principal teaching-learning methods to be used:

Lecture discussion
Demonstration
Small group discussion
Simulated practical exercise in classroom
Student action: e.g. participation in an immunization camp

Problem based learning: seminars will be held together with the clinical specialties during which Community Medicine will stress important epidemiology features of the diseases and discuss the relevant national programs.

Module 19: OCCUPATIONAL HEALTH MODULE

Themes and Topics:

Working environment: health hazards of industrial and agricultural workers
Common occupational diseases
Industrial toxic substances, health hazards & international safety limits
Principles of control of occupational diseases
Legal aspects
Practical exercise: visit to a factory

Objectives:

- Describe the common industrial and occupational diseases
- Describe the feasible methods of control of occupational diseases
- Describe the relevant legal provisions safeguarding the interests of workers in the country
Principal teaching-learning methods to be used:

Lecture discussion
Demonstration
Visit to a factory to observe the possible hazards and preventive measures taken
Small group discussion
Simulated practical exercises in classroom

Module 20:
MENTAL HEALTH

Themes & Topics:
Problem of mental health
Assessment of mental health
Causes of mental ill health
Types of mental illness
Mental development in children
Mental retardation
Conversion Reaction
Schizophrenia
Depression
Alcoholism & drug abuse/addiction
Suicide a deliberate self-harm
Problem of sexuality & gender disorders
Prevention of mental ill health
Mental health services in Nepal
Epilepsy
Objectives:
- Define mental health & various methods to assess mental ill health
- Family environment and child rearing in mental health
- Health organizations role for mental disorder cases

Principal teaching-learning methods to be used:
Lecture.
Group discussions.
Visit to mentally retarded school/ mental hospitals/ reformatory school/de-addiction or drug abuse treatment center.

Module 21:
NON-COMMUNICABLE DISEASES
(Note: Integrated with clinical teaching. The epidemiology and other relevant aspects of the communicable diseases will be taught at the same time when these are being taught by the clinical disciplines.)

Themes and Topics:
Epidemiology of non-communicable diseases
Nutritional disorders
Rheumatic heart diseases
Coronary heart diseases
Hypertension
Cancers
Blindness
Diabetes
Obesity
Accidents
Objectives:
- Describe the epidemiology, prevention and control of non-communicable diseases of public health importance in the country
- To be able to apply this epidemiological knowledge in real life situations

Principal teaching-learning methods to be used:
Lecture discussion
Demonstration
Small group discussion
Simulated practical exercise in classroom
Student action:
Problem based learning - seminars will be held together with the clinical specialties during which community medicine will stress important epidemiology features of the diseases.

Module 22:
NATIONAL PLANS - NON-COMMUNICABLE DISEASES

Themes and Topics:
National Plan on Non Communicable Diseases
Program for control of Iodine Deficiency Disorders, Blindness Control Programs
Program for control of other Nutritional Disorders e.g.
Nutritional anemia
Night Blindness etc.
Impairment / Disability / Handicap: Definitions and concepts
Assessment of Impairment / Disability / Handicap: e.g. Post-Polio residual paralysis
Programs for rehabilitation at the individual and community levels
Community based rehabilitation
Objectives:

- Describe the organization and delivery of non-communicable disease national plans of the country
- Evaluate an important National Health Program for non-communicable disease
- Define and describe the different forms of impairment / disability / handicap
- Advise rehabilitation at the individual and community levels after making a community assessment of disability / handicap

Principal teaching-learning methods to be used:

Lecture discussion
Small group discussion
Simulated practical exercises in classroom
Student action: participation in a relevant National Program

Problem based learning: Seminars will be held together with the clinical specialties during which Community Medicine will stress important epidemiological features of the diseases and discuss the relevant National Programs.

Visit to Cancer Center.

Module 23:

REPRODUCTIVE HEALTH

Themes and Topics:
Maternal and child health
Safe motherhood
Magnitude of the problem
Maternal morbidity and mortality
Under 5 year child morbidity and mortality
Breast feeding and weaning
Family planning methods
Practical exercises

Insertion of IUD

Use of injectable contraceptives

Tubal ligation

Vasectomy

Gender health & violence against women

**Objectives:**

- State the magnitude of the problems of maternal and child health in Nepal.
- Advise a mother on the importance of breast feeding, weaning at appropriate time and introduction of weaning foods.
- Advise a couple on spacing and family planning methods.

**Principal teaching-learning methods to be used:**

Lecture discussion.

Demonstrations of various family planning techniques, e.g. insertion of IUD, use of injectable contraceptives, tubal ligation, vasectomy, use of oral contraceptives pills.

Small group discussion.

Simulated practical exercises in class room: models for PV examination.

Problem-based learning: a pregnancy.

Gender Health

Violence against women

Medical Termination of Pregnancy
Module 24:
NATIONAL HEALTH AND PROGRAMS for SPECIFIC AGE GROUPS.

Themes and topics:
School health program
Problems for the elderly
Social organizations to assist the elderly

Objectives:
- Describe the organization and execution of national plans for family welfare in the country.
- Describe the organization and delivery of other important national plans for specific age-groups in the country.
- Evaluate an important national health program.

Principal teaching-learning methods to be used:
Lecture discussion.
Demonstration
Small group discussion
Simulated practical exercises in class room
Student action: e.g. participation in a family planning / welfare camp. Problem based learning: seminars will be held together with the clinical specialties during which community medicine will stress important epidemiological feature of the disease and discuss the relevant National Programs.
Module 25:
EPI-INFO
(Based on EPI-INFO software program/ SPSS software program)

(The EPI-info program version 6.03 will be used to give the students familiarity with basic skills in the use of computers in Epidemiology and Public Health)

Themes and Topics:
How to design a computer compatible questionnaire in “EPED”
How to “ENTER” data in the questionnaire
Simple forms of “CHECK” programs while entering data e.g. range checks, legal values etc.
“ANALYSIS” of data set.
Cleaning of data set
Frequencies and other tables
Graphical output
Cross-tabulations

Objectives:
- Acquire basic skills in handing epidemiological data sets through computers

Principal teaching-learning methods to be used:
Combined two-hour slots of lecture cum demonstration cum self-learning as follows:
A short lecture demonstration by the preceptor
Use of computer by the students guided by the preceptor
Closing discussion by preceptor pointing out errors made by students and how to overcome them.
Module 26:
HEALTH PLANNING AND MANAGEMENT

Themes and Topics:
Primary Health Care
Management of health resources
Planning and organization of health services in Nepal
Health team at district hospital, health post etc.
Voluntary agencies in health care
Evaluation of a health program: epidemiology and management principles
Need of health economics.
Concepts of cost benefit and cost effectiveness
Practical exercise: Game to demonstrate management

Objectives:
- Describe the organization of health services in the country
- Describe the concepts, components and principles of Primary Health Care
- Evaluation of a health program
- Appreciate the cost considerations in clinical and public health interventions

Principal teaching-learning methods to be used:
Lecture discussion
Demonstration

Small group discussion

Simulated practical exercises in classroom: e.g. role play etc.

Problem based learning: Game – managerial skills – The PHC (Primary Health Centre) game is available from WHO. A suitable game can be prepared by the preceptors.

Discussion and debriefing are essential after the game.

Module 27:

HEALTH DELIVERY SYSTEM IN NEPAL

Themes & Topics:

Evolution of health services

Organization of health delivery system in Nepal from center (MoH) to sub Health Post functions of different category health personnel

Objectives:

To learn the existing health delivery system

Describe the functions / responsibilities of each category of health personnel

Concept of teamwork for health services

Role of private sector in health delivery

Principal teaching-learning methods to be used:

Lectures.

Visit to a Sub-health Post, Health Post, PHCC & District Health Organization during District Health management project & Family Health Project

Visit to Infectious/ Tropical Disease Hospital, Central Hospitals, Zonal Hospitals.
Module 28:
INFERENTIAL BIOSTATISTIC

Themes and Topics:
Probability
Normal distribution, Poison distribution, Binomial distribution
Estimation of standard error
Confidence interval
Tests of significance
Concepts of alpha and beta error
Bias and random error
Sample size calculation
Sampling
Practical exercise in: random sampling, cluster sampling (UIP)
Correlation and regression

Objectives:
- Define probability
- Define normal distribution
- Describe bias and random error
- Describe methods of sampling and calculate sample size
- Carry out random sampling

Principal teaching-learning methods to be used:
Lecture discussion
Combined two-hour slots of lecture cum demonstration cum self-learning as follows:
1. A short lecture demonstration by the preceptor
2. Use of computer by the students guided by the preceptor
3. Closing discussion by preceptor pointing out errors made by students and how to overcome them
Module 29:
DISASTER MANAGEMENT

Themes and Topics:
Definitions of Calamity, Disaster--- natural and man-made
Concepts of Hazard and Vulnerability
Disaster Cycle
Planning for Disaster management
Disaster management committee: constituents, line of command etc.
Relief measures: when and what to ask for?
Concept of Triage
Practical play in a disaster situation
Simulated exercise on patient triage

Objectives:
- Plan, implement and evaluate measures for disaster management
- Acquire basic skills in patient triage in a disaster situation

Principal teaching-learning methods to be used:
Lecture discussion
Demonstration and practical exercise
Basic life support measures through skills models
Small group discussion
Simulated practical exercises in class room: through paper vignettes for patient triage
Module 30:
INTERNATIONAL HEALTH

Themes and Topics:
Need of International Health Organization
Structure and functions of WHO.
Other UN agencies and their role in Health care.
Bilateral Health Agencies
Non government International Health Agencies

Objectives:
- Describe the organizations, functions of WHO and other International Health Agencies
- Role of International Health organization in Nepal Health programs

Principal teaching-learning methods to be used:
Lecture
Group discussion

Module 31:
RESEARCH SKILLS

Themes and Topics:
Introduction
Types of research
Descriptive
Experimental
Non-experimental
Design
Systematic Review
Meta analysis
Writing a research report
Writing a Proposal
Simulated practical exercises: Assignment in small groups for write up of: Research project protocol
Conduct Research Project

**Objectives:**

- To appreciate the rationale and modalities of medical research
- To acquire the concepts and skills required to analyze a published paper
- To appreciate the concepts of meta analysis and review
- To be able to write up a protocol for a research proposal
- To be able to write up a project proposal for a community based action project

**Principal teaching-learning methods to be used:**

Lecture discussion
Small group discussion
Simulated practical exercises: Assignment in small groups for write up of:

  - Research project protocol

Community activity project proposal.
Division of Time allotted in Hours

**SEMESTER - VI**

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<tr>
<th>Theory</th>
<th>Practical</th>
<th>Total Hours</th>
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<tr>
<td>32 Hrs.</td>
<td>10 Hrs.</td>
<td>42 Hrs.</td>
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**SEMESTER - VII**

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<th>Time</th>
<th>Practical</th>
<th>Total Hours</th>
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<tbody>
<tr>
<td>32 Hrs.</td>
<td>10 Hrs.</td>
<td>42 Hrs.</td>
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* Practical record book must be maintained: 5 marks is allotted for practical Record book
  Practical Examination
Minimum number of medico legal autopsy cases should be 10 of various natures during clinical posting.

**GOALS**

The broad goal of the teaching of undergraduate students in Forensic Medicine is to produce a physician who is well informed, He/She should also capable of making observations and inferring conclusions by logical deductions, to set enquires on the right track in criminal matters and connected medico-legal problems. He/she should acquire knowledge of law in relation to medical practice, medical negligence, and respect for codes of medial ethics.

**OBJECTIVES**

**Knowledge:**

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

- Identify the basic medico-legal aspects of hospital and general practice.
- Define the medico-legal responsibilities of a general physician while rendering community service either in a rural primary
health center or an urban center.

- Appreciate the physician's responsibilities in criminal matters and respect for the codes of medical ethics.
- Diagnose, manage, and identify the legal aspects of common poisonings
- Describe the medico-legal aspects and findings of post-mortem examination in case of death due to common unnatural conditions, poisons and sudden death.
- Detect occupational and environmental poisoning, devise measures of prevention of common poisoning and deal with legal aspects particularly pertaining to workmen's compensation act according to the law of the land (Nepal).
- Describe the general principles of analytical toxicology.

Skills:

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

- Make observations and logical inferences in order to INITIATE enquiries in criminal matters and medico-legal problems.
- Diagnose and treat common emergencies in poisoning and manage chronic toxicity on the study of Epidemiology.
- Make observations and interpret findings at postmortem examination.
- Observe the principles of medical ethics in the practice of the profession.

Integration:

The department of forensic medicine and toxicology shall provide an integrated approach towards allied disciplines like pathology, radiology, forensic sciences, hospital administration, etc. to impart training regarding medico-legal responsibilities of physicians at all levels of health care. Integration with relevant disciplines will provide scientific basis of clinical toxicology e.g. medicine, pharmacology etc.
CONTENTS

- Definitions synonyms of Forensic Medicine
- Historical aspects - evolution and development
- Modern Forensic Medicine - sub-divisions

Medical Law and Ethics:
- Definitions, Nepal Medical Council Act
- Nepal Medical Council - formation and functions
- Registered Medical Practitioner - duties and privileges
- Professional misconduct (Infamous conduct), Punishments, Appeal, COPRA,
- Malpractice, Medical Indemnity Insurance
- Consent - its relevance in medical practice
- Euthanasia
- AIDS and its legal implication, confidentiality in testing blood blanks.
- Basics of human experimentation and clinical trials in general practices.
- Brief introduction with medico-legal aspect of genetic engineering and cloning.
- Define Professional negligence. Explain the ingredients of negligence and its defenses
- Implication of pre-natal sex determination

Legal Procedure:
- AIDS and its legal implication, confidentiality in testing, blood banks, aids and autopsy.
- Basics of human experimentation and clinical trials in general practices.
- Brief introduction with medico legal aspect of genetic engineering and cloning.
Enumerate the different courts in Nepal and describe the procedure of recording the evidence in the court.

Different types of witnesses and duties of doctor in the witness box.

**Identity:**
- Definition & types of identification, corpus delecti
- Factors establishing identity - age and its medico legal importance
- Sex - its medico legal importance
- Others - race, stature, dactylographic, poroscopy, foot prints, hairs, scars, tattoo, superimposition etc
- Explain the procedure of DNA finger printing and its medico legal application

**Thanatology**
- Definitions, types of death, moment of death, suspended animation, modes of death
- Causes, manner, mode of death, Sudden death
- Medico-legal importance of death, issuing death certificate
- Postmortem changes - immediate, early, late
- Adipocere, mummification, time since death
- Somatic and molecular death.
- Brain death and organ transplantation.
- Organ transplantation act.

**Medico-legal autopsy and artifacts:**
- Objectives and rules
- Routine procedures of medico-legal autopsy examination in Nepal.
- Preservation of viscera in poisoning, skeletal remains examination, exhumation, negative and obscure autopsy, artifacts.
- AIDS and autopsy.
**Asphyxial deaths:**
- Classification, patho-physiology, signs and symptoms of asphyxia.
- Hanging- definitions, types, autopsy findings and medico-legal aspects.
- Strangulation, suffocation, etc. definitions, types, autopsy findings and medico-legal aspects.
- Drowning – definitions, types, mechanisms, autopsy findings, medico-legal aspects,
- Traumatic asphyxia, sexual asphyxia.

**Forensic Psychiatry:**
- Definitions, restraint of the insane in Nepal, feigned insanity.
- Civil and criminal responsibilities of an insane person.
- Mental health act.
- Restraint of insane in Nepal.
- Explain delusion, hallucination, illusion and other related terms and their medico-legal significance

**Forensic Science:**
- FSL, biological stains of medico-legal importance.
- Blood, saliva and semen, DNA – profiling.

**Trauma - mechanical injuries:**
- Definitions, classifications - abrasions, contusions, lacerations, incised wounds, stab wounds, chop wounds & their medico-legal significance.
- Fire arm wounds-basics, rifle fire arm & smooth bore fire arm wounds and their medico-legal aspects.
- Regional injuries - head injury : mechanisms, injury to scalp, skull and brain, intra-cranial haemorrhages, injury to spine, neck, chest, abdomen, bones, joints etc
- Complications and causes of death by trauma.
Medico-legal aspects of trauma - homicide, dowry death, suicide, hurt, grievous hurt, Wound certificate.

**Other types:**
- Thermal injuries due to heat: burns, scalds.
- Thermal injuries due to cold. (Hypothermia)
- Injuries due to electricity, lightning, X-rays, radio-active substances, C.T. Scan, M.R.I. ultrasonography and bone densitometry.
- Injury pattern in road traffic accidents, railway accidents, plane crash, explosion and mass disasters.
- Self inflicted injuries and defense injuries
- Torture: definition, methods and consequences. Examination and reporting of victim of torture.

**Sexual Jurisprudence:**
- Virginity, pregnancy, delivery – definitions, signs and medico-legal importance
- Paternity, impotency, sterility – definitions and medico-legal importance.
- Abortion, medical termination of pregnancy, criminal abortion and its complications.

**Sexual Offences:**
- Classification,
- Definitions - rape, incest, sodomy, lesbianism, buccal coitus, beastiality,
- Sexual perversions - diagnosis, and medico-legal significance.

**Infanticide:**
- Definitions, examining a case of infanticide, viability, still birth, dead birth, live birth, battered baby syndrome, sudden infant death syndrome.
Toxicology:
- General considerations, corrosives, irritants: metallic, non-metallic,
- Organic-vegetable and animal, insecticides, somniferous poisons, inebriant poisons, deliriant poisons, cardiac poisons, spinal poisons, food poisoning, asphyxiants, drug dependence.
- Epidemiology of poisoning in Nepal
- Laws relating to poisoning in Nepal
- Doctor's duties in management of poisoning cases
- Occupational and environmental toxicology
- Chemical and biological warfare agents: advantage, disadvantages, selectivity, dissemination and delivery.

PRACTICALS

Forensic Osteology:
Giving expert opinion on age, sex, structure, cause of death, time since death, etc. on examining the skeletal remains (skull, mandible, femur, hipbone etc.)

Forensic Radiology:
Age Expert opinion on age by examining the radiographs (Pelvis, knee, ankle, shoulder, elbow and wrist joints)

Forensic Odontology:
Determination by teeth examination

Study of Museum Specimens:
Soft specimens, histopathology slides, photographs, weapons, common vegetable poisons, chemical poisons, poisonous animals & insects, appliances & instruments of medico-legal significance (Including autopsy instruments)
Drafting Certificates during Routine Medical Practice:

a) Birth certificate               b) Physical fitness certificate

c) Leave certificate              d) Wound certificate

e) Age certificate                f) Drunkenness certificate

g) Death certificate              h) Postmortem report.

Drafting police intimation letters in medico-legal cases of accident, assault, discharge on treatment, brought dead, etc. cases.

Witnessing and drafting report of medico-legal autopsy.

