CUURICULUM
BSC PARAMEDICAL SCIENCES
## CONTENTS

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NTRODUCTION

1. OBJECTIVES OF PARAMEDIC TRAINING PROGRAM
   - To prepare a cadre of health technologists and workers who can effectively assist senior health professionals in the delivery of quality health services.
   - To prepare paramedical workers for all levels of the health care delivery system from the primary to the tertiary level.
   - To introduce and impart standard technical education with new modern techniques, within the fields of medical technologies, by replacing the conventional methods of pre-service training (certificate level).
   - To provide paramedical workers a status and recognition in the health care delivery system through improving their capacity along with increasing awareness of their responsibilities, authority and job description.
   - To equip the paramedical staff with modern skills and latest technical knowledge and bring them at par with other national and international level.

1. Bachelor of Paramedic Sciences in Anesthesia (B. Sc Hons in Anesthesia)
2. Bachelor of Paramedic Sciences in Cardiology (B.Sc Hons in Cardiology)
3. Bachelor of Paramedics Sciences in Dental (B.Sc Hons in Dental)
4. Bachelor of Paramedic Sciences in Dialysis (B.Sc Hons in Dialysis)
5. Bachelor of Paramedic Sciences in Gastroenterology (B.Sc Hons in Gastroenterology)
6. Bachelor of Paramedic Sciences in Health (B.Sc Hons in Health)
7. Bachelor of Paramedic Sciences in Mother and child Health Care (B.Sc Hons in MCH)
8. Bachelor of Paramedic Sciences in Neurophysiology (B.Sc Hons in Neurophysiology)
9. Bachelor of Paramedic Sciences in Pathology (BSc Hons in Pathology)
10. Bachelor of Paramedic Sciences in Pulmonology (B.Sc Hons in Pulmonology)
11. Bachelor of Paramedic Sciences in Radiology (B. Sc Hons in Radiology)
12. Bachelor of Paramedic Sciences in Surgical (B.Sc Hons in Surgical)

Bachelor of Paramedic Sciences program / duration will be 4years approved by academic council and syndicate of KMU. The program will be conventional annual system; to start with however, it will eventually convert to semester system.

It shall spread over 4 parts of 38 weeks intensive course work in each part.
Part-1 _______________ 39 weeks/1092 study hours
Part-2 _______________ 38 weeks/1292 study hours
Part-3 _______________ 38 weeks/1292 study hours
Part-4 _______________ 38 weeks/1292 study hours
Part-5 _______________ 153 weeks/ 4968 study hours

a. Each student has to complete 153 weeks, which includes practical work in the relevant specialty.
b. Each student is required to attend regularly each class in the curriculum and to perform satisfactory the work of the class.
c. 75% attendance is required for examination otherwise he/she will not be entitled for examination in that part and will be informed accordingly.
d. All study hours should be distribute in to courses of basic sciences professional, specialty profession and practical profession to produce quality teaching and learning.
e. There will be four parts.
   I. Part-1 will be common to all specialties and will comprise of basic medical sciences and other related subjects.
   II. Subsequent 3 parts will comprise of specialized courses in the relevant specialty.
Curriculum

There will be 2 professional phases.

**First professional:** This includes courses of basic medical sciences (compulsory subjects) to be taught in part-1 covering 1092 study hours with 39 weeks for preparation and 3 weeks for examination having 15 courses with the following papers and marks.

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<tr>
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<td>4. Pharmacology</td>
<td>150</td>
</tr>
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<td>5. Biochemistry</td>
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<td>6. Islamiyat</td>
<td>100</td>
</tr>
<tr>
<td>7. Pak Studies</td>
<td>100</td>
</tr>
<tr>
<td>8. Public Health</td>
<td>150</td>
</tr>
<tr>
<td>9. Basic Epidemiology</td>
<td>100</td>
</tr>
<tr>
<td>10. Research Methodology</td>
<td>150</td>
</tr>
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<td>11. Sociology</td>
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</tr>
<tr>
<td>12. Biostatistics</td>
<td>100</td>
</tr>
<tr>
<td>13. Communication Skills</td>
<td>100</td>
</tr>
<tr>
<td>14. Management and Ethic</td>
<td>100</td>
</tr>
<tr>
<td>15. Computer Skills in computer Lab</td>
<td>50</td>
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</tbody>
</table>

The basic professional is compulsory to pass however the student will get admission to next year as the specialty is skill based and needs bedside experience also supplementary period before promotion.

Note: No promotion before passing the part-I

**Second Professional:**

This phase includes specialty and practical professional courses to be taught in part-2, part-3 and part-4 covering 3876 study hours with 114 weeks, two weeks for preparation and 4 weeks for examination and 4 weeks for weeks for each examination.
Mode of Examination:

a. The examination will be conducted by Khyber Medical University Peshawar in the end of completion of each part, having 5000 marks (part-1 is 1400 marks, part-2 is 1200 marks, part-3 has 1200 marks and part-4 has also 1200 marks).

b. There will be 4 examinations one for part-1 basic medical sciences (compulsory subjects) and 2nd, 3rd and 4th examination for part-2, part-3 and part-4 specialty and practical professional sciences courses (elective subjects)

c. There will be examination at the completion of each part.

d. Khyber Medical University shall award the degree to the successful candidate.

e. English will be the medium of teaching, instruction and examination except Islamiyat and Pak study.

The grading system will be as follow under annual system

1st division __________ 60% and above
2nd division __________ 50% and above
Passed marks ________ 50%
Failed marks _________ below 50%

Anyone who gets 80% or higher marks will get distinction certificate.

Note: In all Bachelor program minimum passing marks are 50% with no aggregate.
Program Structure
Frame work of Curriculum for B.Sc Paramedics

1st Year

 COURSES OF B.SC (HONS) BASIC SUBJECT (COMPULSORY) for all disciplines.