Taking students to courts to witness recording of evidence.
Division of time allotted in hours

**SEMMESTER - VI**

<table>
<thead>
<tr>
<th>Theory</th>
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**SEMMESTER - VII**

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<td>Head and Neck</td>
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**BROAD OBJECTIVES AND APPROACH**

Students will learn about the basic principles and practice of ear, nose and throat. They will develop the ability to examine patients, diagnose diseases, correlate signs and symptoms with pathophysiology, management, preventive measures, and be able to implement in the community with special emphasis to school health programs. They will learn by examining patients or co-students consulting textbooks, diagrams and charts, demonstrations, lectures and tutorials.

For a two-week period, students develop skill in patient management in common ear, nose and throat problems including inflammatory diseases, polyp and epistaxis. They will work under close supervision of teachers and share responsibility in management.
Introduction:
- Recall anatomy of external, middle and inner ear, nasal passage, paranasal air sinuses, pharynx and larynx and explain the relation of middle ear with nasal cavity and naso-pharynx and with mastoid cavity.
- Recall the physiology of hearing and describe the role of inner ear maintaining the balance of the body.
- Recall the physiology of smell, the role of upper respiratory tract in respiration and voice production, and the role of lymphoid tissue in the development of immunity.

History Taking and Examinations:
- Take history of illness from all types of patients
- Describe proper positioning of patient for ENT examination and demonstrate correct method of physical examination
- Outline the importance of audiogram and caloric test and conduct tests for hearing and body balance
- Distinguish between types of hearing loss-conductive and sensorineural
- Distinguish normal from abnormal external ear passage
- Recognize opening of salivary glands in the buccal cavity and recall the role of taste buds
- Describe the role of good oral hygiene to oropharynx and consequences of poor hygiene and indicate predisposing factors to neoplasia
- Differentiate between congenital, traumatic, inflammatory diseases, neoplasm and allergic conditions

Preventive aspects:
- Describe the role of environment and personal habits in producing diseases
- Describe the role of preventive medicine in reducing the morbidity in the community
- Plan and implement school health programs
**Diagnosis and Management of Diseases:**

- Diagnose, describe causes, pathophysiology and state management of foreign body, haemtoma auris, wax, rupture of tympanic membrane, furunculosis, otitis externa
- Middle ear - acute and chronic suppurative otitis media, mastoiditis, serous otitis media, barotrauma, otosclerosis
- Hearing loss - conductive, sensori-neural, acoustic trauma and occupational hazards, Me'nie'r's disease
- Nose and para nasal sinuses - injury of nose, deviated nasal septum, furuncle, foreign body, nasal allergy, polyp, epistaxis, sinusitis
- Pharynx - acute and chronic tonsillitis, peritonsillar abscess, acute and chronic pharyngitis, Ludwigs angina
- Larynx - hoarseness, acute inflammation, laryngeal obstruction, acute laryngotracheitis, laryngeal diphtheria, indications for tracheostomy, carcinoma of larynx
- Head and neck malignancies - lymphatics of head and neck, salivary gland tumor.

**Emergency Problems:**

- Differentiate between emergency and non-emergency conditions
- Remove foreign body from external ear, nose and throat

**Referral:**

- List the conditions needing expert consultation
Students develop skill in diagnosis, investigations, and management of common problems.

- Take appropriate history, perform clinical examination, record findings on history sheet, investigate and assist to provide treatment to patient
- Assist consultants or residents with the assessment of patients’ condition and plan to institute appropriate therapy with the help of teachers or residents
- Assist with treatment including performance of surgical procedure
- Whenever possible assist in removal of foreign body
- Adopt methods used to arrest haemorrhage
- Assist consultant or resident to provide counseling
Nose, Paranasal Sinuses and Nasopharynx:

- Surgical anatomy of the nose, paranasal sinuses and nasopharynx
- Applied physiology of the nose.
- Examination of nasal passages, nasopharynx and paranasal sinuses.
- Diseases of the nose: congenital malformations - stenosis of anterior nares, choanal atresia, meningocoele, dermoid cyst, injuries, oro-antral fistula, nasal furunculosis, vestibulitis, Cavernous sinus thrombophlebitis.
- Diseases of nasal septum: haematoma, abscess, ulceration, perforation, deviation.
- Diseases of the nasal cavity: foreign bodies, Nasal Myiasis, rhinoliths.
- Acute rhinitis, specific - nasal diphthen'a.
- Chronic - non-specific - chronic simple, hypertrophic and atrophic rhinitis, Rhinitis Sicca, Rhinitis Caseosa. specific - diphtheria, lupus, tuberculosis, syphilitic, leprosy, rhinosporidiosis, rhinoscleroma.
- Nasal polyp: Antrochoanal polyp, Ethmoidal polyp
- Epistaxis: Etiology, evaluation and management
- Allergic rhinitis/ vasomotor rhinitis
- Disorders of olfaction
- Sleep apnoea syndrome
- Sinusitis: general considerations of acute and chronic sinusitis, diagnosis: frontal sinusitis, ethmoiditis, sphenoiditis. acute and chronic maxillary sinusitis.
- New growths and cysts of the nose and sinuses: papilloma, angioma, carcinoma and sarcoma and simple cysts.
Maxillo facial Trauma - Fracture of nasal bone, Le-Fort Fractures, Tripod Fracture, Blow out fracture, CSF rhinorrhoea.

Diseases of the nasopharynx- congenital dermoid, nasopharyngitis-acute and chronic, adenoids, nasopharyngeal bursitis.

Growth of Nose, paranasal sinuses and nasopharynx: Benign-Hemangioma, Inverted papilloma, Ossifying Fibroma, Juvenile angiofibromas, malignant - carcinoma.

Common surgical procedures of nose and paranasal sinuses - Intranasal antrostomy, Caldwell Luc Surgery, SMR, Septoplasty, FESS.

Pharynx & Oral cavity

Surgical anatomy and applied physiology. (pharynx - oropharynx, laryngopharynx, parapharyngeal space).

Examination of the pharynx.

Diseases of the pharynx

Foreign bodies, trauma, inflammations- acute- non-specific and specific, Vincent’s angina, acute diphtheritic pharyngitis. moniliasis. chronic non specific pharyngitis. specific-tuberculosis, syphilis, leprosy, scleroma.

Acute tonsillitis & chronic tonsillitis, Keratosis tonsil and pharynx, tonsillectomy.

Abscesses of the pharynx: peritonsillar abscess, para-pharyngeal-abscess, acute and chronic retropharyngeal abscess, lingual tonsil abscess, Ludwig’s angina.

Growths of oro pharynx and oral cavity - benign, pre malignant and malignant lesions.

Lesions of tongue – geographical tongue, Rhomboid ulcers, fissure tongue,

Ranula and other swellings in the oral cavity

Larynx, trachea and bronchi:

Surgical Anatomy and applied physiology.

Examination of the larynx and lower respiratory tract.
- Endoscopy - method, indications.
- Diseases of the larynx-congenital malformations of larynx (laryngomalacia). Foreign bodies in the air passages.
- Inflammations: acute non specific - acute epiglottitis, simple laryngitis, laryngo-tracheo-bronchitis, specific - diphtheria.
- Chronic non-specific - simple laryngitis, leukoplakia, pachydermia.
- Vocal nodules, Vocal polyps, Reinke's edema, Intubation granuloma.
- Tuberculosis, lupus, syphilis, scleroma, leprosy.
- Functional and organic: laryngeal paralysis, laryngismus stridulus.
- Growths of the larynx- Benign (hemangioma, papilloma) and malignant.
- Tracheostomy: indications, technique, post op care, complications.

**Ear:**

- Surgical anatomy and applied physiology.
- Examination of the ear: clinical examination of the ear, functional examinations, tests for hearing, test for vestibular function, test for eustachian tube function.
- Diseases of external ear: congenital malformations, variations of of the auricle, pre auricular sinus, hematoma pinna, perichondritis, frost bite pinna, herpes, collaural fistula, dermatitis, lupus, syphilis.
- Diseases of the external auditory canal - furuncles, otitis externa, herpes, myringitis bullosa, otomycosis, leprosy, wax, foreign bodies, karatosis obturans, EACcholesteatoma, Malignant otitis externa, growths, injuries of external ear and tympanic membrane.
- Acute inflammations of middle ear cleft, eustachian tube salpingitis, acute and chronic, acute catarrhal otitis media, acute suppurative otitis media, acute necrotising otitis media, acute
mastoiditis, coalescent mastoiditis, Atelectasis, Adhesive otitis media

- Chronic otitis media-mucosal and squamous type, Cholesteatoma.

- Other types (non suppurative):- chronic catarrhal otitis media, secretory otitis media, otitis barotrauma, tuberculous otitis media, syphilitic otitis media.

- Complications of suppurative otitis media. Extracranial:- mastoiditis, mastoid abscess, petrositis, facial nerve paralysis, labyrinthitis. Intracranial:- meningeal abscess, extradural abscess, subdural abscess, lateral sinus thrombosis, brain abscess.

- Otosclerosis: etiology, pathology, clinical features, treatment.

- Glomus tumours

- Vestibular schwannoma

- applied anatomy of facial nerve and its pathology.

- Nystagmus, Tinnitus, Vertigo

- Prevention of S.O.M. and prevention of complications of otitis media.

- Diseases of inner ear: congenital disorders, traumatic disorders, mumps, herpes zoster, rubella, meningitis, deafness.

- Noise trauma, drug toxicity, presbyacusis, Meniere's disease, BPPV

- Rehabilitation of deaf and dumb.

- Audiology-PTA, Impedence audiometry, OAE, BERA, speech audiometry

- Common Ear surgeries- Myringotomy and grommet insertion, Myringoplasty, Tympanoplasty, MRM, RM, Cortical mastoidectomy.

**Head and Neck:**

- D/D-Mid line and lateral swellings of the neck and their management

- Thyroglossal cyst, Branchial sinus, Branchial cyst, Cystic hygroma, Laryngocele

- Diseases of salivary glands (infection- acute- bacterial and viral : chronic- sjogren's syndrome, TB) Neoplasms and Sialolithiasis
## OPHTHALMOLOGY

Division of Time allotted in Hours

<table>
<thead>
<tr>
<th>Total Hours</th>
<th>Clinics Hours</th>
<th>Theory Hours</th>
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<tbody>
<tr>
<td><strong>SEMESTER - VI</strong></td>
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<tr>
<td>Basic Anatomy &amp; Physiology</td>
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<td>OPD &amp; Errors of Refraction and Wards Accommodation Errors of Muscle Balance &amp; Squint</td>
<td>03</td>
<td>03</td>
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<tr>
<td>Abnormalities of Lids &amp; Lacrimal system</td>
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<td>Diseases of conjunctiva</td>
<td>05</td>
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<td>Diseases of cornea</td>
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<td>Disorders of Uvea</td>
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<td>Diseases of Lens</td>
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<td>Glaucoma</td>
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<td>Disorders of Vitreous</td>
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| **SEMESTER - VII** | | |
| Wards, Diseases of Retina | 05 | |
| OT & Diseases of Optic Nerve | 05 | |
| Field Diseases of Orbit | 03 | |
| Community Ophthalmology | 05 | |
| Ocular Trauma | 03 | |
DD of Red Eye 01
DD of gradual loss of vision 01
DD of sudden loss of vision 01
DD of white pupillary reflex 01

100 hrs.
75 hrs.
25 hrs.
200 hrs.
135 hrs.
60 hrs.

OBJECTIVES:

The main objectives of the ophthalmology program are:

- To enable the graduates to become good general physicians through adequate knowledge of ophthalmology thereby diagnose, treat, and manage common ocular ailments, provide leadership in primary eye care and refer wherever necessary.

- To enable them to contribute to national program for prevention and control of blindness by acquiring sufficient knowledge for preventive measures and adequate skill to treat common ophthalmological diseases which leads to blindness or increased ocular morbidity.

CLINICAL EXPERIENCE

SEMESTER - VI

Out patient Department:

Acquaintance with - History taking and art of communication, Visual acuity testing, gross examination of the eye with torch light, eyelid examination including eversion of upper lid, head posture, Extra ocular movements, cover test, digital tomometry, superficial foreign body removal, fluorescein dye staining and confrontation perimetry

Observe intra ocular pressure measuring, lacrimal sac syringing.

Wards : Individual case discussions
SEMESTER - VII

OPD, ward and operation theatre:

Presentation of clinical cases

Learn to use direct ophthalmoscope

Observation of surgeries like Chalazion I and C, Lid abscess I and D, Pterygium excision, cataract and glaucoma surgeries.

Take part in at least one outreach clinic/school screening clinic

- Community ophthalmology: Surveys, health education program and intervention strategies in the prevention and control of blindness, ocular injuries, early detection of cataract, trachoma control program and programs relating to Vit A deficiency as well as school screening and outreach clinics. The aim is to teach the student how to reach out to the community and participate in providing full-fledged eye care delivery system to the community.
Optics, Refraction, Conjunctiva and Cornea

Optics
Elementary Optics and Physiological Optics
Measurement of Visual Acuity

Refractive Errors

a. Types of refractive errors (etiology, classification, clinical features and treatment)
   - Myopia
   - Hypermetropia
   - Astigmatism
b. Presbyopia & accommodation

Conjunctiva

a. Applied anatomy
b. Conjunctivitis
   - Types: infective, allergic
   - Symptoms and signs
   - Treatment
c. Degenerative changes in the conjunctiva:
   - Pinguecula
   - Pterygium
d. Ophthalmia neonatorum
Cornea/Sclera

a. Applied anatomy and physiology
b. Keratitis: infective and noninfective
c. Corneal ulcer/ulcerative keratitis
   ■ Etiology
   ■ Symptoms and signs
   ■ Investigations
   ■ Treatment
   ■ Complications
d. Episcleritis/scleritis

Uvea and Lens

Uvea

a. Applied anatomy
b. Uveitis
   ■ Types
   ■ Causes
   ■ Clinical features
   ■ Investigations
   ■ Treatment
c. Complications
d. Endophthalmitis
e. Panophthalmitis

Lens

a. Applied anatomy and physiology
b. Cataract: causes, symptoms, stages of development, diagnosis, management and complications
C. Glaucoma, Retina and Vitreous
Glaucoma

a. Applied anatomy, and physiology, Aqueous humor dynamics

b. Classification of glaucoma:
   ■ Primary open angle glaucoma (POAG)
     • Clinical features
     • Diagnosis
     • Management
   ■ Primary angle closure glaucoma (PACG)
     • Stages of ACG
     • Clinical features
     • Management
   ■ Congenital glaucoma
     • Aetiology
     • Clinical features
     • Treatment
   ■ Secondary glaucoma
     • Causes
   ■ Normal tension glaucoma
Retina:

a. Applied anatomy and physiology
b. Diabetic retinopathy
   - Non-proliferative diabetic retinopathy
   - Proliferative diabetic retinopathy
   - Treatment
c. Hypertensive retinopathy
   - Clinical features
   - Grading of hypertensive retinopathy
d. Retinal vein occlusion (CRVO/BRVO)
e. Retinal artery occlusion (CRAO/BRAO)
f. Retinal detachment
   - Clinical features and management
g. Age related macular degeneration (ARMD)
h. Retinopathy of prematurity
i. Leukocoria
   - Causes / differential diagnosis

Vitreous:

a. Anatomy
b. Vitreous degeneration (in general)
c. Vitreous hemorrhage
   - Causes
Pupil, Optic Nerve and Orbit

Pupil:
- Pupillary pathways and reactions
- Variations of pupil
  - Physiological: mydriasis and miosis
  - Pharmacological variations: mydriatics and miotics

Optic Nerve:
- Visual pathway
- Papillitis: etiology and clinical features
- Papilledema: etiology and clinical features
- Optic atrophy: causes

Orbit:
- Applied anatomy
- Orbital cellulitis: causes, investigation and treatment
- Proptosis: causes and management

Squint/Diplopia

Squint:
- Applied anatomy of extraocular muscles
- Types
- Causes
- Clinical features
- Treatment

Amblyopia:
- Types
- Diagnosis
- Management
**Eye Lid**

a. Applied anatomy

b. Inflammation of lids: Blepharitis

c. Inflammation of the glands of the lids
   - Stye
   - Chalazion

d. Abnormalities in the position of eye lids, lid margin and eye lashes
   - Trichiasis
   - Ectropion
     - Causes
     - Clinical features
     - Management
   - Entropion
     - Causes
     - Clinical features
     - Management
   - Ptosis/Lagophthalmos
     - Causes
     - Clinical features
     - Management

e. Tumors of eye lids:
   - Basal cell carcinoma
   - Squamous cell carcinoma

**G. Lacrimal apparatus**

a. Applied anatomy

b. Inflammation of the lacrimal passage
Acute Dacrocystitis
- Etiology
- Clinical features
- Management

Chronic Dacrocystitis
- Clinical presentation
- Investigation
- Treatment

c. Dry eye: causes, clinical features and treatment
d. Congenital nasolacrimal duct obstruction

Eye injuries and community ophthalmology

Eye injuries:
a. Types:
   - Mechanical (extraocular foreign bodies, blunt injury
   - Penetrating/perforating injury, sympathetic ophthalmitis)
   - Non-mechanical (chemical, thermal, electrical, radiational)
b. Primary management
c. Referral criteria

Community ophthalmology

a. Blindness:
   - Definition
   - Major causes (cataract, trachoma, xerophthamia, eye infections and Injuries, glaucoma)
   - Epidemiology: global and national perspectives
   - National blindness control programmes
   - WHO classification of visual impairment and blindness
b. Ocular manifestations of tuberculosis and leprosy
Division of time allotted in hours

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System wise division of hours

**General Medicine**

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<tr>
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Total 185 hours
Allied Subjects:
Psychiatry: Theory - 25 hours Clinical - 40 hours
Dermatology: Theory - 25 hours Clinical - 40 hours

Semester wise breakdown of subjects
Semester - V & VI 3 period/week
Semester - VII 2 period/week
Semester - VIII & IX 2 period/week

<table>
<thead>
<tr>
<th>Semester</th>
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<th>Hours</th>
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* Psychiatry: 25 Hours ** Dermatology: 22 hours
#: Includes ward Posting; Bed side Clinics; PBL; Seminars Symposia (2/month)
Broad Objectives and Approach

The objective of this curriculum is to train a medical graduate who on the completion of the undergraduate medical program is well informed and competent to carry out the role of a community oriented general physician. Attempt has been made to make this curriculum community oriented with integrated problem based learning of the subject of Medicine and its Allied subjects. Care is taken to make this curriculum comparable to the curricula in other teaching institutions of the country and abroad.

During first four semesters the subject of medicine is introduced to medical students (Annex 4 page 85). The aim is to integrate general medicine with community medicine with stress on good student – patient rapport, an epidemiological approach for diagnosis of prevalent diseases, understanding of the socio-cultural habits of different ethnic groups and the geographical variation in the prevalence of different types of diseases.