<table>
<thead>
<tr>
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<td>15</td>
<td>Computer Skills Practice in Computer Lab</td>
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PATHOLOGY

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3\textsuperscript{rd} Year

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4\textsuperscript{th} Year

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## ANAESTHESIA

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<td>Zones of interest to anesthesia, instruments and clinical practice in general surgery, urology and ENT</td>
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<td>Anesthesia equipment and Clinical practice in Orthopedic, Eye and Gynae OT</td>
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<td>114+190</td>
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<td>3.</td>
<td>Pre-operative medications, assessments and clinical practice in causalty</td>
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<td>Anesthesia and Co-existing diseases II and clinical Practice</td>
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<td>3.</td>
<td>Specialized practice in anesthesia in different OT’s I</td>
<td>152+152</td>
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<td>4.</td>
<td>Specialized practice II in anesthesia in different OT’s</td>
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## SYLLABUS OF B.SC (HONS) PARAMEDIC SCIENCES

### HEALTH

#### 2nd Year

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<td>1.</td>
<td>Medicine-I &amp; Clinical Practice in Medical OPD and ward</td>
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<td>2.</td>
<td>Medicine II and clinical practice</td>
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<td>3.</td>
<td>Medicine III and clinical practice</td>
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<td>Medicine IV and clinical practice</td>
<td>152+152</td>
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#### 3rd Year

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<tr>
<td>1.</td>
<td>Medicine V and clinical practice</td>
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<tr>
<td>3.</td>
<td>Surgery I and clinical practice</td>
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<tr>
<td>4.</td>
<td>MCH, EPI and clinical practice</td>
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#### 4th Year

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<tr>
<td>1.</td>
<td>Surgery II and clinical practice</td>
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<td>152+152</td>
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## Syllabus of B.Sc (Hons) Paramedic Sciences
### Radiology

#### 2nd Year

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</tr>
<tr>
<td>1.</td>
<td>Radiological physics I and clinical practice</td>
<td>152+114</td>
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<td></td>
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<td>Radiological procedures I and clinical practice</td>
<td>190+152</td>
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<td>Radiological anatomy I and clinical practice</td>
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<td>Radiological positioning and clinical practice</td>
<td>190+152</td>
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#### 3rd Year

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## SYLLABUS OF B.SC (HONS) PARAMEDIC SCIENCES

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## 4th Year

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BASIC MEDICAL SCIENCES AND RELATED SUBJECTS
OF
B.SC (HONS) PARAMEDIC SCIENCES
COURSE TITLE: ANATOMY

STUDY HOURS: 114
PAPER: 1
PART: 1

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of the subject of anatomy in medical science regarding its knowledge its applications and day-to-day developments in the subject

COURSE CONTENT:
I. General Anatomy
   Anatomical terms and positions
   Description of tissue

II. Systemic Anatomy
   Systemic Anatomy includes
   a. Muscular skeletal system
   b. Gastrointestinal system
   c. Respiratory system
   d. Cardiovascular system
   e. Lymphatic system
   f. Head and Neck
   g. Nervous System
   h. Urinary System
   i. Reproductive System
   j. Endocrine System
   k. Special Senses

RECOMMENDED BOOKS:
COURSE TITLE: PHYSIOLOGY

STUDY HOURS: 114
PAPER: 2
PART: I

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce to the students the significance of the subject of Physiology in medical science with regards to its knowledge in making the other subjects of medical sciences understandable. Its applications and day to day developments in the subject of Physiology.

COURSE CONTENTS:
1. Cell
2. Gastrointestinal system
3. Respiratory system
4. Cardiovascular system
5. Blood and immunity
6. Nerves system
7. Urinary system
8. Reproductive system
9. Endocrine system
10. Special senses

RECOMMENDED BOOKS:

COURSE TITLE: PATHOLOGY

STUDY HOURS: 78  MARKS
PAPER: 3  THEORY: 100
PART: 1  PRACTICAL: 50
TIME: 3 HOURS

COURSE OBJECTIVE:
To introduce to the students the knowledge of the subject of Pathology regarding its needs in understanding the different domains of medical science and regarding the other applications of the subject and to come to know the recent advancements in the field of pathology.

COURSE CONTENT:
1. Introduction to Pathology
2. Cell Injury
3. Inflammation
4. Repair
5. Homodynamic Disorders
6. Disorders of Immunity
7. Neoplasia
8. Microbiology

RECOMMENDED BOOKS:
COURSE TITLE: PHARMACOLOGY
STUDY HOURS: 78
PAPER: 4
PART: 1

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:

To introduce to the students the knowledge of the subject of pharmacology with regards to its importance in understanding the other disciplines of medical science and regarding the application of the subject and to learn about the new developments in the field of pharmacology.

COURSE CONTENT:

1. Introduction to Pharmacology
2. Pharmacokinetics
3. Pharmacodynamics
4. Adverse effects of drugs
5. Classification of drugs

RECOMMENDED BOOKS:

Lippincot’s pharmacology (text book) by Mycek 2nd edition 2000 published by Lippincot Raven

COURSE TITLE: BIOCHEMISTRY
STUDY HOURS: 78
MARKS
PAPER: 5
THEORY: 100
PART: 1
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The induction of knowledge subject of biochemistry to student regarding its importance in understanding the other domains of medical science and regarding the applications of the subject and to know about the recent developments in the field of biochemistry.

COURSE CONTENTS:

1. Introduction
2. Carbohydrate
3. Proteins
4. Lipids
5. Enzyme
6. Vitamins
7. Nutrition food and dietetics
8. Metabolism
9. Body fluids
10. Acid base balance
11. Minerals

RECOMMENDED BOOKS:
Biochemistry for Paramedics by Dr. Khalid Mehmood 2005 published by UB agency Peshawar.
COURSE TITLE: ISLAMIC EDUCATION

STUDY HOURS: 39  MARKS  6
PAPER: 6  THEORY: 100
PART: 1  TIME: 1:30 HRS

COURSE OBJECTIVE:
- To educate students regarding basic concept of Islam
- To educate students regarding Islamic influence in the world
- To educate the students regarding Islamic Medical Ethics & Contribution of the Muslims in Medicine, Science & Technologies.