Four and a half years MBBS course is divided into nine semesters each of six months duration. On successful completion of Pre-Clinical Sciences course in first four semesters, the student will be introduced to the subject of Medicine and its allied subjects (i.e. Psychiatry and Dermatology) along with other subjects of clinical sciences. The subject of Medicine will be taught from 5th semesters to 9th semesters in an integrated manner. In 5th semester, a systems approach to General Medicine theory will commence and continued through all semesters. The clinical will be learned concurrently through wards attachment during these semesters. This ward attachment will provide ample exposure to the clinical situations prevalent in Nepal in addition to further strengthening the clinical acumen of the student. The teaching methodology will include didactic lectures, hospital posting, daily session devoted to Seminars, Symposia, Group discussions, Problem based learning (PBL) and guided self learning using audiovisual aids and computer based learning.

Clinical Posting V – IX Semesters

Students will work in medical outpatients, indoor units, intensive care units and coronary care units clinical training

- Develop the clinical skills in history taking, clinical examinations and differential diagnosis, planning of appropriate investigations and treatment, evaluate the effectiveness of the treatment and
for this purpose students will be allotted certain numbers of beds.

- Take appropriate medical history, examine patients and take relevant findings on history sheets, investigate and assist into institute treatment, monitor patients’ condition, and evaluate therapy on the allocated cases.

- Assist residents and or consultants to evaluate critically ill patients and provide supportive help when necessary.

- Observe residents and or consultant performing certain therapeutic / investigative procedures e.g. lumbar puncture, pleural aspiration, and ascetic fluid aspiration etc. and to carry these out under supervision.

- Familiarize with the instruments commonly used for medical procedures.

- Assist residents or consultants in counseling the patients and their families about the treatment and follow up care.

Clinical experience will be superimposed by theory. Student will learn by doing. They will work under the supervision of the residents as the part of a team chief of the unit will monitor the medical student’s performance during the placement of students in the unit. Student will keep the complete records of at least 15 cases while working in medical OPD, in patients unit, ICU and ICCU and will be evaluated on these.

**Specific objectives**

**Diseases of Cardiovascular System**

- Take appropriate history pertaining to cardiovascular system.

- Perform thorough physical examination of cardiovascular system.

- Diagnose and learn the management of following common conditions:

- Introduction, rheumatic fever, rheumatic heart disease, heart failure, congenital heart disease, hypertension, peripheral vascular disease, myocarditis,/cardiomyopathy, coronary artery disease, cardiac arrhythmias, infective endocarditis, pericardial effusion/ constrictive pericarditis, cor pulmonale, pulmonary hypertension, shock, Normal ECG, and abnormal ECG
interpretation.

**Diseases of Gastrointestinal System**

- Take detail history of patient suffering from gastrointestinal diseases.
- Perform thorough physical examination of gastrointestinal system, including rectal examination and examination of hernial orifices.
- Diagnose and manage following problems:
  - Introduction with symptoms and signs of GI diseases, jaundice, dysphagia and GERD (Gastro Esophageal Reflex Disease), acid peptic disorder, ascitis, viral hepatitis, fulminant hepatic failure, chronic hepatitis, cirrhosis of liver and portal hypertension, acute upper GI bleeding, acute lower GI bleeding, vomiting and constipation, diarrhoea, gastroenteritis, food poisoning, cholera and mass casualties, inflammatory bowel disease, acute pancreatitis, chronic pancreatitis, irritable bowel syndrome, nash and metabolic syndrome, malabsorption syndrome, non alcoholic steato hepatitis
  - Learning of normal plain X-ray abdomen and recognition of significance of air under diaphragm and other findings.

**Diseases of Respiratory System**

- Learning and taking the history of patients suffering from respiratory diseases.
- Learning and performing the physical examination of respiratory system.
- Diagnose and manage the following respiratory illnesses:
  - Symptoms and signs of respiratory diseases, pneumonia and lung abscess, chronic bronchitis and emphysema, broncheal asthma, pulmonary tuberculosis, fibrosing and occupational lung disease, pneumothorax, DVT, pulmonary embolism, upper respiratory tract infection, acute bronchitis, lung abscess and bronchiecstasy, empyema and pleural effusion, high altitude sickness.
  - Recognizing normal X-ray chest and common abnormalities, sputum examination for AFB.
Infectious and Tropical diseases
- Learning and taking the history of patients suffering from infective and tropical diseases
- Learning and performing the relevant physical examination.
- Diagnosis and treatment of common infective and Tropical diseases
- Chicken pox, measles, mumps, influenza/ bird flu, SARS, swine flu and common viral fevers, malaria, enteric fever, kalazar, infectious mononucleosis and septicaemic shock, typhus, relapsing fever and leptospirosis, amoebiasis, common parasitic diseases, filariasis, tapeworm infestation, dengue, chickengungia, PUO, HIV & PEM.

Clinical Hematology
- Blood and its products, blood transfusion and its reactions, myeloproliferative disorders, leukemias, anemias, lymphomas, bleeding disorders, multiple myeloma, purpura and platelet disorders.

Diseases of Endocrinal systems and disorders of Metabolism
- Learning taking the appropriate history.
- Performing physical examination relevant to dysfunctions of endocrine glands.
- Diagnosis and management of following common endocrinal disorders i.e. Diabetes mellitus, Diseases of the pituitary, thyroid, parathyroid and adrenal glands, diabetes insipidus.

Diseases of Immunological disorders
- Take history pertaining to joints and immunological disorders.
- Perform physical examination of musculoskeletal system and relevant physical examination.
- Diagnosis, pathogenesis and management of rheumatoid arthritis and DMARD therapy, seronegative spondyloarthritis, gout, osteoporosis, SLE, vasculitis.
Learning the basics of immunosuppressive therapy.

Learning the normal radiology of joints and other bones and the recognition and interpretation of abnormal findings.

Learning the diagnostic procedures i.e. joints aspiration.

**Nephrology**

- Taking of appropriate history related to renal diseases.
- Examination of disorders of urinary systems and relevant physical examination.
- Diagnose and manage following common conditions: UTI/pyelonephritis, acute glomerulonephritis, other glomerulonephritis, nephrotic syndrome, acute renal failure, chronic renal failure and renal replacement therapy, polycystic kidney disease,
- Learn examination of urine:
- Learn to recognize abnormal shadows in relation to ureter and bladder in x-ray.

**Diseases of Central Nervous System**

- Take appropriate history in relation to central nervous system.
- Learn to perform thorough neurological examination.
- Diagnose and treat following common conditions: introduction and common manifestation, meningitis, encephalitis, CVA, SAH, paraplegia, Parkinsonism, cerebellar disease, epilepsy, headache and migraine, peripheral neuropathy, ICSOL, cranial nerve palsy, myesthenia gravis, motor neuron disease, multiple sclerosis, muscular dystrophy and alzhimers disease, management of unconscious patient.
- Lumbar puncture and CSF examination and interpretation of abnormal findings, interpret normal X-ray skull, principles of CT scanning.
Poisoning and Toxicology

- Introduction
- OP, barbiturate, morphine, PCM AL PO3 and ZN PO3, salicylate, diazepam, CO poisoning
- Snakebite, scorpion/spider/wasp/honey bee bite/dog bite.

Clinical Pharmacology

- Antibiotic therapy.
- Immunosuppressive therapy
- Antihypertensive agents
- Diuretics.
- Anti anginal drugs.
- Anticonvulsant drugs
- Anticoagulant therapy

Miscellaneous

- Effects of tobacco & alcohol
- Genetics
- Common Geriatric problems and their management.
- Physiotherapy:
  - Physiotherapy in Cardio-Respiratory conditions:
    - Cardiac rehabilitation
    - Pulmonary rehabilitation
    - Chest physiotherapy
  - Physiotherapy in Geriatrics
  - Physiotherapy in Neurological conditions
  - Physical Fitness & Exercise Prescription
Division of Time allotted in Hours

Theory: 25 Hrs.
Clinical: 40 Hrs.

Broad Objective and Approach

- Outline the scope of Psychiatry.
- Recognize the difference between normal and abnormal behavior.
- Develop positive attitude towards mentally ill patients.
- Recognize the clinical manifestations of and diagnose common psychiatric disorders.
- Plan the management of common psychiatric disorders.
- Practical rationale use of different modes of therapy in psychiatric disorders.
- Diagnose acute psychiatric emergencies and institute immediate remedial measures.
- Assess psychosocial determinants of medical disorders.
- Contribute to promotion of positive mental health and prevention of psychiatric disorders.
- Provide mental health care to the community.
- Participate in community health programs.
- Request and interpret relevant investigations related to psychiatry.
- Counsel, guide and explain the prognosis of the psychiatric disorders to the patients and the attendants.
- Decide when to refer a case to a secondary or tertiary care centers/psychiatrist.
- Discharge medicolegal and ethical responsibilities related to psychiatry.
- Update his professional knowledge and skills on the ongoing basis.
Learning experiences

- Clinical case presentation
- Small group discussion
- Structured interaction sessions (lectures).
- Demonstration of skills: psychiatric interview skills, skills to elicit psychopathology, counseling skill.
- Role play.
- Integrated seminars.
- Internal assessment examination
- End-posting clinical examination

Specific Objectives

A) General psychiatry:
- Basic concept of psychiatry.
- Differentiate between normal and abnormal behavior.
- Classify psychiatric disorders.

B) Clinical evaluation:
- Perform psychiatric interview
- Take detail psychiatric case history and conduct mental state examination
- Refer for relevant investigations including psychological testing.
- Describe psychopathology.
- Diagnose psychiatric disorders in a rationale and systemic manner.

C) Community psychiatry:
- Diagnose and manage common psychiatric disorders in the community.
- Refer difficult cases to secondary or tertiary care centers.
D) **Clinical Psychiatry:**

Describe etiology, epidemiology, clinical manifestations and the principles of management of the following psychiatric disorders:

- Organic mental disorders
  - Substance use disorders
  - Schizophrenia and related psychotic/delusional disorders
  - Mood disorders
  - Anxiety disorders: generalized anxiety, panic & phobic disorders
  - Dissociative and somatoform disorders
  - Obsessive compulsive disorders
  - Reaction to severe stress and adjustment disorders
  - Neurasthenia and depersonalization-derealization syndrome
  - Non organic sexual dysfunctions
  - Psycho-physiological disorders in systemic organic diseases
  - Personality disorders
  - Psychiatric disorders in childhood and adolescence
  - Psychiatric disorders in geriatrics

E) **Psychiatric emergencies:**

Learn to deal with the following cases in emergency settings:

- Suicide
- Substance intoxication and withdrawal
- Delirium
- Acute psychosis
- Acute mania
- Violent patient
- Catatonia
- Disaster victims
Management:
- Describe pharmacology of commonly used psychotropic medicines
- Describe indications, contraindications, and procedures of electroconvulsive therapy
- Apply various psychotherapeutic and counseling skills
- Describe non-pharmacological methods of treatment in psychiatry

F) Forensic psychiatry:
- Describe legal and ethical issues in psychiatry

G) Consultation liaison psychiatry:
- Learn the concepts of holistic management of all the cases
- Apply the skills of intra and interdepartmental referral systems in the hospital and community settings

H) Psychosocial Rehabilitation:
- Plan rehabilitation for patients with chronic mental illness, mental retardation and substance abuse

Course content
- History of psychiatry
- Classifications in psychiatry- ICD-10 and DSM-IV
- Organic mental disorders
- Substance use disorders
- Schizophrenia, Other psychotic and delusional disorders
- Mood disorders
- Anxiety disorders
- Dissociative disorders
- Somatoform disorders
- Personality disorders
- Sexual disorders
- Sleep related disorders
- Eating disorders: anorexia nervosa, bulimia nervosa
- Psychosomatic disorders
- Child psychiatry I: Autism spectrum disorders, ADHD
- Child psychiatry II: Mental retardation, Learning disability
- Geriatric psychiatry
- Psychiatric disturbances associated with pregnancy and puerperium
- Psychiatric emergencies: suicide, catatonia, violent behavior
- Biological modes of treatment I: Psychopharmacology
- Biological modes of treatment II: Electroconvulsive therapy, Psychosurgery
- Non-pharmacological modes of treatment: various psychotherapeutic techniques, counseling
- Forensic psychiatry: legal and ethical issues in psychiatry
- Psychosocial rehabilitation and community psychiatry
Division of Time allotted in Hours

Theory: 22 Hrs.
Clinical: 40 Hrs.

Introduction
- Outline the role and importance of dermatology in modern medicine.
- Define terms commonly used in dermatological practice.
- Explain the structure and function of the skin as an organ.
- Elicit a complete clinical history from the patients, perform clinical examination, requisition of relevant investigation and outline the principles of management.
- Perform skin scrapings and do a KOH preparation for fungus infections.

Nutritional and Metabolic disorders
- Diagnose, and manage pellagra and phrynoderma.
- Diagnose and refer hyperlipidaemia and acrodermatitis.

Infective disorders
- Diagnose, manage and outline the preventive measures against the most common infective skin diseases in the community.
- Viral - herpes zoster, herpes simplex, common warts.
- Fungal - superficial dermatophytosis, pityriasis versicolor, candidiasis.
- Bacterial - skin tuberculosis, leprosy, pyogenic infections.
- Parasitic - scabies and pediculosis.
Dermatitis and Eczema
- Identify and manage common eczemas.
- Endogenous: atopic, seborrhoeic, and nummular dermatitis simplex chronicus.
- Exogenous: contact and irritant dermatitis, urticaria.
- Refer chronic recurrent cases of eczema.

Papulo-squamous diseases
- Identify and treat psoriasis, pityriasis and lichen planus.
- Refer complicated cases of psoriasis.

Vesiculobullous diseases
- Diagnose pemphigus
- Institute primary care with steroids.
- Refer complicated cases.

Drug reactions and eruptions
- Diagnose and manage acute drug eruptions: erythema multiforme, fixed drug eruption, Stevens - Johnson syndrome.
- Refer complicated cases.

Disorders of sebaceous glands, sweat glands and hair follicles
- Diagnose and treat acne, miliaria and alopecia.

Disorders of pigmentation
- Diagnose and outline principles of management of: vitiligo, albinism, hypopigmentation.
**Leprosy**
- Diagnose various types of leprosy.
- Manage and treat patients of leprosy.
- Recognize and treat leprosy reactions.
- Refer cases requiring surgery.
- Describe preventive and rehabilitative aspects of leprosy.

**Acquired Immuno-deficiency Syndrome**
- Describe dermatological manifestations of AIDS.

**Sexually transmitted diseases**
- Diagnose and treat gonococcal urethritis, syphilis, non-gonococcal urethritis, chancroid, lympho granuloma venereum, genital herpes, granuloma inguinale.

**Immunological diseases**
- Identify and refer patients having SLE, PSS

**Dermatological manifestations of systemic diseases**
- List common causes.
- Outline principles of management.

**Tumors of the skin**
- Describe, diagnose and outline of the principles of management and refer common precancerous and cancerous conditions of the skin.
Introduction

Clinical curriculum was published in 1996, when ‘Pediatrics’ was included in medicine and allied subjects. It was introduced as a separate subject from August 1999 with a total of 506 teaching hours spread over Semesters V – IX. Out of this 64 hours were recommended for integrated teaching with Community Medicine and also included perinatology and emergency pediatrics. Other additional course contents were genetics, neonatology, fluid and electrolytes, national health program, rational drug therapy, child rights & regulations, social pediatrics, childhood disability and counseling. First examination in pediatrics as a separate subject was conducted in June/July, 2002.

Distribution of hours

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Broad Objectives

Students will build on the experience gained already in history taking in general medicine, and develop their attitude and skill in obtaining history from children or their accompanying relatives. They also develop skill in eliciting some of the physical signs and clinical procedures in neonates and infants. Students will acquire skills and attitudes by working as a member of health care team and planning and implementing school health programs. Diseases and neonatology
are learnt in classroom situation and concurrent bed-side clinics. Students acquire knowledge, skill and attitude for diagnosis and management of common pediatric problems relating to all the systems. Common and frequently encountered problems are stressed. Students also learn to recognize congenital malformations, disabilities, and chromosomal disorders, developing attitude and skill in counseling parents and referring them to appropriate institutions.

Students spend a period of two weeks, working under a consultant in the in-patient department and the emergency unit, becoming a member of the team. During this period they write the history and physical findings in case sheets, institute necessary investigation and take part in dealing with the management of emergency and non-emergency pediatric problems. Through frequent ward round teaching students get an opportunity to clarify their ideas and obtain experience in clinical pediatrics.

**SPECIFIC OBJECTIVES**

**History taking from children and / or their parents:**

- Record the complete medical history on the history form, noting complaints, previous history, birth history, mothers health during pregnancy, details of delivery, infancy, development, past illness, operations, family history, geographical history; inquire about travel and contact with one who has traveled; inquire about dietetic history and breast feeding.

- Indicate what additional information is needed and explain why it is important; list the series of questions used to explore each chief complaint; reconstruct from memory the standard immunization routine; indicate which are important neonatal milestones, (sitting up, crawling, standing, walking, falling); give appropriate age for achieving each of the milestones, health of parents and others in contact with the person suffering, weight and height of parents (e.g. diagnostic considerations and implications for therapy and patient compliance in view of social history; list common complaints involving each of the general organ systems ).
School-health program:
- Organise school health program in a community and when required, perform medical examination of new children and those old ones with ill health; take care of children on long term therapy e.g. tuberculosis, leprosy
- Advise on school dental service and immunization services
- Give direct health education in schools

General paediatrics:
- Take complete history from children, parents or guardians, including ante-natal and postnatal, diet and development history
- Examine a child of any age
- Assess the nutritional and developmental status of the child
- Recognise signs symptoms of illness
- Suggest appropriate tests on blood, stool, urine, skin tests and radiological investigations.
- Recognise and differentiate between normal and abnormal growth and development
- Assess rate of growth patterns of gain in weight, height, head circumference, dentition
- Recognise nutritional deficiency diseases, plan and advice on nutritional requirements.
- Develop immunization schedule
- Develop skills and attitudes to organise wider five clinics
- Recognise course, signs and symptoms of diarrhoeal diseases and manage such cases

Paediatric emergencies:
- Recognise and institute appropriate management in common poisoning like kerosene, aspirin, iron
- Recognize and institute appropriate management in hypovolaemic shock, electric shock, anaphylactic shock
Infectious and noninfectious diseases:

- Recognize the signs and symptoms, relate pathophysiology to clinical symptoms, manage and explain to patients and/or their relations about prophylaxis if available and recognize appropriate case for referral for the diseases listed
- Viral: chickenpox, measles, mumps, poliomyelitis
- Bacterial: pertussis, diphtheria, typhoid, tuberculosis
- Respiratory diseases, upper respiratory tract infection, common ENT problems, pneumonia, bronchopneumonia, bronchiectasis, lung abscess, pleural effusion, pneumothorax, respiratory failure, and its management.
- Protozoal: malaria, giardiasis, amoebiasis parasitic: helminthiasis
- Allergic and immunologic disorders: bronchial asthma, status asthmaticus and rheumatic fever

Neonatology:

- Witness the examination of neonates
- Witness elicitation of neonatal reflexes and recognize their significance
- Detect malformations
- Neonate, Neonatal resuscitation
- Prematurity, LBW infants and its problem, Neonatal sepsis
- Respiratory distress and its causes, Hypoglycaemia

Haematologic diseases:

- Diagnose blood dyscrasiasis
- Recognize signs and symptoms of blood disorders, leukaemia, haemorrhagic disorder, congenital haemoglobinopathies, haemolytic anemia, nutritional anemia.
- Plan short and long term therapy in haematological, disorders
- Plan for investigation of such cases
- Idiopathic thrombocytopenic purpura (ITP)
- Plan for safe blood transfusion and recognize hazards of transfusion
Liver disorders:
- Recognise signs, symptoms and pathophysiology and describe the principle of management for hyperbilirubinaemia, infective hepatitis, and biliary atresia. infantile cirrhosis, portal hypertension

Disease of central nervous system:
- Recognise signs, symptoms, pathophysiology of the following conditions and institute emergency treatment in coma, convulsions/fits, meningitis of bacterial, viral and fungal, encephalitis, tumors

Cardiovascular diseases:
- Recognise cyanotic and non-cyanotic disease and institute emergency treatment in cyanotic spells and congestive heart failure in small infants and young children
- Rheumatic Heart Disease
- Common arrhythmias in children

Urinary tract diseases:
- Recognise signs, symptoms, pathophysiology of common urinary tract diseases in children and manage urinary tract infection, acute glomerulonephritis, renal failure acute, chronic, nephrotic syndrome, Wilm’s tumor, acute renal failure, Hemolytic Uremic Syndrome, Common congenital malformations of kidney in children

Endocrine diseases:
- Recognise signs, symptoms, and pathophysiology of the following conditions; carry out the management of cretinism, goitre, dwarfism, Congenital Hypothyroidism, Rickets

Congenital malformation:
- Recognise and institute initial therapy and advice and refer to
appropriate authority for treatment of cleft lip, cleft palate, tracheo-oesophageal fistula, imperforate anus, diaphragmatic hernia, congenital pyloric stenosis, Adolescent problem and child abuse.