COURSE CONTENTS:

Holy Quran and Sunnah

1.1 Holy Quran
- Introduction
- Importance and characteristics
- Sura-e-Hujaraat with translation
- Sura-e-Al-Furqan: Verses 63-77 with translation and explanation

1.2 Sunnah
- Importance of Sunnah
- Twenty selected Hadith with translation
  (Mention in Islamiat Compulsory for degree classes, published by: Allama Iqbal Open University)

Fundamental Doctrine of Islam
  a. Islam with reference to Holy Quran & Hadith
  b. Tawheed (Oneness of Allah)
  c. Prophethood
  d. The day of Judgment (Akhrit)
  e. Salat & Nimaz (Abadaat)
  f. Saum (Fasting)
  g. Zakat
  h. Hajj
  i. Jehad

Life of Holy Prophet
  3.1 study of the life of the holy Prophet & Seerat
  3.2 life of the Holy Prophet at Maka from birth to Hijra (Migration to Madina)
  3.3 Method of Preaching & difficulties
  3.4 life of Holy Prophet at Madina
  3.5 amicable Accords (Mowkhat)
  3.6 treaty of Madina (Misaq-e-Mukarama)
  3.7 conquest of Maka Al-Mukarama)
  3.8 hajat-ul-wida

The Ethical View of Islam & Characteristics Islamic Cultural
  4.1 Character Building
  4.2 The Concept of Ethics
4.3 The Moral Values: Truthfulness, tawakal, Taqwa, Fulfillment of Promises, Simplicity, the steam of Prents and Guardians, Behaviorism Y& Broadness.

**Influence of the Islamic civilization**
4.4 Panacea of our problems
4.6 Our future, unity, political stability

**Islamic Medical Ethics**
Contribution of the Muslims in Medicine, Science and Technology

**Note:** while keeping the Islamic values and basic Characteristics of Islamic Society the proper guideline may be provided in such a way that should be applicable in business and trade.

**RECOMMENDED BOOKS:**

Islamiat Compulsory, Islamabad, Allama Iqbal Open University, Islamabad
COURSE TITLE: PAK STUDIES
STUDY HOURS: 39
PAPER: 7
PART: 1
MARKS
THEORY: 100
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the student the significant of Pak Study B.Sc level course.

COURSE CONTENTS:
I Chapter One
Ideology of Pakistan
II Chapter Two
Background of ideology of Pakistan
   a. Reformation movement
   b. Educational movement
   c. Political movement

III Chapter Three
Movement of Pakistan (Since Allama Iqbal Address at Ala Bad 1930 till 14th August 1947)

IV Chapter Four
Establishment of Pakistan (Political, Social financial Problems)

V Chapter Five
Constitutional and Political Developments in Pakistan

VI Chapter Six
Geographical condition of Pakistan

VII Chapter Seven
Pakistan and Muslim World

RECOMMENDED BOOKS:
Pakistan Studies Compulsory for Degree Courses by Dr. Noshaad Khan
COURSE TITLE: PUBLIC HEALTH
STUDY HOURS: 78
PAPER: 8
PART: 1
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 2HRS

COURSE OBJECTIVE:
To introduce to the students the significance of the discipline of public health in medical and applied social sciences regarding its history applications and development

COURSE CONTENTS:
1. Basic definition
2. primary health care
3. nutrition
4. water supply
5. sanitation
6. mother and child health (MCH)
7. family planning
8. immunization
9. mental health
10. drug abuse
11. health education
12. health management information system
13. health system research
14. biomedical ethics

RECOMMENDED BOOKS:
Ilyas Ansari’s community medicine (Text Book) by Ilyas and Ansari 2003 published by Medical division Urdu Bazzar Karachi
K Park’s community medicine (Reference Book) by K Park 2003 Published by Banarside Bhanot Jaipur India.
COURSE TITLE: EPIDEMIOLOGY
STUDY HOURS: 39 MARKS
PAPER: 9 THEORY: 100
PART: 1 TIME: 1HRS

COURSE OBJECTIVE:
To introduce to the students the know-how of the subject of epidemiology in order to apply the knowledge of the subject regarding the community and community relate disease.

COURSE CONTENTS:
1. Introduction to epidemiology
2. Determinants
   I. Primary
   II. Secondary
3. Clinical epidemiology
4. Occupational epidemiology
5. Importance of epidemiology
6. Definitions of common terms related to epidemiology
7. Health indication

RECOMMENDED BOOKS:
Public Health by Ilyas Ansari
Public Health by J Park
COURSE TITLE: RESEARCH METHODOLOGY
STUDY HOURS: 78 MARKS
PAPER: 10 THEORY: 100
PART: 1 PRACTICAL: 50
TIME: 3HRS

COURSE SUBJECTIVE:
Introduction the students a significance of research methodology to the students foundation, concept of measurement, design clinical research and health system research.

COURSE CONTENTS:
PART-1 FOUNDATION
Introduction to research (in simple term and a scientific term), concept of research, why do need research, advantage of research, identification of research need and its qualities, component of research, ethical and legal aspect of research and objective of research (definition, purpose, structure)

PART-2
(A) SELECTION OF TOPIC
The criteria points of prioritization of topic

WORK PLAN
its contents, how to developed a work plan, what factor should be kept in mind while preparing research work plan

© BUDGET REQUIRED FOR RESEARCH WORK
Why it is needed, wok should be taken in to consideration, literature searching, statistical help, material, type of manuscript, printing of manuscript for submission and postage

PART-3
CONCEPTS OF MEASUREMENT
Principals and reliability of measurement, errors and sources of measurement, types of measurement, measure of disease frequency and screening (introduction, validity and screening test)

DESIGNING CLINICAL RESEARCH
Studies design (introduction, selection of design), research questionnaire, validity and reliability of research finding, confounding factors, strategies to deal with threats to validity.

(C) HYPOTHESIS TESTING
(D) SAMPLING
Probability and non-probability and their sampling, advantages and disadvantages of probability and non-probability sampling, bias in sampling.

(E) RESEARCH PROTOCOLE
(F) DATA COLLECTION
Purpose and techniques, why do we collect data, data collection procedure, step and data collection survey questionnaire, starting questionnaire.

RECOMMENDED BOOKS:
Foundation of Clinical Research by Portney LG Walkais MP in 1993, Publisher by Appleton and lauge USA
A quide to Research Methodology, Biostatistics and Medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
Health system research project by Corlien M Varkerisser, Indra Pathmanathan, Ann Brownlee in 1993 by International Development Research Center in New Dehli, Singapore.
COURSE TITLE: SOCIOMETRY
STUDY HOURS: 39
PAPER: 11
PART: 1
MARKS
THEORY: 100
TIME: 2HRS

COURSE SUBJECTIVE:
To produce to the students the significance of definition and scope of sociology as a science, their relation with other sciences.

COURSE CONTENTS:
1. General
Definition and scope of sociology, sociology is a science, Islamic Sociology

2. medical Sociology
Introduction contribution of sociology to medicine

3. Health and disease
Social definition of illness, social and emotional component of illness

4. Patient and paramedic
Paramedics view of disease and patient, psychology of patient / paramedic relationship

5. Mental illness sociological perspective
Definitions, social implication of mental illness

6. rehabilitation
Definition, physical, mental handicap
Method in rehabilitation: Guidance counseling and vocational training

7. social disorganization
The concept and factor of social organization, family, group and community disorganization

8. problem of community
problem of crime, method of treatment and preventative measure

9. educational problems
deterioration of education standard in school, college and university

10. health problems
ilness behaviour, delivery and utilization of health services

11. introduction to applied sociology
definition of applied sociology, nature and causative analysis of social problem and the role of sociologist in solving social problems

12. application of social research in social problems
social servu and social research, nature purpose and function

RECOMMENDED BOOKS:
Medical sociology by William C Cuckerham in 1978 printed by USA Health education
by Laurna Robinson Wesley F Alles in 1994 by Times Mirror/Mosby College
Publishing ST Liois Toronto

REFERENCE: BOOK:
Social psychology of health by Shirlynn Spacapan Stuart Oskanp Edition by SAGE
publication New Delhi, New York, in 1987
COURSE TITLE: BIOSTATISTICS
STUDY HOURS: 39
PAPER: 12
PART: 1
MARKS
THEORY: 100
TIME: 2HRS

COURSE SUBJECTIVE:
To introduce to the student the significance of bio-statistics their topic in univariate statistics means basic concept, describing and exploring data, normal distribution, sapling distribution and hypothesis testing, basic concept of probability and categorical data CH and application of statistics and social research.

COURSE CONTENTS:
Topics in univariate statistics
A. basic
1. Introduction
2. important terms
3. senses
4. method uses for taking sensus, information collection during sensus, method of estimating the population of any year
5. measurement scale
B. describing and exploring data
1. measures of central tendency and variability
2. health statistics (proparation, ration, rate)
3. percentiles, quartiles and deciles
C. normal distribution
1. the standard normal distribution SND
2. using tables of SND
3. measures related to ‘Z’ scores
   D. sampling distribution and hypothesis testing
   E. basic concepts of probability
   F. data collection (purpose and technique)
   G. categorical data and numerical data

application of statistics in social research
percentages, measure of central tendencies
   A. means, Meidan and Mode
   B. Quatile, decile and percentile

RECOMMENDED BOOKS:
Statistical methods for psychology by howell DC in 1992 publisher by Beelimont CA Duxby press USA
A quide to research methodology, biostatistics and medical writing by college of physicians and surgeons Pakistan by WHO collaboration center
Reading understanding multivanant statistics giimm LG Yard AD PR, in 1995 publisher American Psychological association
Ilyas Ansari’s community medicine (Text Book) by Ilyas and Ansari 2003 published by Medical division Urdu Bazzar Karachi.
COURSE TITLE: COMMUNICATION SKILLS
STUDY HOURS: 39 MARKS
PAPER: 13 THEORY: 100

PART: 1 TIME: 1 HRS

COURSE OBJECTIVE:
To introduce the students about the basic communication skill

COURSE CONTENTS:
1. definition of communication
2. communication module
3. 7C, s of Communication
4. social marketing
5. mode of communication
6. media & communication & Counseling
7. health Education & Motivation
8. participation involvement
9. obstacle communication
10. interpersonal communication & counseling

RECOMMENDED BOOKS:
Effective Business Communication
Module or Ensure Public Participation by Dr. Muhammad Ilyas
COURSE TITLE: ETHICS AND MANAGEMENT
STUDY HOURS: 39 MARKS
PAPER: 14 THEORY: 100
PART: 1 TIME: 2HRS

COURSE SUBJECTIVE:
To introduce to the student of medical ethics their behavior with patients and medical staff and management of different wards, departments includes the equipments records and their duties.

COURSE CONTENTS:
Ethics
Ethical conduct, relationship with patient, surgeon, physician, nurse, social workers and co-workers, preparation and uses of records, report, physical plant, equipments. The implementation of and confirmation to the rules of professional context and understanding, the paramedic liability and obligations in the case of medico legal action, a wider knowledge of ethics relating to current social and medical policy in the paramedic society as a professional association, the role of international health agencies such as world health organization.

Management:
Identify the features of a health care system and desirable role and function of paramedical within the system, the inter relationship of all levels of health care identify function, organization and inter relationship of departments in a health care facility, the rules and functions of paramedic in community, provincial and federal; resources available to the patient, chronically ill and elderly citizens, professional institutional and government measures to safe guard patients and control of quality care, the roles and functions of professional associations

Principles of management
Eliminatory features of hospital ward, unit and factors (budgetary, architectural and personnel) quality control total quality control, continuous quality control.