**Chromosomal disorders:**
- Recognize, investigate and give appropriate advice in cases of Down’s syndrome and Turner’s syndrome.

**The child with disabilities:**
- Recognize the significance of childhood disabilities, especially the following conditions’ orthopaedic, hearing, visual, mental and cardiac problems, congenital malformations, chromosomal disorders and do counseling.

**Acquire knowledge about preventive pediatrics and National Health Programs related to Child Health.**

**Diagnose and manage common neonatal and childhood diseases/problems that require primary and secondary care and also identify problems that require referral to tertiary centers.**

**Provide primary care in neonatal and pediatric emergencies.**

**Provide emergency CPR to newborn and children.**

**Specific Objective**

**Introduction of the subject:**
- Scope of pediatrics in developing countries
- Growth & development - newborn to adolescent
- Health indices, normogram, national standard
- Morbidity & mortality
- Age distribution of pediatric illnesses
- Rights of a child
Mastering of:
- anthropometry in childhood
- nutritional status
- community pediatrics – IMCI
- national health programs

Utilization of skills:
- pediatric history taking
- conduct detail clinical examination
- learn diagnostic investigations and procedures
- learn emergency procedures
- neonatology with emergency CPR – neonates

Integrate the subject with allied specialties:
- basic sciences
- community medicine (MCH, immunization clinic, school health)
- perinatology (labor room medicine)
- emergency service & ICU management.

**CLINICAL EXPERIENCE**

For the period of two weeks students will work in the indoor and emergency units of pediatric hospital as a Junior Intern.

**Diagnosis, investigation and treatment:**
- Take an appropriate history from children or from their relatives, examine patient and record findings in history sheet, investigate and assist to institute treatment
- Assist with the evaluation of the critically ill child, provide medical help and monitor condition when necessary
- Evaluate status of nutrition, hydration, and milestone of development and assist in providing care
- Assist with the performance of certain procedures in pediatric practice, i.e. L.P, bone marrow aspiration/aspiration of fluid.
- Assist or provide immunization to the children in the clinic
- Assist with counseling and follow up care, laying stress on preventive and promotive areas when necessary

The students in groups of 3-4, between 9.00 am to 8.00 p.m. will work under supervision in indoor, emergency and other service areas. The students will actively participate in the management of sick children by sharing the responsibility with supervisor. The unit in-charge will be responsible for the conduct of the students and the evaluation of their performance in pediatric units. The students will keep a complete record of at least 10 cases during the period.

**TEACHING SEMESTER-WISE**

**SEMESTER - V**

**THEORY**

Introduction/ overview of pediatrics
- Normal child / newborn nomenclature
- Growth & development
- Immunizations
- Nutritional assessment
- Nutritional deficiency
- Behavior pediatrics
- National Health programs related to Children in Nepal
- School Health
- Breast feeding
- Infant feeding
- Child Health situation, Vital Statistics
- IMCI practice (orientation, global program, present status)
CLINICALS
- History taking in Pediatrics
- Anthropometric measurements
- Developmental assessment
- Physical examination of the child
- Code of conduct during clinical examination
- Normal development of child

INTEGRATED
- School Health
- National Health Program
- Immunization
- Nutritional assessment
- Behavior pediatrics

SEMESTER - VI

THEORY
- Infectious diseases
- Diseases of respiratory system
- Neonatology
- Tuberculosis
- Fluid and electrolyte therapy
- Diarrhoeal diseases and their management

CLINICAL
- History taking
- Developmental assessment in a child
- General physical examination
- Systemic examination – CVS, Respiratory, GI & CNS
Approach to IMCI in clinical practice
Examination of a newborn

**SEMESTER - VII**

**THEORY**
- Cardiovascular diseases
- Renal diseases
- Hepatobiliary system diseases

**INTEGRATED- self learning**
- Embryology, physiology of the above

**SEMESTER - VIII**

**THEORY**
- Hematology
- Oncology
- CNS & neuromuscular disorders
- Diseases of endocrines
- Genetics & chromosomal disorders
- Childhood disabilities
- Physiotherapy in paediatrics
- Congenital malformation

**CLINICAL**
- Examination of a newborn (Normal and abnormal)
- Gestational assessment of newborn
Low birth weight babies
- Resuscitation of newborn
- Breast feeding & BFHI
- Identification & management of common neonatal problems
- IMCI training (documentation, danger sign, follow up, video show)

**SEMESTER - IX**

**THEORY**
- Pediatric surgical problems
- Emergencies in pediatrics
- Collagen vascular diseases
- Inborn errors of metabolism – General aspect
- AIDS in children
- Rational drug therapy
- Poisoning, snake bite & drowning
- IMCI – documentation, medication, follow up & referral

**CLINICAL**
- Emergency room posting
- Instruments
- X-ray study
- Immunization training
- Procedure training
- Diarrhea unit training
Surgery and Allied Subjects
General Surgery

Division of time allotted in hours

<table>
<thead>
<tr>
<th>Semester</th>
<th>Theory</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>40 (2 classes/week)</td>
</tr>
<tr>
<td>VI</td>
<td>40 (2 classes/week)</td>
</tr>
<tr>
<td>VIII</td>
<td>40 (2 classes/week)</td>
</tr>
<tr>
<td>IX</td>
<td>30 (1 class/week)</td>
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System wise division of hour

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Subjects</th>
<th>Theory (hours)</th>
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<tbody>
<tr>
<td>1.</td>
<td>General Surgery</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Disease of Gastrointestinal Tract and Abdomen</td>
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<td>3.</td>
<td>Diseases of Hepato-biliary Tract</td>
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<td>4.</td>
<td>Surgery of Genito-urinary System</td>
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<tr>
<td>5.</td>
<td>Cardiothoracic Surgery</td>
<td>5</td>
</tr>
<tr>
<td>6.</td>
<td>Central Nervous System</td>
<td>5</td>
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<tr>
<td>7.</td>
<td>Endocrine System</td>
<td>10</td>
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<tr>
<td>8.</td>
<td>Lympho-reticular System</td>
<td>5</td>
</tr>
<tr>
<td>9.</td>
<td>Miscellaneous</td>
<td>10</td>
</tr>
</tbody>
</table>

Semester wise breakdown of subjects
<table>
<thead>
<tr>
<th>Semester</th>
<th>Systems</th>
<th>Theory (Hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>General Surgery</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Gastrointestinal</td>
<td>30</td>
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<tr>
<td>VI</td>
<td>Hepatobiliary</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Urology</td>
<td>30</td>
</tr>
<tr>
<td>VIII</td>
<td>Central Nervous System</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Cardiothoracic</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Lymphoreticular</td>
<td>5</td>
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<tr>
<td></td>
<td>Endocrine</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
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<tr>
<td>IX</td>
<td>Revision</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

**BROAD OBJECTIVES AND APPROACH**

Students will already be familiar with history taking and clinical examination from pre-clinical course. In their initial surgery course, students learn to carry out clinical examination for surgical problems such as ulcer, fissures and swellings not dealt previously. Theoretical aspects will include the principle of general surgery and problems of gastrointestinal, hepatobiliary, cardio-thoracic, breast, peripheral vascular, genito-urinary, central nervous, endocrine and lymphoreticular systems. Musculoskeletal system is dealt with in orthopedics. Emphasis is laid on concurrent bed-side clinical teaching in order to make teaching-learning more effective. Observing surgical procedures in operation theatres will provide exposure in building surgical skill.

At the end of the course the student should be able to:

1. Identify the common surgical problems of Nepal.
2. Obtain a proper relevant history.
3. Perform a complete general, systemic and local examination.
4. Arrive at a logical diagnosis.
5. Consider the differential diagnosis and complications.
6. Order relevant cost effective investigations to establish the diagnosis and plan treatment.
7. Interpret laboratory investigation results and read skiagram of common surgical problems.
10. Develop habit of rational use of drugs including antibiotics and other medications.
11. Provide first aid and should be able to learn how to refer patients with complicated surgical problems to higher centers.
12. Know the importance of informed consent and conduct it.
13. Develop good communication skill with the patient and their relatives.
14. Develop leadership qualities, promote team work.
15. Should have some idea to manage disaster.
16. Identify the importance of dealing with and labeling medico-legal conditions.
17. Know about Universal Precautions and quarantine of patients suffering from HIV and HbsAg.

During the undergraduate course the student will achieve Learning experience in the form of:

1. Lectures.
2. Integrated seminars.
3. Group discussions.
4. Outpatient postings.
5. Ward posting.
6. Bed side case demonstration and/or discussion.
7. Case presentations.
8. Clinico-pathological exercises.
9. Surgical case studies.
10. Procedural demonstration and/or performance under supervision.
**SEMMETERS – V & VI**

During this period the students are posted in surgical wards and out-patient department in the morning hours. They will be taught the skills of taking history and correct methodology of the clinical examination to arrive at a diagnosis. In the outpatient department they will be exposed to examine clinical cases of common varieties and get familiarized with common diseases in surgical practice. The students may be allotted beds so that he/she will be able to follow up the disease pattern, treatment modalities and the outcome of the treatment, etc.

Every day in the afternoon for 2 hours (2 P.M to 4 P.M) the students may be engaged in tutorial group discussions, where demonstration of common surgical cases, pathology specimens, clinical microbiology and/or different topics will be held.

By end of this period the students will be able to examine clinical cases of common varieties. They will also be familiar in diagnosis, and suggest investigations to confirm the clinical diagnosis.

**SEMESTER - VII**

Students will be posted in Clinical as well as theory in orthopaedics.

**SEMESTER - VIII**

During the morning hours students are posted in orthopedic and other allied subjects e.g. anesthesia, radiology and dental surgery. Students may also be posted in sub-specialties e.g. cardio-thoracic surgery, neuro surgery, plastic surgery and burns unit, pediatric surgery, urology etc. so that the basic knowledge in these specialties may be imparted.

Theory classes will continue during this semester.

**SEMESTER - IX**

The students are posted in the department of General Surgery.

Besides,

- For a period of two weeks the student will work in emergency room.
He/she will be under supervision and will be given responsibilities progressively in performing these duties. The duration will be from 9 a.m. to 8 p.m. every day.

For another two weeks the student will be posted in the operation theatre.

**SPECIFIC OBJECTIVES**

**Clinical knowledge:**

**History taking and physical examination:**

- The format is the same as for General Medicine curriculum with the following special interrogations (Annex 4 page 85).

**Examination of Swelling:**

- Inspect for number, site, extent, shape, size, colour, surface, edge or margin, pulsation, impulse on cough, character of skin over the swelling and the surrounding area.

- Palpate local temperature, confirm findings observed in inspection, elicit tenderness and point of maximum tenderness, feel the consistency, test for fluctuation and translucency; recognise reducibility and fixity to the anatomical plane, (e.g. skin or deeper structure if any); examine regional lymphnodes.

- Percuss for dullness, resonance or peristalsis.

**Examination of Ulcer:**

- Inspect number, location, size, shape, floor, edge, base, discharge.

- Palpate and confirm the findings of inspection; elicit tenderness, feel edge and in duration of floor; test the mobility, bleeding; examine regional lymphnodes surrounding vessels and nerves.

**Examination of Sinus or Fistulae:**

- Inspect number, position, mouth, edge, character of discharge surrounding skin.

- Palpate tenderness, wall, and mobility neighbouring area; examine with probe, ascertain direction, depth, presence of foreign body,
any communication to hollow viscus and discharge; examine regional lymphnode.

**Theoretical Knowledge:**

**General Surgery:**

- Describe the causes of bleeding, the type and source; assess the blood loss in relation to the clinical condition of the patient.

- Outline the principles of control of bleeding (bearing in mind condition such as haemorrhagic diathesis); administer first aid treatment to a patient with active bleeding; make reasonable judgment concerning active surgical investigation in such patient.

- Describe the principles of blood transfusion, blood grouping, cross matching, blood transfusion, its indication and hazards.

- List the causes, the pathophysiology of shock, and correlate the clinical features with the degree of shock, and describe the natural compensatory mechanisms involved preventing shock.

- Initiate treatment of shock and correct fluid, electrolyte and pH imbalance; describe the role of drugs like steroids, antibiotics, anticoagulants and analgesics.

- Multiple Trauma, ABC of trauma & resuscitation.

- Management of Mass disaster.

- Describe anatomy of respiratory passage and mechanism of respiration.

- List the causes of respiratory failure and describe the emergency management of such cases including assisted respiration (its advantages the disadvantages), the indications for tracheostomy, and details of its technique and post operative care of a tracheostomised patient.

- Describe the types of wound, nature of wound, e.g., clean, infected or contaminated; understand the importance of time elapsed since sustaining such wounds; actively participate in treating such a patient.

- Describe the mechanism of wound healing and list the indications for primary closure, secondary closure, and debridement wound excision and skin grafting.

- Describe the types, degree and percentage of burns.
Outline the pathophysiology, specially the fluid and electrolytes imbalance.

Calculate the fluid requirement of particular patient and institute treatment, e.g. crystalloids, plasma, blood substitute, antibiotic and analgesics.

Describe the complication and their treatment including skin grafting.

Describe the distribution of fluid and electrolytes in various body compartments, their composition, daily requirement and balance and routes of administration.

Asses the clinical state of fluid, electrolyte and pH imbalance, and describe the principles of treatment of any imbalance and also metabolic and respiratory acidosis/alkalosis including tetanus, gas gangrene, clostridial infection, aggressive soft, tissue infection and necrotising fasciatis.

Describe the types and the routes of infection, the types of pathogens and their virulence.

Describe the prevention of infection, e.g. immunization and aseptic techniques adopted to prevent infection and cross infection.

Describe the importance of isolation of pathogens by culture and sensitivity, treatment with specific chemotherapeutic agents and antisera and their toxicity.

Define "inflammation" and describe the causes, stages, mode of spread, outcome and treatment of inflammation including systematic inflammatory response syndrome (SIRS).

Define ideal principles of sterilization.

Define the types of sterilizing agents and techniques including dry heat, boiling, moist heat, water at high pressure and temperature (autoclaving), radiation and chemical agents; their uses in common surgical practice, and their advantages and disadvantages.

Should know types, causes of ulcers, sinuses and fistulae and distinguish between ulcer, sinus or a fistula by thorough clinical examination and should know reasons of non healing of these.

Request general and specific investigations relating to ulcers, sinuses and fistulae and outline their surgical treatment.
Should know differential diagnosis of parietal swellings and their management.

Define and differentiate between benign and malignant tumors, mode of spread, clinical staging and histological grading of malignant or potentially malignant tumors various investigations including tissue biopsy and - describe the various modalities of treatment and their outcome.

Physiotherapy in General Surgical conditions: pre & post operative management.

Disease of Gastrointestinal Tract and Abdomen:

Perform clinical examination; make a diagnosis (based on physical findings and biochemical and specific investigations); and outline or institute treatment for patients with the following conditions; injuries of tongue, mouth, face; congenital defects, cleft lip cleft palate. parotid gland abscess; salivary tumor; ranula; tongue tie; branchial cyst or fistula., preauricular sinus; foreign body in oesophagus, cardiospasm, oesophageal varices, strictures, oesophagitis, carcinoma of oesophagus and hiatus Hernia. Congenital hypertrophic pyloric stenosis, Adult hypertrophic pyloric stenosis, peptic ulcer and its complications, benign and malignant tumors of the stomach, & intestine (small, Large, Rectum and Anus), peritonitis acute or chronic (its causes and management, review anatomy and various peritoneal reflections); acute lymphadenitis, specific or non-specific, chronic e.g. tuberculous. Lymphnode involvement in malignant tumors.

A good knowledge of Intestinal obstruction. Abdominal tuberculosis and common infective diseases of colon.

Examine, investigate, diagnose and manage hernia, congenital or acquired, external or internal, inguinal, femoral, incisional, epigastric, umbilical or paraumbilical, lumbar, obturator, gluteal, diaphragmatic, oesophageal and phantom., congenital defect of abdominal wall like exomphalos major and minor parietal trauma, e.g. superficial wounds, laceration, bruises, tear of rectus muscles leading to haematoma, rupture of, inferior epigastric artery, penetrating wounds, inflammation, parietal absces, tumor e.g. lipoma, dermoid tumors, neurofibroma.
Examine, investigate, diagnose and manage perineal abscess, imperforate anus. Fistula, fissure in ano, haemorrhoids and rectovesical or rectovaginal fistulae, benign and malignant tumors specially carcinoma of colon rectum and anal canal.

Diseases of Hepato-biliary Tract:

Describe the anatomy of the biliary tract including congenital defect like biliary atresia. Outline the pathophysiology, clinical features, general and specific investigations, and principles of treatment, and examine and institute treatment in the following common conditions, hepatitis, (viral, amoebic including abscess); pyaemic liver abscess; portal cirrhosis, hydatid cyst; primary hepatoma of liver; secondary metastasis in the liver; cholecystitis, (acute, chronic), gall stone; jaundice, (with special attention to surgical jaundice (obstructive). carcinoma of the gall bladder and choledochal cyst. Fibrocystic disease of pancreas, acute pancreatitis, chronic pancreatitis, malabsorption syndrome, diabetes mellitus, tumors or pancreas, e.g. head of pancreas producing obstructive jaundice, adenomas e.g. insulinomas, Zollinger/Ellison syndrome. Portal hypertension feature and treatment.

Cardiothoracic Surgery:

This is a specialized branch of surgery and students are expected to have brief knowledge of the following common conditions, their investigations, diagnosis and management.

Describe investigation, chest X-ray, bronchoscopy and bronchography

Outline the surgery of chest injuries, fracture ribs, surgical emphysema, pneumothorax, hydrothorax, haemothorax, pyothorax, chylothorax, including stove in chest, flail chest.

Outline the surgery of diseases of lung, tuberculosis, atelectasis, collapse, consolidation, pulmonary oedema, bronchopneumonia, embolism infarction, bronchiectasis, lung abscess, tumors, bronchial adenoma, hydatid cyst, bronchogenic carcinomas.

Outline the surgery of heart, special methods of investigations, radiology, angiocardiography, cardiac catheterisation, cardiopulmonary resuscitation, pericardial effusion, cardiac
tamponade, pericarditis, and their treatment, congenital and acquired heart diseases and their surgical management.

**Surgery of Genito-urinary System:**
- Describe the anatomy and physiology of the related organs.
- Describe the following common diseases, their clinical features, examination, diagnosis and treatment:
  - Congenital abnormalities, polycystic kidney, solitary cyst of the kidney, horseshoe kidney, double ureter, post caval ureter, hypospadius, epispadius, phimosis, crypto-orchidism, posterior urethral valve, ectopia vesicae.
  - Rupture of kidney, bladder, urethra, and trauma to testes.
  - Obstructive nephropathy and calculus diseases (hydronephrosis, pyonephrosis, urinary stones, chyluria, haematuria).
  - Genito-urinary tumours (Wilm's tumor, renal cell carcinoma, carcinoma of ureter and urethra, papilloma of bladder, carcinoma bladder, and prostate).
  - Calculous of infective diseases of Kidneys, ureters, urinary bladder, urethra (stone urinary bladder, nephritis, pyelitis, cystitis and urethretis).
  - Retention of urine, acute and chronic) and obstructive uropathy.
  - Prostatitis, benign enlargement of prostate, prostatic carcinoma, stricture urethra, phimosis.
  - Testes, vas, epididymitis, scrotum and penis, crypto orchism, mal-descended testes, hydrocoele, haematocele, seminoma, teratoma.
  - Vasectomy, infertility and subfertility in man, impotency.
  - Epididymitis and orchitis, pin hole rneatus, paraphimosis, stricture urethra, carcinoma penis.

**Central Nervous System:**
- Examine the central nervous system.
- Diagnose and manage the different types of head injuries, hydrocephalus; space occupying lesion of brain and spinal cord.
**Musculoskeletal System:**

(To be covered in curriculum of orthopaedics)

**Endocrine System:**

- Describe the anatomy, physiology and the hormone secretion of the endocrine glands and its surgical aspect.
- Describe the clinical presentation, diagnosis, investigations and management of the following conditions:
  - Hyper and hypothyroidism, goitre, tumors
  - Hypo and hyper function of adrenal gland, tumors of adrenal
  - Hyperparathyroidism and tetany
  - Diseases of pituitary gland that are encountered in surgical practice, e.g. gigantism, acromegaly
  - Common conditions of thyroids, testes, pancreas and ovaries

**Lympho-recticular System:**

- Describe different conditions that are encountered in surgical practice or require surgical management including lymphomas, Hodgkin's and non-Hodgkin's lymphoma, rupture of spleen and splenomegaly, e.g. tropical, idiopathic, thrombocytopenic purpura, congenital spherocytosis

**Miscellaneous:**

- Describe the anatomy, physiology and different conditions involving breast, e.g. abscess, benign and malignant tumors and their management.
- Know the anatomy and physiology of vessels, effects of occlusion of a vessel and tile common diseases; Buerger's disease, Raynaud's diseases, arteriosclerosis, diabetic gangrene, deep vein thrombosis, varicose veins.
- Describe the anatomy and physiology of the lymphnode and lymph vessels, their function and different condition such as lymphangitis, lymph adenitis, lymph oedema and their management.
- Surgical Oncology.
- Minimal invasive surgery.
- Principles of organ transplant, rejection and immunosuppression.
- Upper & Lower Endoscopy.

**Emergency Room:**

- Students will work for a period of two weeks in emergency room and for another four weeks in surgical in-patient department, operation theatre and surgical out-patient.
- Recognize and evaluate the patient’s condition through history and clinical examination or through the attendants, parents and guardian.
- Distinguish conditions which call for senior members of the team or which require immediate referral
- Assist doctor on duty to provide immediate treatment
- Perform minor surgical procedure under supervision
- Assist with performance of investigative procedure such as X-ray, laboratory investigation, and interpret the results
- Provide post treatment counseling
- Maintain records, examine patient and report for medico legal procedure

Students will take an active part in handling both minor and major, surgical and medical file emergency room. They will share responsible with doctors for all cases, and be guided by the medical officer incharge. The medical officer incharge will be the immediate supervisor and responsible for the evaluation of the students performance. The student will remain in emergency duty from 9 A.M. to 8 P.M.

**Skill: Junior Internship: Semester IX - 04 weeks:**

Students will function as junior interns and will observe and carry out actual management, as part of the team working in ward, operation theatre and post-operative room. Not more than two students will
be placed in each unit. The student will share responsibility for management with more than one surgeon for the purpose of gaining wide experience. The chief of the particular surgical unit will be responsible for the conduct of the students, and evaluation of their performance. The students will keep a complete record of at least 15 cases during the posting.

During this period the student will

- take appropriate surgical history, examine patients and record all relevant findings on history sheet,

- investigate and assist with the institution of treatment, monitor patients condition and evaluate therapy,

- interpret the reports of special investigation; advise surgical or conservative treatment; evaluate the after treatment and perform certain minor surgical procedures,

- assist residents and/or consultants to evaluate critically ill patients and provide supportive help when necessary,

- evaluate preoperative patients; prepare patients for operation; assist surgeon with operation; observe and assist hospital staff with post operative management of patients,

- be familiar with commonly used surgical procedures, techniques and equipment,

- perform under supervision minor surgical procedures and assist surgeon or resident with any procedures being done in general or special wards,

- assist surgeon and/or resident to provide counseling for patients and patients attendants concerning treatment and follow up care.

**Practical Demonstration:**

- X-rays
- Surgical Instruments
- Surgical Pathological Specimen
- Operative Surgery (Simple & minor surgery)
- Basic knowledge of surgical anatomy.
Integrated Seminars:

Disciplines

Thyrotoxicosis in pregnancy
- Medicine
- Surgery
- Gynaecology

Pharmacology

Surgery in diabetes
- Medicine
- Surgery

Acute abdomen in pregnancy
- Surgery
- Gynaecology

Surgery in cardiovascular condition
- Pharmacology
- Medicine
- Surgery

Surgery in COPD patients
- Physiology
- Anesthesiology

At the completion of the course the student should be able to:

- Maintain airway, breathing and circulation and provide first aid.
- Perform cardiopulmonary resuscitation.
- Conduct Primary Trauma Care in victims.
- Control external bleeding.
- Administer oxygen by mask or catheter.
- Fill the investigation forms and send blood samples properly.
- Start intravenous fluids and give intravenous or intramuscular injections.
- Perform incision and drainage of abscess.
- Insert nasogastric tube.
- Insert intercostal tube.
- Catheterize the urinary bladder in males and females.
- Do dressings.
- Read common skiagrams of head, neck, chest, abdomen, pelvis, and extremities.
- Implement sterilization and antiseptic measures.
- Perform surgical debridement, and suturing of wound.
- Administer enemas and insert flatus tube.
- Perform proctoscopy.
ORTHOPEDICS
SPECIFIC OBJECTIVES

SEMESTER - VII

THEORY

Traumatology:
- Introduction to Orthopaedics, classification of fractures and fracture healing.
- Principles of fracture management.
- Complications of fracture & their management.
- Management of open fractures.
- Shoulder dislocation & fractures around the shoulder.
- Rotator cuff injuries, biceps rupture & fracture shaft humerus.
- Supracondylar fracture of humerus and its complications, Volkmann’s ischaemia and Volkmann’s ischaemic contracture.
- Fractures around the elbow (excluding supracondylar fractures) and elbow dislocation.
- Fractures of forearm, Monteggia and Galeazzi fractures.
- Fractures of the wrist and hand.
- Peripheral nerve injuries and tendon injuries.
- Fractures of the pelvis and hip dislocations.
- Fracture neck of femur, trochanteric and subtrochanteric fractures.
- Fracture shaft of femur and fractures around the knee.
- Ligamentous injuries of the knee and ankle, meniscal injuries.
- Fractures of tibia and fibula, fractures around the ankle and foot.
- Fractures and dislocations of the spine and paraplegia.
- General management of acutely injured and polytrauma.
- Specific management of acutely injured.
- Splinting in Orthopaedics.
- Plaster - techniques - principles of application. Types of casts and complications.
- Imaging in Orthopedics and Trauma
- Introduction to Physiotherapy
- Physiotherapy in orthopedics & traumatology including sports and electrotherapy modalities
  - Physiotherapy in soft tissue injuries
  - Physiotherapy in degenerative conditions
  - Physiotherapy in traumatology-fractures/dislocations
- Rehabilitation of traumatic paraplegia

**INTRODUCTION CLINICS**
- General introduction to Orthopaedic examination.
  - Examination of the hip.
  - Examination of the knee.
  - Examination of the ankle.
  - Examination of the foot.
  - Examination of the spine.
  - Examination of the shoulder.
  - Examination of the elbow
  - Examination of the wrist.
  - Examination of the hand.
  - General format of examination of a paralyzed limb.
  - Examination of the child with polio.
  - Examination of peripheral nerve lesion.
  - Examination of diseased bone.
  - Examination of a bone tumor.
CLINICAL ASSIGNMENT

- Case discussion and observation of surgical procedures.

SEMESTER - VIII

THEORY

Cold Orthopaedics:

- Congenital anomalies 1 - CTEV
- Congenital anomalies H - CDH
- Neuromuscular 1 - Cerebral palsy
- Neuromuscular H - polio, spina bifida, MCC, Hansen’s
- Osteochondroses: e.g. Perthes disease.
- Metabolic bone diseases: Rickets, Scurvy, Osteomalacia
- Tumors 1 - Benign tumors & Tumorous lesions
- Tumors H - Malignant bone tumors
- Infection 1 - Osteomyelitis acute/chronic
- Infection II - Septic arthritis.
- Infection W - Tuberculosis of the spine, hip and knee
- Arthritis 1 - Osteoarthritis
- Arthritis 111 - Rheumatoid arthritis
- Arthritis IB - Seronegative arthritis, ankylosing spondylitis, Haemophilia & Gout
- Deformities 1 - Axial skeleton: Torticollis, scoliosis, kyphosis
- Deformities H - Upper Limb: Cubitus Varus, valgus and wrist deformities and hand deformities.
- Deformities W - Lower limb: Coxa vara, genuvalgum, genuvarum, flat foot, Torsional deformities.
- Soft tissue lesions - Periartthritis, supraspinats, tendinitis, tennis elbow, carpal tunnel syndrome, trigger finger, Dequervain’s, Dupuytren’s, plantar fascitis.
- Back ache, disc prolapse, and spondylolisthesis.
**DEMONSTRATION CLASSES**

**Instruments used in Orthopaedic Surgery:**

Trethovan’s bone lever Bristow’s bone lever Lane’s bone lever.
Sequestrectomy forceps Osteotome Bone gauge
Lanes bone holding forceps Mallet Periosteal elevator.
Chisel Curette Bone hook.

**Implants used in Orthopaedics:**

<table>
<thead>
<tr>
<th>Austin Moore pin</th>
<th>Knowles pin</th>
<th>Austin Moore prosthesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thompson’s prosthesis</td>
<td>SmithPetersen nail</td>
<td>Jewett nail</td>
</tr>
<tr>
<td>Dynamic hip screw</td>
<td>Kuntscher's nail</td>
<td>Kirchner's wire</td>
</tr>
<tr>
<td>Square nails for radius &amp; ulna</td>
<td>Rush nail</td>
<td></td>
</tr>
<tr>
<td>Steinmann's pin</td>
<td>Bone plates</td>
<td>Bone screws.</td>
</tr>
</tbody>
</table>

**X-rays (Trauma):**

<table>
<thead>
<tr>
<th>Shoulder dislocation</th>
<th>Fracture clavicle</th>
<th>Fracture humerus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supracondylar fractures</td>
<td>Elbow dislocation.</td>
<td>Monteggia fracture</td>
</tr>
<tr>
<td>Olecranon fracture</td>
<td>Radial head fracture</td>
<td>Galleazzi fracture</td>
</tr>
<tr>
<td>Fracture both bones of the forearm</td>
<td>Colle's fracture</td>
<td>Scaphoid fracture</td>
</tr>
<tr>
<td>Forearm - green stick &amp; adult</td>
<td>Dislocation hip</td>
<td>Fracture neck femur-</td>
</tr>
<tr>
<td>Pelvis fracture</td>
<td>Fracture shaft of femur adult/child</td>
<td></td>
</tr>
<tr>
<td>(anterior and posterior)</td>
<td>Patella fracture</td>
<td>Calcaneal fracture</td>
</tr>
<tr>
<td>Trochanteric fracture</td>
<td>Ankle fracture</td>
<td></td>
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<tr>
<td>Condylar fracture femur &amp; tibia.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non union spine fracture - cervical and thoracic</td>
<td>Tibia &amp; fibula fracture</td>
<td></td>
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</tbody>
</table>

**X-rays (Cold orthopaedics):**

<table>
<thead>
<tr>
<th>Chronic osteomyelitis</th>
<th>Giant Cell Tumor</th>
<th>Multiple exostosis</th>
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<tbody>
<tr>
<td>Osteochondroma.</td>
<td>Osteosarcoma</td>
<td>Ewing's tumor</td>
</tr>
<tr>
<td>T.B. spine</td>
<td>Secondaries in spine</td>
<td></td>
</tr>
<tr>
<td>Pathological fracture</td>
<td>Rickets</td>
<td>Osteoarthritis</td>
</tr>
</tbody>
</table>
Genu valgum & varum    Cubitus varus & valgus    Perthe's disease  
CDH    Spondylolisthesis    Ankylosing spondylitis  
Kyphosis    Scoliosis  
T.B. hip

**Orthoses:**

Denis Browne splint    Denis Browne shoe    AFO  
KAFO    Soft cervical collar.    Hard cervical collar  
Arch support    Thomas heel    MCR Chappals  
Heel wedges    Heel and sole correction for shortening

**Prosthesis:**

Syme's prosthesis    PTB prosthesis    Orthopaedic shoe  
A.K. prosthesis    Hip disarticulation  
Below elbow prosthesis    Prosthesis with fillers  
Above elbow prosthesis

**Walking & Mobility Aids:**

Walking stick    Axillary crutch    Elbow crutch  
Walker    Rollator    Tripod & Quadripod  
Wheel chair.

**SEMESTER - IX**

**CLINICAL EXPERIENCE**

- Clinical cases examination
- Observation of operation & procedures
ANAESTHESIOLOGY

BROAD OBJECTIVES AND APPROACH

This course prepares students to understand the principles of anesthesiology; acquire knowledge about drug interaction, and the advantages and disadvantages of drugs used in anesthesia. It is expected that students will develop a comprehensive understanding of anaesthetic drugs, choice of safe drugs, be able to monitor patients and understand the limitations.

Students will learn by carefully observing and doing the actual management of patient under supervision of teachers. They will assist anesthetist in all aspects of his work. Not more than 3-4 students will be placed in the Anesthesiology unit at a time. The students will work in operation theatre, post-operative ward and in general ward for the purpose of preparing patients, helping anesthetists, and monitoring. The head of the department of Anesthesia will be responsible for the conduct of the student during their placement. The students will keep complete record of at least 10 cases during the posting period.

SPECIFIC OBJECTIVES

THEORY

- Preoperative evaluation, premedication and preoperative preparation and preparation of a patient with co-existing diseases (eg. COPD, DM & HTN)
- General anesthesia intravenous agents
- General anesthesia inhalation agents
- Neuromuscular blocking agents
- Pharmacology of local anesthetics
- Spinal, epidural and regional nerve blocks
- Airway management and devices
- Anaesthetic complications and care
- Monitoring and transport of unconscious patient
Fluid and electrolyte balance
Acid, Base and Blood Gases – how to read and analyze
Basics of Cardiopulmonary resuscitation (CPR), Basic life support (BLS), Advanced life support (ALS)
Post CPR management
Oxygen therapy and oxygen delivery devices
Hypoventilation syndrome, respiratory failure and ARDS
Emergency drugs used in operation theatre and ICU
Outline of pain management - Acute and chronic

CLINICAL EXPERIENCE

Describe the principles of administering safe general anesthesia for major surgery and local anesthesia for minor surgery
Take pre-anaesthetic history and perform physical examination
Assist in preparing and administering pre-anesthetic drugs
Assist anesthetist to administer anesthesia or common nerve blocks and monitor patient during and after operation
Describe drug interaction and state advantages and disadvantages about drugs used in anesthesia
Describe post-operative complications

Skills:
Take active participation in BLS, ALS and demonstration of CPR
Learn to manage/maintain airways in unconscious patient
Learn I.V. canulation
Assist in Central Venous line insertion
Learn safe lumbar puncture
Intubation of Trachea
RADIOLOGY

BROAD OBJECTIVES AND APPROACH

The course in Radiology occupies a two week period to enable students to read and interpret common radiological findings on plain skiagrams of skull, sinuses, neck, chest, abdomen, pelvis, upper and lower extremities. Students will be able to identify gross abnormalities relating to barium swallow, barium meal of stomach and duodenum, barium enema. Students will be able to understand the principles of ultrasonography and recognize the examination. They also should be able to recognize computerized axial tomography (CTSCAN), myelogram, sialogram. T-tube cholangiogram, tomograms, urethrogram and hysterosalpingogram (HSG), dacrocystogram (DCG), retrograde urethrogram (RGU) and micturating, cystourethrogram (MCU).

SPECIFIC OBJECTIVES

THEORY

Kidney:

- Congenital anomalies: Renal agenesis/ dysplasia/ ectopic/ duplication malrotation fusion/ ureterocele
- Benign lesions: Simple cyst/ cystic diseases- polycystic diseases.
- Renal calculi: Nephrocalcinosis
- Renal parenchymal diseases: Pyelonephritis/ tuberculosis
- Renal vascular disease & renal hypertension.
- Tumors: Adenocarcinoma and Wilm's

Bladder and Prostate:

- Extrophy/ urachal anomalies
- Bladder calculi/ diverticula
- Bladder tumor
- B.E.P
Urethra:
- Stricture
- Urethral valve
- Trauma
- Posterior urethral valves

Oesophagus:
- Web, diverticula, achalasia cardia, Hiatus hernia gastro-oesophageal reflux, carcinoma of oesophagus, varices.