RECOMMENDED BOOKS:
Management A modern hospital by AV Srinivasa response book sage publication New Dehli London and 2005
Hand book of hospital personal management by RC Goyal prentice Hall of India New Dehli in 1994
Medical ethic by Dr. Mehmood Alam in 2006 by Health Department NWFP
COURSE TITLE: COMPUTER SKILLS
STUDY HOURS: 39+117
PAPER: 15
PART: 1
MARKS
PRACTICAL: 50
TIME: 1 HRS

COURSE OBJECTIVES:
To introduce to the student the significant for computer definitions, history, types and component, hardware and software application

COURSE CONTENT:
Introduction
Definition of computer
History of computer
Classification of computer
Components of computer

Hardware and Software
Physical components of computer
Logical component of computer
System software
Application software

Storage devices
Magnetic storage devices
Optical storage devices
Memories

Application software
Microsoft word
Microsoft power point
Microsoft excel
Microsoft power point
Microsoft access
Networking

Definition of networking
Types of networking
Internet

RECOMMENDED BOOKS:
Fundamental of I.T concept by Nayyar Kanwal by CECOSE University Teacher’s notes
COURSES OF B.Sc (HONS) PARAMEDIC SCIENCES IN PATHOLOGY
### COURSES OF B.Sc (HONS) IN PATHOLOGY TECHNOLOGY

#### (ELECTIVE)

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<td>Transfusion Medicine &amp; Clinical Practice</td>
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<td>Compatibility tests &amp; Screening</td>
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Part I weeks / study hours = 39 / 1092

Part II Weeks / Study Hours = 38 / 1292

Part III Weeks / Study Hours = 38 / 1292

Part IV Weeks / Study Hours = 38 / 1292

Total Weeks / Study Hours = 153 / 4968

Vacations for each examination preparation = 2 Weeks

Vacations for each examination = 4 Weeks

Vacations in each part = 8 Weeks
COURSE TITLE: HEMATOLOGY & CLINICAL PRACTICE I
STUDY HOURS: 228 + 114 MARKS
PAPER: 1 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce to the students basic concepts in Hematology and acquire skill in practical work to produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advancement in the field of Pathology.

COURSE CONTENTS:

RECOMMENDED BOOKS:
Publication: Armed Forces Institute of Pathology Rawalpindi, Pakistan
Clinical Chemistry: Principles, methods & interpretation 2nd Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003
Tahir Instruments limited Singhapura Road Lahore-Pakistan
COURSE TITLE: CHEMICAL PATHOLOGY AND CLINICAL PRACTICE I
STUDY HOURS: 228 + 76
PAPER: 2
PART: II
MARKS
THEORY: 200
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in chemical pathology and acquire skill in practical work to produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advancement in the field of Pathology.

COURSE CONTENTS:
Quality control:

RECOMMENDED BOOKS:
COURSE TITLE: HEMATOLOGY & CLINICAL PRACTICE II
STUDY HOURS: 228 + 76 MARKS
PAPER: 3 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:

LEUKEMIAS:
Definition, Classification of Leukemias: types & detailed description.
Myelodysplastic syndromes
Myeloproliferative disorders
Investigations for diagnosing leukaemias grading of leukemias
Cytochemical stains (Special stains for bone marrow). Laboratory diagnosis.

Blood coagulation:
Physiology of coagulation intrinsic / Extrinsic pathways bedding disorders investigations for diagnosis of bleeding disorders hemophilia. Idiopathic thrombocytopenic purpura DIC. Laboratory diagnosis. BT, CT, PT, APTT, TT, Correction studies.
Introduction to Bone Marrow: general comments, indications, Normal bone marrow smears. Interpretation of bone smears in different diseases. Trephine biopsy: indications and site for biopsy. Automation in hematological techniques. Hematology analysers: principle and method of running these analyzers.

RECOMMENDED BOOKS:
Clinical chemistry: principles, methods & interpretation 2nd Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003. Tahir Instruments Ltd Singapura Lahore-Pakistan
COURSE TITLE: CHEMICAL PATHOLOGY & CLINICAL PRACTICE II
STUDY HOURS: 228 + 114 MARKS
PAPER: 4 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce to the students basic concepts in Chemical Pathology and acquire skill in practical work to produce a team of Medical technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advance in the field of Pathology.

COURSE CONTENTS:
Chemical pathology:
Detailed description, principle, method and interpretation of Renal function tests
Diagnostics methods in diabetes mellitus & Glycosylated hemoglobin jaundice and its types: liver function tests.
Plasma proteins and albumin
Lipids and lipoproteins
Purine and urate metabolism
Clinical enzymology. Iron metabolism
Special urine chemistry. Stool chemistry. Tumour markers. Hormone studies

RECOMMENDED BOOKS:
Clinical chemistry: principles, methods & interpretation 2nd Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003. Tahir Instruments Ltd Singapura Lahore-Pakistan
Medical Microbiology and Immunology 6th Edition examination and board review A LANGE Medical board review Warren Levinson, MD, Ph. D McGraw-Hill Companies Inc
COURSE TITLE: BACTERIOLOGY & CLINICAL PRACTICE I

STUDY HOURS: 228 + 114

MARKS

PAPER: 1

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 03 HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in Microbiology (Bacteriology) and acquire skill in practical work. To produce a team of Medica Technologists steeped in knowledge of Bacteriology. To equip Medical Technonogists with latest advance techniques in the field of pathology.

COURSE CONTENTS:
Bacteriology:
General Principles of Bacteriology
Nature of microorganism: structure, genetics and metabolism
Basic features of bacteria
The transmission of bacterial diseases: carrires, routes of transmission
The normal bacterial flora of the body: symbionts, commensals, opportunists
Classification of bacteria: gram Positive cocci. Gram Negative cocci
Gram positive bacilli. Gram negative bacilli
Spirochaetes and serology of syphilis. Mycobacteria. Chlamydia
Rickettsia. Mycoplasma
Characteristics, Pathogenicity, epidemiology and laboratory diagnosis of important Pathogenic bacteria
Procedure for examination of clinical specimens
Collection and transport of specimens
Collection and transport of specimens
Inoculation of different specimens
Choice of media selection
Staining procedures used in Bacteriology
Gram staining: principle, Reagnets used for gram staining and procedure
Ziehl Neelsen staining: principle, reagents and procedure
Methylene blue Technique
Albert staining
Quality control in staining

RECOMMENDED BOOKS:
Manual of Laboratory medicines AFIP, third Edition 2005 Publication:
Armed Forces Institute of Pathology Rawalpindi Pakistan

Clinical chemistry: principle, methods & interpretation 2nd Edition 2003 by Prof. Abdus Salam Khan Gandapur. Tahir Instruments Ltd Singapura Road Lahore-Pakistan

**COURSE TITLE:** BACTERIOLOGY & CLINICAL PRACTICE II  
**STUDY HOURS:** 228 + 114  
**MARKS**  
**PAPER:** 2  
**THEORY:** 100  
**PART:** III  
**PRACTICAL:** 50  
**TIME:** 1.30 HRS

**COURSE OBJECTIVE:**  
To introduce to the students basic concepts in Microbiology (Bacteriology) and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Bacteriology. To equip Medical Technologists with latest advance techniques in the field of pathology.

**COURSE CONTENTS:**  
Sterilization and disinfection  
Preparation and use of culture media  
Common ingredients of culture media. Preparation of media  
Types of media: Simple media. Enriched media. Selective media  
Differential media  
Biochemical tests for bacterial identification  
Catalse test. Coagulse test. Exidase test. Indole test. MSA (mannitol salt agar)  
Urease test. Citrate test. Interpretation of biochemical tests  
Antibiotic sensitivity testing  
Techniques: disc diffusion technique, agar broth dilution techniques  
Sensitivity media  
Control strains  
Inoculation of sensitivity plates  
Selection of antibiotic discs  
Quality control

**RECOMMENDED BOOKS:**  
Manual of Laboratory medicines AFIP, third Edition 2005 publication:  
Armored Forces Institute of Pathology, Rawalpindi, Pakistan  
District Laboratory Practice in Tropical Countries, Vol 1 & 2 Monica Cheesbrough  
Clinical chemistry: principles, methods & interpretation 2nd Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003. Tahir Instruments limited Singapura Road Lahore-Pakistan  
Medical Microbiology and Immunology, 6th Edition 2000 examination and board review. A LANGE medical board review Warren Levinson, MD, Ph. D McGraw-Hill Companies Inc.  
COURSE TITLE: IMMUNOLOGY & SEROLOGY

STUDY HOURS: 114 + 76 MARKS
PAPER: 3 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
Present a general perspective of acquired immunity
To examine the nature of antibodies and process whereby antibodies are induced in response to antigens.
Discuss the process of immunization

COURSE CONTENTS:
Introduction: chronological development and scope of immunology.
Immunity and immune responses: Definitions and types (specific and non specific). Humoral and cellular immunity.
Cells and tissues of immune system.
The antigens: structure (simple and complex molecules, proteins and polysaccharides) and immunogenicity.
Tissue antigens: the Allo- and heterophile antigens. The ABO and Rh blood group systems, their chemical basis, inheritance & clinical significance.
Immunoglobulins: structure and function; classes, subclasses, types and subtypes; immunoglobulin genetics.
Immuneresponse to an antigen.
Introduction to antigen-antibody reactions: methods for detecting antigens and antibodies (agglutination, precipitation, complement fixation, EIA, etc.).
HLA & MHC and its role in immune response, disease and its significance in tissue transplantation.
Immunoregulation and tolerance.
Cancer immunology.
Introduction to immunopathology: hypersensitivity reactions, autoimmune diseases and immunodeficiencies.
Immunization (methods of immunization, vaccines and adjuvants).

PRACTICALS
1. Differential leukocyte count.
2. Blood grouping (ABO & Rh)
3. Agglutination test (Widal test).
4. Precipitation tests.
5. Complement fixation test.

RECOMMENDED BOOKS:

Clinical Chemistry: principles, methods & interpretation 2nd Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003. Tahir Instruments Ltd Singapura Lahore-Pakistan
Medical Microbiology and Immunology 6th Edition examination and board review A LANGE Medical board review Warren Levinson, MD, Ph. D McGraw-Hill Companies Inc
COURSE TITLE: VIROLOGY & CLINICAL PRACTICE
STUDY HOURS: 76 + 38
PAPER: 4
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in Virology and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advance techniques in the field of Pathology.

COURSE CONTENTS:
Virology: introduction
Features, structure and classification of viruses
Virus isolation
Storage and transport
Tissue culture
Animal techniques
Viral disease: Its nature and difference from bacterial diseases
Common Pathogenic viruses
Hepatitis viruses: types and detailed study and laboratory diagnosis
HIV: types and detailed description and laboratory diagnosis
Herpes virus
Cytomegalovirus
Dengue haemorrhagic virus
Tumour virus
Specimen collection & isolation of viruses
Microscopy
Light microscopy. Dark field microscopy. Fluorescent microscopy
Electron microscopy

RECOMMENDED BOOKS:
Manual of Laboratory medicines AFIP, third Edition 2005 publication:
Armed Forces Institute of Pathology, Rawalpindi, Pakistan
District Laboratory Practice in Tropical Countries, Vol 1 & 2 Monica Cheesbrough
Medical Microbiology and Immunology, 6th Edition 2000 examination and board review. A LANGE medical board review Warren Levinson, MD, Ph. D McGraw-Hill Companies Inc.
COURSE TITLE: PARASITOLOGY & MYCOLOGY
STUDY HOURS: 228 + 38
MARKS
PAPER: 5
THEORY: 100
PART: III
PRACTICAL: 50
TIME: 1.30HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in Parasitology & Mycology and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advance techniques in the field of Pathology.