Stomach & Duodenum:
- Pyloric stenosis
- Ulcers - Benign & Malignant
- Carcinoma of the stomach

Small Intestine:
- Intestinal obstruction
- Tuberculosis

Colon:
- Ulcerative colitis
- Diverticulitis
- Carcinoma of colon

Acute abdomen:
- Perforation / peritonitis
- Small bowel/ large bowel obstruction
- Intussusception
**Biliary tract:**
- Acalculus / calculus cholecystitis
- Gall / biliary stones
- Choledochal cyst
- Obstructive jaundice

**Paediatric abdomen:**
- Oesophageal atresia
- Duodenal atresia
- Malrotation of the gut.
- Anorectal anomaly including Hirschsprung’s disease.

**Ultrasonography / CT:**

**Liver:**
- Abscess
- Masses - adenomas/hepatoma/secondaries.
- Cirrhosis/portal hypertension

**Pancreas:**
- Pancreatitis
- Pseudopancreatic cyst
- Pancreatic Mass - USG, CT and ERCP

**Bone And Joints:**
- Periosteal reactions
- Infections - osteomyelitis/tuberculosis
- Bone tumors- very brief account.
- Metabolic diseases - rickets, scurvy, hyperparathyroidism, hypothyroidism.
- Trauma- Fracture/dislocation.
Cardiovascular system:
- Normal heart chambers on plain X-ray
- Enlargement of individual chambers of plain X-ray
- Common congenital heart diseases ASD, AS, VSD, Fallot's Tetralogy
- Pericardial effusion/ constrictive pericarditis
- Rheumatic heart diseases - mitral stenosis, mitral regurgitation

Respiratory system:
- Normal chest X-rays
- Mediastinal masses
- Collapse/ consolidation
- Bronchogenic carcinoma & other tumors

Central nervous system:
- Skull: normal, hydrocephalus, calcifications
- Basics of tumors, infarcts, infections, hemorrhage on CT/MRI
- Spine:
  - Normal spine
  - D/D of collapse vertebrae lytic lesions Tuberculosis of spine
  - D/D Metastatic - Cystic
  - Sclerotic lesions
  - Osteomyelitis
- Breast: Salient features of mammography
- Salient features of PET
- Introduction about interventional radiology
**CLINICAL EXPERIENCE (Two weeks rotatory clinical posting)**

**When given normal skiagrams, students will be able to:**

- Identify bones of skull, contour of skull bones, sella turcica, sutures, paranasal sinuses
- Identify cervical spines and their parts, and note cervical rib if present
- Identify thoracic and lumbosacral spines and their parts.
- Note that scapulae are not obstructing lung fields in PA view and differentiate it from AP view ken in patients who are in bed
- Demarcate lung fields in a chest X-rays, compare heart size with lung field, note cardiophrenic and costophrenic angles, identify vascular pattern, domes of diaphragm, locate hilar shadows, note tracheal location, identify ribs on both sides.
- Identify on an X-ray of the abdomen the liver, spleen, kidneys, psoas muscle shadows, visualise bones and observe gases at different fields of abdomen. Identify on an X-ray of Pelvis the different bones forming the pelvis and the sacro-iliac and hip joints
- Note different bones taking part in the upper limb and note their normal anatomy.
- Note different bones taking part in the lower limb and their normal anatomy.

**When given abnormal skiagrams, students will be able to:**

- Identify fractures relating to any bones of skull, note the size of sella-turcica, spot any -intracranial calcification, identify evidence of raised intracranial pressure
- Identify sinusitis and polyps in X-rays of paranasal-sinuses
- Identify cervical ribs, note gross abnormalities relating to cervical vertebrae, observe calcification and enlargement of thyroid gland, note tracheal deviation and identify calcified shadows
- Identify on chest X-rays obliteration of costophrenic and cardiophrenic angles and lesions like pneumothorax, effusions, hydropneumothorax, enlargement of hilar shadows
- Identify gross abnormalities of thoracic /lumbosacral spines including Pott's spine and psoas abscess, trauma.

- Observe lung parenchymal lesions especially those of pulmonary tuberculosis, pneumonia, abscesses, tumors, bronchiectasis, and emphysema.

- Identify on chest X-rays tracheal deviations, note elevation and depression of diaphragms, identify abnormalities relating to bony cage, observe soft tissue shadows.

- Recognise cardiomegaly and heart diseases such as mitral valve disease, pericardial effusions.

- Identify on X-rays of abdomen, note gases under right dome of diaphragm, identify fluid levels at different regions and recognise distended intestinal shadows, radiological signs of perforations, intestinal obstruction, observe calcifications, identify foetus, its presentation and lie, and the presence of multiple pregnancies.

- Identify on X-rays of pelvis-calcifications, and abnormalities of sacroiliac, hip joints and pelvic bones.

- Identify on X-rays upper limb- fractures, dislocation and rickets.

- Identify on X-rays of lower limb- fractures, bony lesions, such as tumors, osteomyelitis.

- When given barium studies of upper gastrointestinal tract, (Barium swallow/ Barium-meal upper GIT) students will be able to identify growths and varices of oesophagus, ulcers and filling defects of stomach and duodenum.

- When given barium studies of small bowel (Barium-meal follow through), students will be able to identify different parts of small intestine, I/C junction and gross abnormalities.

- When given barium studies of lower gastrointestinal tract, (Barium Enema) students will be able to identify the gross abnormalities of colon.

- When given intravenous urograms, students will be able to identify renal stones, ectopic kidneys, horse shoe kidney, hydronephrosis, enlarged kidney, filling defects in kidney and stones in ureter and urinary bladder, structure and rupture of urethra, prostatic impression in benign enlargement of prostate (BEP).
- Students will be able to identify gall stones and a nonfunctioning gall bladder by oral cholecystography (OCG).
- When given an abdominal and thoracic angiogram, students will be able to recognize the vessels and their main branches.
- When given various X-rays of radiological investigation, students will be able to identify the procedure and recognize one from another, including myelogram, bronchogram, sialogram, percutaneous transhepatic cholangiogram (PTC), tomogram, hysterosalpingogram (HSG), urethrogram, T-tube cholangiogram, ultrasonogram (USG), computerised axial tomogram (CT), MRI, Dacryocystogram, Arthrogram.
- Specify the advantages, disadvantages, basic principles and applications of MRI/C.T.Scan.
SEMESTER - VIII

BROAD OBJECTIVES AND APPROACH

The course in Dentistry is designed to expose the students to didactic and clinical experience understand the relevant aspects of practice of dentistry. The students are expected to apply knowledge and skill gained to the management of common oral health problems such as the extraction of loose tooth and treatment of inflammatory oral disease they come across in Ages medical practice. Giving health education for the maintenance of oral hygiene in the community and schools is also stressed. Students participation in the dental out-patient, carrying out actual procedures like extractions, enables them to gain adequate practical skill in rendering emergency dental care.

The clinical experience is gained by the students in adequately equipped dental clinics of the general hospital for a period of 6 weeks in the VII Semester as a part of their postings in General Surgery. Preventive and health education part will be along with their learning experiences in Community Medicine.

SPECIFIC OBJECTIVES

General Dentistry:

- Recall anatomy of teeth, mandible and maxilla. Recognize the difference between deciduous and permanent teeth and distinguish between healthy and diseased oral structure.
- Recall physiology of mastication and describe causes and pathways of pain arising in the oral cavity.
- Demonstrate methods of examining patients with dental problems.
Practical Dentistry:
- Examine the hard and soft structure of the oral cavity; recognize gross abnormalities and pathology and development defects.
- Administer local anesthesia required for extraction of teeth.
- Extract loose teeth and drain simple dental abscess perform biopsies
- Render primary dental care for dental and gingival conditions, manage initially and refer unmanageable cases of gingivitis, pulpitis, root abscess, pericoronitis, epulis, dentigenous, cysts, leukoplakia, submucosal fibrosis, carcinoma of sums, and oral mucosa, fractures of mandible and maxilla, sarcoma of bones of oral cavity.
- Perform reduction and immobilization of simple fractures of jaws.
- Advise the patients on simple preventive dental care.
- Should be able to diagnose oral manifestations of systemic diseases
- Should be able to diagnose odontogenic space infections of head and neck and be able to drain simple abscess
- Should be able to diagnose different soft and hard tissue trauma of oral and maxillofacial region and be able to perform basic management.
- Students should be posted in the dental opd for at least 7 days.

Preventive Dentistry:
- Plan and implement school health programs in oral hygiene in conjunction with their similar activities in Community Medicine.
GYNAECOLOGY AND OBSTETRICS

Division of Time allotted in Hours

<table>
<thead>
<tr>
<th>Semester</th>
<th>Lecture</th>
<th>Clinical</th>
<th>Total</th>
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<tbody>
<tr>
<td>V</td>
<td>26 hrs</td>
<td>56 hrs - Obstetrics 36 hrs</td>
<td>82 hrs</td>
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<td>Gynecology 20 hrs</td>
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<td>VI</td>
<td>28 hrs</td>
<td>56 hrs - Obstetrics 36 hrs</td>
<td>84 hrs</td>
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<td>Gynecology 20 hrs</td>
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<tr>
<td>VII</td>
<td>26 hrs</td>
<td>56 hrs - Obstetrics 36 hrs</td>
<td>82 hrs</td>
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<td>Gynecology 20 hrs</td>
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<tr>
<td>VIII</td>
<td>66 hrs</td>
<td>134 hrs - Obstetrics 88 hrs</td>
<td>200 hrs</td>
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<td>Gynecology 46 hrs</td>
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<tr>
<td>IX</td>
<td>66 hrs</td>
<td>134 hrs - Obstetrics 88 hrs</td>
<td>200 hrs</td>
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<td></td>
<td></td>
<td>Gynecology 46 hrs</td>
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</tbody>
</table>

**Broad Objectives and Approach**

Students will be able to take history in antenatal cases, post natal cases, gynecological cases. They will be able to examine obstetrics and gynecological cases and diagnose the cases, correlate the signs and symptoms with their knowledge in basic science. Lectures are supplemented by clinical teaching and demonstrations. Ward posting and participation in the conduct of normal delivery and observation of operative procedures enhance the clinical experience. Special emphasis would also be placed on emergency obstetrics, social aspect of obstetric practice, maternal and child health care and family planning counseling and communication techniques. The objective will be to prepare the candidates to actively participate and contribute to National health programs to reduce maternal and perinatal morbidity and mortality.
History taking and Recording (Annex 6 page 90):

- Inquire the reasons for which a woman has come to the clinic or hospital and record properly.
- Inquire about and record the duration, magnitude of the problem and its relation to the environment, and treatment.
- Inquire about the menstrual pattern of the women in the following order: the age of onset of menstruation, duration of menstrual period, interval between (from the first day of bleeding of one period to the first day of bleeding of the next period), the last bleeding and its duration, pain in relation to the menstrual period, its location, duration and radiation.
- Inquire about bleeding from the nose or rectum during the menstrual period in addition to vaginal bleeding and whether there is pain or bleeding during defecation or micturition.
- With married woman, inquire about the relationship with the husband in terms of sexual desire, performance, pain during intercourse (dyspareunia) and bleeding during or after the intercourse.
- Inquire about pregnancies and record in the following order: the number of pregnancy, the number of pregnancies which had terminated before 28th week of pregnancy, the number of pregnancies which had terminated after 28th week of pregnancy near the time of delivery or not, the sex of the babies born and their ages (if some of the children are dead, the age at which they died, and if possible the reason).
- Inquire about any deformities or abnormalities in the children (living or dead).
- Inquire about previous deliveries (spontaneous, operative or assisted deliver) if delivery was assisted, by what means or why (forceps, vacuum or caesarean section, sometimes mother/s carry a piece of paper or discharge slip from the hospital which will help the students to record the reason).
- Inquire whether the mother had excessive bleeding after delivery or blood transfusion for this or any other reason.
- Inquire whether she had to be helped for the delivery of the placenta.
History Taking from a Pregnant Woman:

- Determine the date of last menstrual period and calculate the expected date of delivery (which falls on the completion of the 40th week from date of last menstrual period)
- Record the presence of pain during present pregnancy, and note the type, duration and location of the pain
- Record the presence of any bleeding per vaginum during the course of pregnancy, its colour, amount, duration and association with pain
- In the second trimester, inquire whether the mother feels movement of the foetus

Gynaecology: Pelvic Examination

- Inspect for distribution and development of pubic hair, swelling in the vulva, vaginal opening including presence or absence of hymen, signs of infection or scar, normal clitoris and urethral opening, vaginal discharge or bleeding, and any lesion around the anus
- Palpate for any tenderness or swelling in the vulva, especially for lower part of labia majora for Bartholin cyst
- List the equipments needed for clinical examination of female reproductive system (Sim’s, duckbill or Cosco’s speculum; sponge holding forceps and volsellum, cervical smear spatula, swab with sticks used for examination of discharge
- Explain the whole procedure of speculum examination to the woman
- Describe and demonstrate the comfortable and different position of the patient for examination
- Demonstrate awareness of need of securing patients confidence and cooperation, and the necessity of a female attendant during examination
- Clean vulva with warm antiseptic lotion and prepare patients for examination
- Recall the anatomical features of the external genitalia
- Carry out bimanual examination (introduce one finger of right hand in the vagina through the introitus, then introduce both
index and middle fingers); moving the uterine cervix and note if this causes pain, left hand over the suprapubic region; and with the two fingers of right hand in the vagina lying on either side of the cervix, the size, shape and mobility of the uterus is determined between the two hands, (the tubes and ovaries are normally not palpable); identify any abnormal masses in the pelvis and determine their size, shape, mobility and relation to the uterus; remove the fingers from the vagina and look if there is any blood or discharge in the examining finger

- Introduce the Sim’s speculum into the vaginal opening with its breadth anteroposteriorly; direct the length of the speculum blade downward, then forward and then finally upward; turn the speculum in such a way that the blade rests in the posterior vaginal wall; retract the anterior vaginal wall with retractor or sponge holding forceps. Through the speculum, inspect the shape, size and colour of the uterine cervix; visualise different fornices. Remove the speculum in the same position as it was introduced

- Recall normal shape, size and position and relations of vagina, cervix, uterus ovary and tubes

- Recognize inflammation, swellings, congenital anomalies and trauma such as perineal tear and scars in external genitalia

- Recognize normal and abnormal discharge per vagina and describe normal and abnormal bleeding per vagina.

- Describe and demonstrate proper technique of the examinations of pelvic organ

- Recognize and demonstrate differences in genital organs during different ages before puberty, reproductive and menopausal women

- Recognize and differentiate between normal and abnormal shape, size and position of the genital organs

- Recognize the presence of mass of tenderness or its presence in the surrounding structure like bladder rectum or lateral pelvic wall or pouch of Douglas

- Describe and demonstrate lesions of cervix such as cervical erosion and polyp
CONTENTS
OBSTETRICS

BASICS OF REPRODUCTION
- Anatomy of female reproductive organs, placenta.
- Fundamentals of reproduction, fertilization, embryogenesis.
- Physiological changes in pregnancy.

NORMAL PREGNANCY
- Diagnosis of Pregnancy
- Female Pelvis and Fetal Skull.
- Antenatal Care.
- Safe Motherhood.

ABNORMAL PREGNANCY
a. Medical disorders in Pregnancy
- Pregnancy induced Hypertension, Chronic Hypertension
- Pre-eclampsia and Eclampsia
- Rhesus Isoimmunization
- Hyperemesis gravidarum
- Anaemias in Pregnancy
- Heart disease in pregnancy
- Hepatitis and Jaundice in Pregnancy
- Diabetes in Pregnancy
- STIs/HIV/AIDS in Pregnancy
- TORCH infection in pregnancy
- Malaria in Pregnancy
- Thyroid Diseases in Pregnancy
- Tuberculosis in Pregnancy
- Epilepsy in Pregnancy
Bronchial asthma in Pregnancy
- UTI in Pregnancy

b. Obstetric Disorders in Pregnancy
- Adolescent Pregnancy
- Elderly primi and grand multi
- Uncertain gestational period
- Vaginal delivery after Caesarean Section
- Maternal morbidity from labour
- Maternal and perinatal mortality
- Abruptio Placenta
- Placenta praevia
- Obstetrics Cholestasis
- Polyhydramnios & Oligohydramnios

NORMAL LABOUR
- Diagnosis of labour
- Stages of Labor: I, II, III. Mechanism of labour
- Active management of Labour I\textsuperscript{st} stage
- Active management of Labour II\textsuperscript{nd} stage
- Intrapartum fetal monitoring, Partogram
- Active management of Labour III\textsuperscript{rd} stage
- Complications of 3\textsuperscript{rd} stage: PPH, Retained Placenta, Postpartum Collapse
- Labour Analgesia

ABNORMAL LABOUR
- Preterm labour and premature rupture of memberanes
- Post-term Pregnancy and Labour
- Shoulder Dystocia
- Contracted Pelvis and Cephalo-pelvic disproportion

**Malpresentations & Malpositions**
- Occipito-posterior position
- Breech Presentation (II lectures)
- Brow and Face presentation
- Transverse lie and unstable lie
- Cord presentation and cord prolapse

**Obstetric Interventions**
- Oxytocics drugs: Prostaglandins, Syntocinon, Methergine
- Induction & Augmentation of Labour
- Assisted vaginal Delivery: Forceps, Ventouse
- Caesarean Section
- Destructive operations in Obstetrics
- Episiotomy
- Versions: External, internal

**Obstetric Emergencies**
- Rupture of uterus
- Inversion of uterus
- Post partum haemorrhage, Collapse
- Ruptured ectopic pregnancy
- Obstructed Labour

**PUERPERIUM: NORMAL & ABNORMAL**
- Normal Puerperium and its management
- Lactation and Breast Feeding
- Puerperal pyrexia and Puerperal Sepsis
- Puerperal thromboembolism
- Postpartum psychosis
THE FETUS

- Feto-maternal circulation
- Prenatal diagnosis and genetic counseling
- Intrauterine growth restriction
- Intrauterine fetal death
- Neonatal resuscitation
- Fetal distress, prematurity
- Bad obstetric history
- Post dated pregnancy
- Drugs in pregnancy
- Antepartum fetal surveillance (NST and Biophysical profile)
- Ultrasound in Obstetrics
- Multiple Pregnancy
- Breast feeding
- Blood transfusion

PLACENTA

- Structures and functions of placenta and anomalies
- Amniotic fluid- Physiology and Pathology (Poly and Oligohydraminos)
- Umbilical Cord and Anomalies

GYNAECOLOGY

PRE-ClinICAL SCIENCES

- Reproductive Anatomy and Developmental Anomalies
- Fertilization and Embryogenesis
- Development of placenta and amniotic fluid
- Perform and interpretation laboratory data
Statistics and death audit.