COURSE CONTENTS:
Parasitology: Introduction and classification of parasites
Characteristics, life cycles and Pathogenicity of common parasites
Protozoa: Types, morphology, characteristics, life cycle & Pathogenicity
Cestodes: Types, morphology, characteristics, life cycle & Pathogenicity
Trematodes and nematodes: Types, morphology, characteristics, life cycle & pathogenicity.
Stool examination: direct and concentration method
Malarial parasites and leishmania: Types, life cycle, Pathogenicity, drugs and laboratory diagnosis

Mycology: basic mycology, introduction and classification
Staining in mycology
Laboratory diagnosis

RECOMMENDED BOOKS:
Manual of Laboratory medicines AFIP, third Edition 2005 publication:
Armed Forces Institute of Pathology, Rawalpindi, Pakistan
District Laboratory Practice in Tropical Countries, Vol 1 & 2 Monica Cheesbrough
Medical Microbiology and Immunology, 6th Edition 2000 examination and board review. A LANGE medical board review Warren Levinson, MD, Ph. D McGraw-Hill Companies Inc.
**COURSE TITLE:** HISTOLOGY AND CLINICAL PRACTICE  
**STUDY HOURS:** 228 + 114  
**MARKS**  
**PAPER:** 1  
**THEORY:** 100  
**PART:** IV  
**PRACTICAL:** 50  
**TIME:** 3HRS

**COURSE OBJECTIVE:**  
To introduce to the students basic concepts in Histology and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advance techniques in the field of pathology.

**COURSE CONTENTS:**  
**Histology:**  
Introduction  
Structure of animal cell: Cytoplasmic inclusions and organells. Nucleus  
Appearance of nucleus in resting and dividing cells  
Four basic tissues of the body  
The epithelis: classification, type and structure  
The connective tissue: classification, types and structure  
The muscular tissue: classification, types and structure  
The nervous tissue: microscopic structure of nerve cells and nerve fibres  
Normal histology of skin, lymph node, liver, spleen, uterus, ovary & bone marrow

**RECOMMENDED BOOKS:**  
Armed Forces Institute of Pathology, Rawalpindi, Pakistan  
Wheater’s Functional Histology by Paul R. Wheater 3rd Edition 1995 ELBS with Churchill Livingstone UK
COURSE TITLE: HISTOPATHOLOGY AND CLINICAL PRACTICE
STUDY HOURS: 228 + 114
PAPER: 2
PART: IV
TIME: 3HRS

COURSE CONTENTS:
To introduce to the students basic concepts in Histopathology and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advances in techniques in the field of Pathology.

COURSE CONTENTS:
ROUTINE HISTOPATHOLGY TECHNIQUES
Reception and Fixation of Biopsy
Fixatives: Purpose, types and preparation of fixatives
Qualities of good fixative, factors affecting fixation
Gross examination
Processing of tissues: manual and automation
Steps in processing: dehydration, clearing and impregnation
Embedding and cutting of sections
Microtome & tissue sectioning techniques
Floating water bath
Decalcification of bone
Knife sharpener
H and E staining
FROZEN SECTIONS: Procedure and importance, cryostat
SPECIAL STAINS IN HISTOPATHOLOGY
PAS: stain, Congo red stain, oil red stain, Zeihl neelsen and giemsa stain, Reticul9in stain.

RECOMMENDED BOOKS:
Armed Forces Institute of Pathology, Rawalpindi, Pakistan
Wheater's Functional Histology by Paul R. Wheater 3rd Edition 1995 ELBS with Churchill Livingstone UK
COURSE TITLE: CYTOLOGY AND CLINICAL PRACTICE
STUDY HOURS: 190 + 114 MARKS
PAPER: 3 THEORY: 100
PART: IV PRACTICAL:50
TIME: 3HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in cytology and acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Pathology. To equip Medical Technologists with latest advances in techniques in the field of Pathology.

COURSE CONTENTS:
Cytology: introduction & importance
Cell and structure
Basic principles of exfoliative cytology
Exfoliation, sites from which exfoliated cells can be obtained & methods of obtaining them
Benign and Pathologic processes affecting cells-inflammation, Repair and regeneration. Hyperplasia and hypertrophy
Collection of cytology specimens. Techniques used in cytology.
Features of atypical and malignant cells
Malignant tumours
Female genital tract
Methods for obtaining smears and their fixation
Normal cells of female genital tract
Abnormal cells other than malignant cells
Diagnosis of carcinoma of female genital tract
Pap smear
Respiratory tract:
Methods for obtaining smears and their fixation
Normal cells of respiratory tract
Abnormal cells other than malignant cells
Diagnosis of cancer of respiratory tract
FNA: signicicance, advantages and disadvantages of FNA
Cytology of body fluids: Ascitic, Pleural, CSF, semen, synovial & pericardial fluid

RECOMMENDED BOOKS:
Armed forces institute of Pathology Rawalpindi
COURSE TITLE: TRANSFUSION MEDICINE AND CLINICAL PRACTICE

STUDY HOURS: 76 + 76

PAPER: 4

PART: IV

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 1.30HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in Blood banking and transfusion medicine & acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of Blood banking and transfusion medicine. To equip Medical Technologist with latest advance techniques in the field of transfusion medicine. To establish safe blood transfusion practice.