**REPRODUCTIVE ENDOCRINOLOGY**

- 1. Puberty- Normal/Abnormal
- 2. Physiology of Menstruation
- Disorders of Menstruation
  - Primary Amenorrhoea
  - Secondary Amenorrhoea
  - Dysmenorrhoea & Premenstrual syndrome
  - Epimenorrhoea, menorrhagia, etc.
- Polycystic ovarian disease
- Hyperprolactinaemia
- Ovulation failure and Induction of Ovulation
- Endometriosis/Adenomyosis
- Dysfunctional uterine bleeding
- Postmenopausal bleeding
- Hirsutism
- Intersexuality
- Gonadotrophins & GnRH analogue
- Ultrasound in Gynaecology

**REPRODUCTIVE FAILURE**

- Spontaneous abortion
- Recurrent abortions
- Ectopic gestation
- Infertility/Subfertility
- Male infertility
- Assisted reproductive technology
- Menopause and hormone replacement therapy
**UROGYNECOLOGY**
- Anatomy of urinary continence
- Urodynamics studies
- Detrusor instability
- Genuine stress incontinence
- Genito-urinary fistula

**GENERAL GYNAECOLOGY**
- Pelvic inflammatory diseases
- Lower genital tract infection
- Sexually transmitted diseases
- Genital tuberculosis
- Benign lesions of the vulva, vagina, cervix
- Dyspareunia
- Genital prolapse
- Fibromyoma of the uterus
- Benign ovarian tumors
- Chronic pelvic pain
- Sexual function and dysfunction
- Injury genital tract

**OPERATIVE GYNAECOLOGY & ENDOSCOPY**
- Preoperative preparation and postoperative care
- Dilatation, curettage and polypectomy
- Hysterectomy – abdominal/ vaginal/ laparoscopic
- Hysteroscopy
- Laparoscopy
- Surgical conditions encountered during Gynaecological procedure
- Surgical procedures:
- Myomectomy
- Fothergill's operation
- Tubal recanalisation
- Marsupialisation
- Hymenectomy
- Cervical biopsy and electrocautery
- Salpingophorectomy
- Tubal ligation
- Ovarian cystectomy
- Pelvic floor repair
- Drainage of hematomy/abscess
- Hysterosalpingography
- Insertion of ring pessary

**CONTRACEPTION**

- Counseling
- Natural methods of contraception
- Barrier methods
- Hormonal contraception
- Intrauterine contraceptive device
- Emergency contraception
- Male contraception
- Surgical methods for male and female sterilization
- Therapeutic abortions and complications

**ONCOLOGY**

- Screening for gynecological cancer
- Cytology
- Colposcopy
- Premalignant lesions of the lower genital tract and CIN
- Vaginal cancer
- Cancer cervix
- Endometrial cancer
- Malignant ovarian tumors
- Carcinoma of the vulva
- Cancer Radiotherapy
- Cancer Chemotherapy
- Care of the terminally ill patient
- Gestational trophoblastic disease

**SEMESTER WISE DISTRIBUTION OF TOPICS**

**SEMESTER - V**

**Specific Objectives**
- Revision of basic science knowledge pertaining to clinical science
- Learn history taking skills in obstetrics & gynaecology
- Diagnose and observe the management of normal pregnancy, labour and Puerperium
- Learn common gynaecological problems and observe the common obstetrics and gynecological and surgical procedure
- Involve into community health services under supervision

**OBSTETRICS**
- Anatomy of female reproductive organs (II lectures)
- Fundamentals of reproduction- Fertilization, Embryogenesis
- Physiological changes in pregnancy (II lectures)
- Diagnosis of Pregnancy and minor elements of pregnancy
- Antenatal care (II lectures)
- Placenta, Amniotic fluid, Amniocentesis
- Umbilical cord and anomalies
- Fetomaternal circulation
- Female pelvis and Fetal skull (II lectures)
- Normal labour and Mechanisms of Labour
- Intrapartum fetal monitoring, Partogram
- Active management of I\textsuperscript{st} stage of labour
- Active management of II\textsuperscript{nd} of labour
- Active management of III\textsuperscript{rd} stage of labour
- Complications of III\textsuperscript{rd} stages of labour (II lectures)
  - PPH, Retained Placenta, Post partum collapse
- Normal puerperium
- Abnormal Puerperium
  - Puerperal sepsis, Puerperal pyrexia, Breast complications, Subinvolution, Thromboembolism
- Postnatal psychiatric disorders

\textbf{GYNECOLOGY}

- Gynecological history and physical examination
- Puberty and pubertal abnormalities
- Physiology of Menstruation
- Gynecological diagnosis, menstrual disorders and premenstrual syndrome
- Development and malformations of female genital tract
- Paedriatic gynecology
- Diseases of vagina and vaginal discharge
- Infections of lower genital tract including genital tuberculosis
- PID (II lectures)
- Sexually transmitted infections, HIV, AIDS
Specific objectives

- Learn the concept of high risk pregnancy and its management
- Learn history taking skills (continued)
- Learn to observe the complications of labour
- Learn the management of female genital tract and common gynaecological problems
- Learn and observe the family planning methods, counseling and complications

OBSTETRICS

- Structure and function of cervix in pregnancy and labour
- Active management of labour (II lectures)
- Methods to evaluate fetal health & maturity during antenatal period
- Abnormal labour (II lectures)
  - Prolonged labour
  - Obstructed labour
  - CPD
- Antepartum haemorrhage (II lectures)
- Anaemia in pregnancy (II lectures)
- Pregnancy induced hypertension (III lectures)
- Diabetes mellitus in pregnancy (II lectures)
- Rhesus Isoimmunization

GYANEKOLOGY

- Primary amenorrhea and secondary amenorrhea (II lectures)
- Adolescent gynecology & precocious puberty
- Dysfunctional uterine bleeding
- Subfertility/Infertility including genital tuberculosis (II lectures)
- Male infertility
- Assisted reproductive technology
- Ovulation failure and induction of ovulation
- Polycystic ovarian disease
- Fibroid (II lectures)
- Utero-vaginal prolapse (II lectures)
- Endometriosis/adenomyosis

**SEMESTER - VII**

**Specific Objectives**
- Clinical exposure with emphasis on history taking, clinical examination, laboratory investigations and interpretation, newer techniques in obstetrics and gynecology
- Learn and observe normal delivery and its management
- Get involved with minor procedures in obstetrics and gynecology under supervision
- Learn and observe instrumental and operative delivery
- Learn gynecological cases, observe and assist in minor operations under supervision

**OBSTETRICS**
- Abortion: Spontaneous, Induced, Recurrent
- Molar Pregnancy (II lectures)
- Ectopic Pregnancy (II lectures)
- Hyperemesis gravidarum
- UTI
- Twins & Multifetal pregnancy
- Transverse lie
- Unstable lie
Cord prolapse
Instrumental delivery: Forceps, Ventouse
Operative delivery: Caesarian delivery, vaginal birth after caesarean section (II lectures)
Ultrasound in obstetrics
Maternal mortality and safe motherhood
Perinatal mortality
Prenatal diagnosis and genetic counseling
Adolescent pregnancy
Uncertain gestational period
Maternal injuries from birth

GYNAECOLOGY
- Contraception I: Natural method
- Contraception II: Barrier method
- Contraception III: Emergency
- Contraception IV: IUCD
- Contraception V: Male contraception
- Contraception VI: Hormonal control
- Contraception VIII: Therapeutic termination of Pregnancy and complications
- Sexual disorder
- Intersexuality
- Use of hormones in gynaecology
- Ultrasound in gynaecology

SEMESTER - VIII

Specific Objectives
- Learn about gynaecological oncology and its management
- Learn newer less invasive procedures in gynecology
- Learn obstetric & gynecological ultrasonography
- Clinical exposure with emphasis on practical skills demonstration and performances
- Learn basis of research methodology
- Physiotherapy in women’s health

**OBSTETRICS**

- Ante-partum fetal surveillance
- Intra-partum fetal surveillance
- Cardiovascular changes in pregnancy
- Heart diseases in pregnancy
- Hepatitis and Jaundice in pregnancy
- TORCH infection in pregnancy
- Tuberculosis in pregnancy
- Epilepsy in pregnancy
- Thyroid dysfunction in pregnancy
- Malaria in pregnancy
- Post-dated pregnancy
- Post-Caesarean pregnancy
- Intrauterine growth restriction (IUGR)
- Elderly primigravida and grand multipara
- Intrauterine death and Bad obstetric history (BOH)
- Obstructed labour and uterine rupture
- Obstetric shock
- Premature rupture of membranes
- Preterm labour
- Postmaturity/Prolonged pregnancy
- Induction of labour
- Gynaecological diseases in pregnancy: Carcinoma cervix, Ovarian tumor, Fibroid uterus, Genital prolapse, retroversion
- Surgical diseases in pregnancy: Acute abdomen in pregnancy
Drugs in pregnancy
Forceps and Ventouse
Caesarean Section
Destructive operations in obstetrics
Neonatal resuscitation
Contracted pelvis and Cephalo-pelvic disproportion
Occito-posterior position
Breech (II lectures)
Brow and Face presentation
Abnormal uterin action
Shoulder dystocia
Critical care in obstetrics
Analgesia in labour

GYNAECOLOGY
Screening for gynaecological cancer
Cervical intraepithelial neoplasia
Carcinoma of cervix (II lectures)
Carcinoma of endometrium
Ovarian tumor (III lectures)
Gestational trophoblastic disease
VIN
Vulvular cancer
Pruritus vulvi
Chemotherapy
Radiotherapy
Care of the terminally ill patients
HRT and related controversies
Post menopausal bleeding
Dyspareunia
Specific Objectives

- Learn, observe and involve with the patients in examination, investigations, and treatment under supervision in obstetrics and gynaecology.

- Actively involve in labour room, manage and conduct normal, instrumental and operative delivery under supervision. Each candidate must conduct ten cases of normal delivery during their posting (viii and ix semesters).

- Learn, observe and assist in major operations as well as in less invasive surgery.

GYNAECOLOGY

Urogynaecology

- Anatomy of continence
- Urodynamic studies
- Stress urinary incontinence
- Detrussor hyper-reflexia
- Genito-urinary fistula

Menopause

- Pathophysiology of menopause
- Short and long term effect of menopause
- HRT and Controversy related to its use
- Osteoporosis

Recurrent pregnancy loss

- Anti-phospholipid syndrome
- Cervical incompetence
- Uterine anomalies
Chronic pelvic pain

Operative gynaecology

- Preoperative preparation and postoperative care
- D & C
- Bartholin's cyst
- Hysterosalpingography
- Hysteroscopy
- Laparoscopy
- Hysteroscopy
- Manchester Operation/Abdominal sling operation
- Staging laparotomy for ovarian cancer
- Hysterectomy
- Complete perineal tear
- Surgical conditions encountered during gynaecological procedures

Obstetrics

- Rupture of the uterus
- Inversion of the uterus
- Caesarean hysterectomy
- Broad ligament haematoma
- Ultrasound in obstetrics and gynaecology
- Antenatal fetal surveillance
  - Bio-physical profile
  - Non-stress test
OBSTETRICS
- Pelvis and fetal head
- Mechanism of normal labour
- Management of labour: Partogram
- Antenatal fetal surveillance
- Intrapartum fetal surveillance
- Occipito-posterior position
- Breech
- PPH
- Post-partum collapse
- Forceps/Ventouse
- Caesarean Section
- Maternal injuries in labour
- Induction of labour
- Trial of labour
- Vaginal birth after caesarean section (VBAC)

GYNAECOLOGY
- Instruments for D & C, HSG, Hysterectomy
- Specimens: Hydatiform mole, Ectopic, Ovarian neoplasm, Dermoid, Fibroid, Uterus, Cervical polyp, Placenta, Anencephaly, Hydrocephalus
- X-rays: HSG, Twins, Breech
- Contraception: Pills, IUCD, Depot injection, Condom
- Drugs: Syntocinon, Methergin, Prostaglandin, Magnesium sulphate
- PAP smear, Ayres’s spatula
- Colposcopy
### ANNEX - Ib

Subject-wise break down of Semester hours:
Clinical Sciences: Semesters V-IX

<table>
<thead>
<tr>
<th>Semester</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
<th>VIII</th>
<th>IX</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated &amp; Elective</td>
<td>60</td>
<td>60</td>
<td>60</td>
<td>120</td>
<td>120</td>
<td>420 hrs.</td>
</tr>
<tr>
<td>Forensic Medicine</td>
<td>0</td>
<td>Th. 30 Pr. 10</td>
<td>Th. 30 Pr. 10</td>
<td>0</td>
<td>0</td>
<td>80 hrs.</td>
</tr>
<tr>
<td>Community Medicine</td>
<td>0</td>
<td>Th. 60 Pr. 50 F.3wks.</td>
<td>Th. 60 Pr. 75</td>
<td>0</td>
<td>0</td>
<td>235 hrs. + 3 wks.</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>0</td>
<td>Th. 35 Cl. 65</td>
<td>Th. 45 Pr. 55</td>
<td>0</td>
<td>0</td>
<td>200 hrs.</td>
</tr>
<tr>
<td>Otorhinolaryngology</td>
<td>0</td>
<td>Th. 40 Cl. 60</td>
<td>Th. 25 Cl. 75</td>
<td>0</td>
<td>0</td>
<td>200 hrs.</td>
</tr>
<tr>
<td>Medicine &amp; allied subjects (including Psychiatry &amp; Dermatology)</td>
<td>Th. 80 Cl.160</td>
<td>Th. 40 Cl. 94</td>
<td>Th. 40 Cl. 76</td>
<td>Th. 40 Cl. 98</td>
<td>Th. 30 Cl. 72</td>
<td>751 hrs.</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>97</td>
<td>87</td>
<td>-</td>
<td>179</td>
<td>143</td>
<td>506 hrs.</td>
</tr>
<tr>
<td>Surgery &amp; allied subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1015 hrs.</td>
</tr>
<tr>
<td>With Dental &amp; Radiology</td>
<td>240</td>
<td>140</td>
<td>0</td>
<td>147</td>
<td>195</td>
<td>722 hrs.</td>
</tr>
<tr>
<td>With Dental &amp; Radiology</td>
<td>0</td>
<td>0</td>
<td>115</td>
<td>65</td>
<td>65</td>
<td>245 hrs.</td>
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<tr>
<td>Orthopaedics</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>48</td>
<td>0</td>
<td>48 hrs.</td>
</tr>
<tr>
<td>Anaesthesiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstetrics &amp; Gynaecology</td>
<td>82</td>
<td>84</td>
<td>82</td>
<td>200</td>
<td>200</td>
<td>648 hrs.</td>
</tr>
</tbody>
</table>
CALENDAR OF OPERATION FOR AN ACADEMIC YEAR

Medical college is required to prepare its own calendar of operations for an academic year at the beginning of an academic year which may be in the month of August or the month of February.

Medical college may also prepare its own holiday’s list, by taking note of HMG, Kathmandu University and the local practices. Medical college will make decisions on matters related to vacations and holidays as per its rules and practices.

Tentative allocated days for different purposes during a calendar year:

1. Summer and Winter Vacations 45 days maximum
2. Dasai and Tihar Vacations 18 days maximum
3. Other Holidays (local and national) 10 days maximum
4. Days required for holding 2 Sessional Examinations (Theory + Practicals) 30 days
5. Annual University Examinations-Period for preparatory leave 30 days

Total 133

ANNEX - III

Scheme for Semester Examinations

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>SEMESTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
</tr>
<tr>
<td>Community Medicine</td>
<td>✓</td>
</tr>
<tr>
<td>Forensic Medicine</td>
<td></td>
</tr>
<tr>
<td>Ophthalmology</td>
<td></td>
</tr>
<tr>
<td>Otorhinolaryngology</td>
<td></td>
</tr>
<tr>
<td>Medicine &amp; Allied subjects</td>
<td></td>
</tr>
<tr>
<td>Surgery &amp; Allied subjects</td>
<td></td>
</tr>
<tr>
<td>Obstetrics &amp; Gynaecology</td>
<td></td>
</tr>
<tr>
<td>Pediatrics</td>
<td></td>
</tr>
</tbody>
</table>
## ANNEX – IV

**FLOW CHART OF MODULES IN COMMUNITY MEDICINE**

<table>
<thead>
<tr>
<th>SEMESTER – I (THEORY)</th>
<th>PRACTICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory/Practical</strong></td>
<td>1. Human &amp; Medicine - 8 hours</td>
</tr>
<tr>
<td>48 hours/45 hours</td>
<td>2. Concept of Health - 10 hours</td>
</tr>
<tr>
<td></td>
<td>3. Nutrition I - 10 hours</td>
</tr>
<tr>
<td></td>
<td>4. Nutrition II - 5 hours</td>
</tr>
<tr>
<td></td>
<td>5. Environmental Science I - 10 hours</td>
</tr>
<tr>
<td></td>
<td>5. Biostatistics - 10 hours</td>
</tr>
</tbody>
</table>

1. Practical Exercise: (1st Year)
   - Bio-statistics / Epidemiology
   - Environmental Health / Health Education.
2. Community Diagnosis. (2nd Year)
3. Field Project. (Concurrent)
   3 hours x 2 (2nd Year)
4. Integrated seminar. (1st and 2nd Year)

<table>
<thead>
<tr>
<th>SEMESTER – II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory/Practical</strong></td>
</tr>
<tr>
<td>35 hours/40 hours</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SEMESTER – III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Theory/Practical</strong></td>
</tr>
<tr>
<td>35 hours/30 hours</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>24 hours/30 hours</td>
</tr>
<tr>
<td>1. District Health Management Project (6(^{th}) Semester)</td>
</tr>
<tr>
<td>SEMESTER – IV</td>
</tr>
<tr>
<td>SEMESTER – VI</td>
</tr>
<tr>
<td>Theory/Practical</td>
</tr>
<tr>
<td>40 hours/40 hours + 3 weeks</td>
</tr>
<tr>
<td>1. District Health Management Project (6(^{th}) Semester)</td>
</tr>
</tbody>
</table>
ANNEX – V
GENERAL MEDICINE

CLINICAL EXPERIENCE:
(Covered during I - IV Semesters)

Themes and topics:
Communication - the art of history taking
Clinical examination
Ancillary laboratory investigations
Discussion focussing integration of Pre-Clinical Sciences with Clinical Sciences, and Community Medicine

Objectives:
• History taking skill : Relevance
• Development of skill of effective communication

Format Suggested
Name: Age: Sex: Marital status:
Religion: Address: Occupation:
Date of admission :
Date of examination:
Source of history (patient/relative):
History of chief complaint/s and duration of each :
1.
2.
3.
Present illness: onset and progress in chronological order

Previous health: Illness/operation/accidents

Travel abroad

Prophylactic medications

Immunizations

History of birth in case of infants and children

**Family history:**

Parents/siblings/spouse - age; status of health; cause of death (if relevant).

**Social and personal history:**

Details of occupation, housing, family/school/workplace relationships

Habits - recreation, physical exercise, alcohol/tobacco/others

Level of self-dependence in case of elderly

**Physical examination:**

**Format Suggested**

**General assessment:**

Demeanor and general conditions - physique, nutrition, state of hydration, posture, gait, personality and mental state

Record height and weight:

Regional examination:

Skull deformity, asymmetry Facies

Exophthalmos, enophthalmos Thyroid swelling

Scoliosis, kyphosis, lordosis

Abdominal swelling

Abdominal asymmetry

Abnormal posture of limbs

Deformity of limbs scrotal swelling
Cardinal signs:

- Anaemia
- Clubbing
- Venous engorgement
- Cyanosis
- Oedema legs/sacrum
- Temperature: oral
- Jaundice
- Peripheral pulses
- Respiration
- Blood pressure
- Lymph nodes

Skin:
- Abnormal pigmentation / texture / swelling rashes

Nails:
- Roughness / pitting / brittleness / spooning ridging

As the Basic Sciences progress to organ systems, history taking and physical examination should also match the same.

Eliciting additional information according to system
STANDARD QUESTIONS SUGGESTED

**Cardiovascular system:**
Ankle swelling, palpitations, chest pain or pain in legs on exertion, breathlessness when lying flat (orthopnoea), waking up with breathlessness (paroxysmal nocturnal dyspnoea)

**Respiratory system:**
Shortness of breath - exercise tolerance, wheezing, coughing
Sputum - colour, amount, presence of blood (haemoptysis)
Chest pain isolated to respiration or coughing

**Central nervous system:**
Headache, fits or faints, steep patterns, visual symptoms e.g. double vision, loss of acuity or visual field, tingling, numbness, muscle weakness Hearing symptoms e.g. deafness, tinnitus
Excessive thirst

**Genito-urinary system:**
Pain on passing urine (dysuria)
Frequency of passing urine during day and night
Abnormal colour of urine e.g. blood

**Male**
if of appropriate age, ask for prostatic symptoms such as difficulty in initiating micturition, poor stream, terminal dribbling if of appropriate age, ask for mental attitude to sex (libido), frequency of intercourse, ability to maintain erections, ejaculations, urethral discharge, number of sexual partners

**Female**
age at menarche, duration of the menstrual cycle, dysmenorrhoea, duration and severity of menstruation, tile date of last menstruation.
The relation between duration of menstrual flow and cycle can be conveniently recorded as 5/28, 6/30 etc. Type of contraception, if relevant, presence or absence of vagina discharge, post-menopausal bleeding, stress and/or urge incontinence, pain during intercourse (dyspareunia), and the number of sexual partners if relevant

**Obstetric history:**

The number of pregnancies and the outcome i.e. spontaneous, miscarriages or induced abortions, complications during pregnancy, labour or the puerperium.
Children born and year for each.

**Alimentary system:**

Condition of mouth - oral and dental hygiene, ulcers, bleeding gums.
Difficulty with swallowing (dysphagia), indigestion, heartburn
Abdominal pain, change in bowel habits, colour of stool- normal, pale, dark, black; fresh blood, weight loss.

**Locomotor system:**

Joint pain or stiffness
Muscle pain or weakness

**Endocrine system:**

Heat / cold intolerance
Change in sweating
Prominence of eyes
Swelling in neck
Systemic examination:

**FORMAT SUGGESTED**

**Cardiovascular system:**
- Skin: temperature and colour
- Veins: abnormal vessels, signs of inflammation
  - Arterial pulse and pressure, jugular venous pulse and pressure
- Heart: inspection - pulsations and deformities of anterior chest wall
- Palpation: apex beat
- Auscultation: first and second heart sounds
- Peripheral circulation: arterial pulsation of limb arteries

**Respiratory system:**
- Upper respiratory tract - nose, tonsils, pharynx
- Chest – inspection: shape and lesions of chest wall
- Respiration - rate and depth, chest expansion and mode of breathing
- Palpation - position of trachea and range of movement
- Percussion - anterior lateral and posterior chest wall, hepatic dullness
- Auscultation - breath sounds; vocal resonance and added sounds

**Alimentary and genito-urinary system:**
- Mouth, lips, tongue, teeth gums and other mucosae
- Vomitus - character and quantity
Abdomen - inspection: scars; abdominal wall: shape, ± dilated veins, general and local changes

Palpation: tenderness, guarding, individual organs and abnormal masses, hernia orifices and inguinal lymph nodes

Percussion: fluid, gas and individual organs

Auscultation: frequency and character of bowel sounds

**Genitalia:**

Male – Inspection: swellings and skin changes

Palpation: penis, testis, epididym's, vas deferens

Female - Breast examination

Inspection of external genitalia

Pelvic examination by speculum & then digitally as bimanual vagino-abdominal examination

Rectal examination in certain instances

**V to IX Semesters**

Students will work in medical out-patients, in-door units, Intensive Care unit and Coronary Care Unit.

Develop clinical skills in history taking, clinical examination and differential diagnosis; plan appropriate investigations and treatment; evaluate the effectiveness of treatment. For this purpose each student is allocated certain number of beds.

Take appropriate medical history; examine patient and record relevant findings on history sheet; investigate and assist to institute treatment; monitor patient's condition and evaluate therapy on allocated cases.

Assist residents and/or consultants to evaluate critically ill patients and provide supportive help when necessary.

Interpret various investigation reports including E.C.G. and X-ray films.

Observe residents and/or consultants performing certain medical
procedures, e.g. lumbar puncture, aspirations etc.; and carry these out wider supervision.

Familiarise with instruments commonly used for medical procedures
Assist residents and/or consultants in counseling patients and patient’s families about treatment and follow up care.

**Clinical Experience is super imposed by theory -**

The students will learn by doing. They will work actively under supervision of resident and/or physicians as part of a team. Chief of the unit will monitor the medical student’s performance during the placement in the unit. The students will keep complete record of at least 15 cases during the posting period and they will be evaluated on these. They will work in medical OPD, ICU, and CCU and in in-patient units. They would be posted as Junior Intern in the IX Semester for 4 weeks.

**ANNEX – VI**

**PEDIATRICS**

**LOG BOOK – Semester VIII - IX**
- General pediatric – 15 cases
- Neonatal case – 5 cases
- Submitted one month prior to the university examination
- 2 marks to be allotted for the logbook in the internal assessment

**INTERNAL ASSESSMENT**
- Mid semester examination
- End of semester examination
- End of posting examination
ANNEX – VII
OBSTETRICS AND GYNECOLOGY

Format for History taking

Patient No.  Age:  Address:

Marital Status:  Religion:

Occupation (H/W):  Education (H/W):

Date of Admission (For Inpatients):

Date of Examination:

Chief Complaints and Duration (in chronological order)
1.
2.
3.

History of Presenting Illness
- Elaboration of chief complaints in detail to reach a provisional diagnosis
- For Antenatal Cases
  - LMP
  - EDD
  - Gestation in weeks
  - Fetal movements
ANC attendance

TT immunization

Any problems during this pregnancy in terms of each trimester

Allergies

Drug History

For Labour cases (in addition to the above)

Labour pain (duration in hours)

Blood stained discharge PV (amount)

Leaking PV (in hours, color and smell)

Other problems

For Postnatal cases

- Day of delivery

Type and place of delivery

Lactation/Breast problems/State of nipples

PV bleeding or discharge

Episiotomy/LSCS wound

Urine/Bowel problems

Fever, pain abdomen, pain in legs

Others

Obstetric History

Married for/Age of marriage

Gravida, parity, abortions, living children, year of last delivery

Type of previous deliveries (Normal/Instrumental/Operative)

Indication in case of instrumental or operative delivery

Antenatal problems, III stage complications in previous deliveries

Year of previous deliveries, sex of baby, Live or still birth, wt. of baby, living/cause of death in neonatal death
Format for Obstetric History

<table>
<thead>
<tr>
<th>Year</th>
<th>Duration of Pregnancy</th>
<th>Abnormalities during Pregnancy</th>
<th>Type of Delivery</th>
<th>III Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Baby</th>
<th>Sex</th>
<th>Wt</th>
<th>LB or SB</th>
<th>Cong. Abn.</th>
<th>Living or Dead</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Remarks

Contraceptive history
- Type of contraception, duration, cause of discontinuation, date of discontinuation

Menstrual history
- Menarche, Duration of flow/Length of cycle, regularity, amount of flow, dysmenorrhoea, intermenstrual bleeding, post coital bleeding, LMP

Past history
- Significant illness, eg. TB, Diabetes mellitus, Hypertension, Blood transfusion, Surgery, etc.

Family history
- TB, Diabetes mellitus, Hypertension, Genital tract malignancies,
- Antenatal cases: Multiple pregnancies, Congenital anomalies

Personal history
- Smoking, Alcohol intake, Allergy, etc.
**Format for Physical Examination**

**GENERAL EXAMINATION**
- General condition
- Height, weight
- Cardinal signs: Pallor, Oedema, Icterus, Cyanosis, Clubbing, Lymphadenopathy
- Vital signs: Pulse, Blood pressure, Respiratory rate, Temperature
- Thyroid, Breasts (symmetry, nipple, lump, tenderness)
- Cardiovascular system: Heart sounds, Murmurs
- Respiratory system: Breath sounds, Added sounds
- Abdomen:
  - Inspection (contour, scars, venous prominence, hernial orifices, mass)
  - Palpation (tenderness, organomegaly, abnormal mass)
  - Percussion (fluid, gas, mass, organs)
  - Auscultation (bowel sounds)

**OBSTETRIC EXAMINATION**
- Fundal height in relation to gestation
- Fundal grip
- Lateral grip
- 1st and 2nd pelvic grip
  - (These examination will tell the student Fetal Lie, Attitude, Position, Presentation and Engagement of presenting part)
- Auscultation of fetal heat sound

**In Labour Cases**
- All of the obstetric examination PLUS
- Uterine contractions (Duration, Frequency, Intensity)
- Fetal heart rate

**PELVIC EXAMINATION**

- Inspection of external genitalia (Pubic hair distribution, Any lesion, Vaginal discharge, Bleeding, Descent of vaginal wall or uterus)
- Speculum examination (Cervix, Vaginal wall, Any lesion, Bleeding, Discharge, Growth)
- Bimannual examination of Uterus (Size, Position, Mobility and Tenderness of uterus, Any abnormal mass in lateral/anterior/posterior fornices)

**In Labour Cases**

- Dilatation of cervical os
- Effacement of cervix
- Membrane present/absent
- Presenting part/Station of presenting part
- Clinical assessment of pelvis
- Presence of show, liquor (clear or meconium stained)
  - Students will work in Out patients, Indoor, Labour room, Operation Theater. They will learn by doing. They will work under supervision of residents and other members of faculty.
  - During posting in OPD, apart from taking history and examining patients under supervision, the students will observe, assist the procedures like:
    - Taking Pap Smear
    - High Vaginal Swab
    - Ring Pessary Insertion and Removal
    - Hysterosalpingogram
    - Colposcopic examination
- Family Planning methods/counseling (IUCD & Norplant insertion and removal, Depot injection)
  - Immunization of mother and baby

- During posting in Labour Room students will learn about
  - Management of normal labour
    - Induction and Augmentation of labour
    - Prostaglandins, Oxytocin
    - ARM
    - Partogram
    - Normal delivery including repair of Episiotomy and perineal tear
    - Active management of IIIrd stage of bour
    - Obstetric analgesia, Pudendal block.
    - Resuscitation of newborn
    - Cadiotocograph

- Students should see, learn about and take active part in management along with senior faculty members in
  - Post partum haemorrhage (Retained placenta, Cervical tear, Atony etc.)
  - Obstetric shock
  - Ectopic pregnancy
  - Vulvo Vaginal hematoma.
  - APH
  - Septice shock
  - Severe PET and eclampsia
  - Genital tract trauma and medico legal cases

- In operation theater students will see and learn about
  - Cesarean sections
  - Mannual removal of placenta
  - Evacuation of retained products of conception
- D & C, Cervical biopsy, Polypectomy, Cautery
- Abdominal and vaginal hysterectomy, PFR.
- Manchester’s operation and PFR
- Laparotomy for ovarian cyst, ectopic pregnancy, tumor mass, etc.
- Post partum tubectomy, minilap
- Laparoscopic procedures
- Instrument processing and sterilization
- Infection prevention

**Instruments & equipments / Devices**

- Cusco’s speculum
- Sim’s speculum
- Ayres’s spatula
- Volsellum/tenaculum
- Anterior vaginal wall retractor
- Hegar’s dilators
- Curette
- Ovum forceps
- Sponge holder
- Uterine sound
- Artery forceps
- Kocher’s forceps
- Alli’s forceps
- Babcock’s forceps
- Green-Armytage forceps
- Doyen’s retractor
- Punch biopsy forceps
- Myoma screw
- Needle holder
- Suction cannula (Metal/Plastic)
- HSG cannula
- Catheter (Plain/Foley’s/Metal)
  - Obstetric foceps (Low/Mid/Killand)
  - Ventouse applicator
  - Episiotomy scissors
  - Cheatle’s foceps
  - Cu-T, Condom, OCPs, Norplant, Depot provera
  - Ring pessary

- Specimens
  - Fibroid
  - Ovarian Cyst
  - Placenta with membrane/Cord with vessels.
  - Anencephay baby
  - Hydatiform mole
  - Cevical growth – Polyp/Malignant.
  - Ectopic pregnancy
  - Congenital abnormalities of placenta and baby

- X-rays
  - Hysterosalpingogram (Normal/Abnormal)
  - Breech presentation
  - Twin pregnancy
  - Missing Cu-T

**ASSESSMENT**

- Formative
  - Theory paper (One hour)
  - Ward leaving practical exams

- Sessional
  - Theory paper (Three hours, similar to KU exams)
  - Practical exams (Long case, Short case, Viva)
ANNEX – VIII

LIST OF REFERENCE BOOKS

CLINICAL SCIENCES

ANAESTHESIA

1. Synopsis of Anaesthesia – Atkinson

DENTAL

2. Oral medicine – Busket.

FORENSIC MEDICINE

1. Fundamentals of Forensic Medicine and Toxicology by Prof.R.K.Sharma.
MEDICINE
1. Davidson's Principles and Practice of Medicine - SS Davidson.
2. Clinical Medicine - Kumar & Clark.
7. Bed-side clinics in Medicine Part-II.
8. Current Medical Diagnosis and Treatment

DERMATOLOGY
1. Roxburgh's Common skin Diseases - R.Marks.
2. Practice of Dermatology – P.N.Bhel.
5. Dermatology in general medicine - Fitz Patrick's
6. IAL Textbook of Leprosy (Indian Association of Leprosy)- Kar
7. Sexually Transmitted Diseases- Holmes
8. Cosmetic Dermatology Principles & Practice

PSYCHITRARY
2. Clinical Psychiatry – Agarwal.
**OBSTETRICS & GYNECOLOGY**

7. Essential of Gynaecology - S. Arulkumaran
12. Pregnancy at risk, Current concepts - Krishna, Tank and Daftary
13. Progress in Obstetrics and Gynaecology - Studd. No. 1 – 16
14. Recent advances in Obstetrics and Gynaecology - Bonnar. No. 1 – 22
16. WHO manual (reproductive Health)

**OPHTHALMOLOGY**


**ORTHOPAEDICS**
4. Clinical Orthopaedic Examination – McRae, Ronald

**OTORHINOLARYNGOLOGY**
5. Text book of ENT - Rakesh Sribastav

**PEDIATRICS**
5. IAP Text book of Paediatric.
**RADIOLOGY**

4. Text book of Radiology and Imaging - David Sutton

**SURGERY**

5. Regional Anatomy – R. J. Last.
6. Applied Anatomy – Mc Gregor
8. Short and long case – Deshmukh.
13. Washington manual of Surgery
14. General Surgery at the District Hospital- Sakuran Balu
15. A Concise Textbook of Surgery: with orthopaedics & fracture
16. Hamilton Bailey’s Emergency Surgery
ANNEX – IX

LIST OF PARTICIPANTS IN CURRICULUM REVIEW

MBBS Subject Committee

1. Dr. Ram Kantha Makaju
   Professor of Surgery, Kathmandu University School of Medical Sciences, Dhulikhel – Chairman

2. Dr. Arpana Neopane,
   Associate Professor of Medicine, Kathmandu Medical College, Kathmandu – Member

3. Dr. Heera Tuladhar
   Associate Professor of OBGY, Nepal Medical College, Kathmandu – Member

4. Dr. O. K. Malla
   Professor of Ophthalmology, Kathmandu Medical College, Kathmandu – Member

5. Dr. Veena Gupta
   Professor of Paediatrics, Nepalganj Medical College, Nepalgunj – Member

6. Dr. Ranjit Guha
   Associate of Anatomy, College of Medical Sciences, Bharatpur – Member

7. Dr. Shiva Kumar Rai
   Professor of Microbiology, Nepal Medical College, Kathmandu – Member

8. Dr. Ashraf Mohammad
   Professor of Pathology, KUSMS – Member
9. Dr. Archana Saha
   Professor of Pharmacology, Manipal College of Medical Sciences, Pokhara – Member

10. Dr. Sashi L. Malik
    Professor of Physiology, KUSMS – Member

**Attendees**

1. Prof. Dr. N. B. Rana
   Dean, KUSMS

2. Prof. Dr. P. R. Adhikari
   Controller of Examinations, KU

3. Prof. Dr. B. P. Nepal
   Associate Dean, KUSMS

4. Prof. Dr. N. R. Tuladhar
   Associate Dean, KUSMS

5. Dr. Rajendra Koju
   CAO, KUSMS

6. Mr. B. Lakhey
   Assistant Controller of Examinations, KU

7. Dr. Anjana Singh Dongol
   Assistant Clinical Coordinator, KUSMS

8. Dr. Dil Islam Mansur
   Assistant Pre-Clinical Coordinator, KUSMS

9. Mr. Prakash Aryal
   Office assistant, KUSMS
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Prof. Dr. C. D. Chawla
Prof. Dr. N.P. Sinha
Dr. Rajendra Koju
Dr. Anjana Dongol Singh
Dr. Dil Islam Mansur

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Dr. Rajendra Koju
Dr. Raj Kumar Chhetri
Dr. Puspa Raj Sharma
Dr. Anjana Singh Dongol
Dr. Dil Islam Mansur
Dr. M. K. Haque
Dr. R. P. B. Shrestha
Dr. R. C. M. Amatya
Dr. Jagdish Chautat
Dr. Nirajan Parajuli
Dr. Sangina Ranjitkar
Dr. Raj Kumar Karki
Dr. Dharmendra Karn
Dr. Chandan Upadhayay
Dr. Jyoti Tara Manandhar