COURSE CONTENTS:
Introduction & history
Importance of blood transfusion
Temperature maintenance, recordkeeping
Donor selection, registration and examination
Venepuncture & phlebotomy, care of donor after phlebotomy
Anticoagulants, blood collection, labeling and storing
Equipments, sera and reagents used in blood bank
Space and staffing
Blood group system & sub-grouping
Cell grouping (forward typing): Slide and tube method
Serum grouping (reverse typing)
Sub groups
Other blood groups systems
Rh typing & Du factor
Antigen-antibody theory: antigen, antibody and immunization
Quality control in blood banking

RECOMMENDED BOOKS:
Armed forces institute of Pathology Rawalpindi
District laboratory practice in tropical countries Vol 2 Monica Cheesbrough
COURSE TITLE: COMPATIBILITY TESTS & SCREENING
STUDY HOURS: 76 + 76 MARKS
PAPER: 5 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the students basic concepts in Blood banking and transfusion medicine & acquire skill in practical work. To produce a team of Medical Technologists steeped in knowledge of blood banking and transfusion medicine. To equip Medical Technologist with latest advance techniques in the field of transfusion medicine. To establish safe blood transfusion practice.

COURSE CONTENTS:
Compatibility tests & screening: Cross matching and processing major and minor cross matching: technique, interpretation and sources of error
Screening of donors: screening for HBs Ag, HCV, HIV, Syphilis and MP
Antibody identification, antibody hemolysins, natural and immune antibodies
Anti-globulin test (Coobs test)
Direct and indirect antiglobulin test: principle, procedure and interpretation, Quality control of antiglobulin test, Sources of error in antiglobulin test
Blood components transfusion: importance, technique of component separation
Blood transfusion reactions:
Types and mechanism. Investigations of a transfusion reaction
Action to take when a transfusion reaction occurs
Hemolytic disease of the newborn (HDN) due to ABO
Incompatibility, HDN due to Rhesus incompatibility
Rh Antibody: Screening & titre test

RECOMMENDED BOOKS:
Armed Forces Institute of Pathology, Rawalpindi, Pakistan
COURSES OF
B.SC (HONS) PARAMEDICS SCIENCES IN
ANESTHESIA
## COURSES OF B.Sc (HONS) IN ANAESTHESIA (ELECTIVE)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Course Titles</th>
<th>Study Hours</th>
<th>Paper</th>
<th>Part</th>
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<tbody>
<tr>
<td>5.</td>
<td>Anatomy related to Anesthesia</td>
<td>190+114</td>
<td>1</td>
<td>II</td>
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<tr>
<td>6.</td>
<td>Physiology related to anesthesia</td>
<td>190+114</td>
<td>2</td>
<td>II</td>
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<tr>
<td>7.</td>
<td>Zones of interest to anesthesia, instruments and clinical practice in general surgery, urology and ENT</td>
<td>228+114</td>
<td>3</td>
<td>II</td>
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<td>8.</td>
<td>Anesthesia equipment and Clinical practice in Orthopedic, Eye and Gynae OT</td>
<td>228+114</td>
<td>4</td>
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<tr>
<td>9.</td>
<td>Pharmacology related to anesthesia and clinical practice</td>
<td>114+190</td>
<td>1</td>
<td>III</td>
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<td>10.</td>
<td>Pre-up and post-up management and clinical practice</td>
<td>114+190</td>
<td>2</td>
<td>III</td>
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<tr>
<td>11.</td>
<td>Pre-operative medications, assessments and clinical practice in causalty</td>
<td>152+190</td>
<td>3</td>
<td>III</td>
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<tr>
<td>12.</td>
<td>Different types of anesthesia and clinical practice in pre-up and recovery room</td>
<td>152+190</td>
<td>4</td>
<td>III</td>
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<tr>
<td>13.</td>
<td>Anesthesia and Co-existing diseases I and clinical practice</td>
<td>228+152</td>
<td>1</td>
<td>IV</td>
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<tr>
<td>14.</td>
<td>Anesthesia and Co-existing diseases II and clinical Practice</td>
<td>152+190</td>
<td>2</td>
<td>IV</td>
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<tr>
<td>15.</td>
<td>Specialized practice in anesthesia in different OT’s I</td>
<td>152+152</td>
<td>3</td>
<td>IV</td>
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<tr>
<td>16.</td>
<td>Specialized practice II in anesthesia in different OT’s</td>
<td>152+114</td>
<td>4</td>
<td>IV</td>
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</tbody>
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| Part I weeks / Study hours | = 39 / 1092 |
| Part II Weeks / Study hours | = 38 / 1292 |
| Part III Weeks / Study hours | = 38 / 1292 |
| Part IV Weeks / Study hours | = 38 / 1292 |
| Total weeks / study hours | = 153 / 4968 |
| Vacations for each examination preparation | = 2 weeks |
| Vacations for each examination | = 4 weeks |
| Vacations in each part | = 8 weeks |
COURSE TITLE: ANATOMY RELATED TO ANESHTESIA
STUDY HOURS: 190 + 114
MARKS
PAPER: 1
THEORY: 100
PART: II
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVE:
To introduce the students the significance of the human respiratory anatomy related to the anesthesia and his application, students the significance of human Nerves System related to Anesthesia, students the significance of the human Cardiovascular System Anatomy related to the Anesthesia and its application of applied works.

COURSE CONTENT:
Definitions and structures of the respiratory system
Mouth, nose, pharynx, larynx
Relation of larynx, cartilages of larynx, ligaments, muscles, blood supply, lymphatic drainage and nerves supply
Trachea and bronchial tree
Division, relations, blood supply, nerve supply
Lymphatic drainage
Lungs
Structure, lobes, blood supply, nerve supply, Lymphatic drainage
Mediastinum
Parts, contents of mediastinum
Nerve system
1. Brain
2. Spinal Cord
3. Menegies
4. Vertebral Column
5. Spinal Nerves
6. Cranial nerves
7. Autonomic N/System (Sympathetic and Para Sympathetic N/S
Cardiovascular system
1. Definition and Structures of the Cardiovascular System Anatomy.
2. Heart
   Valves
Conducting system
3. X.Ray marking of heart border
4. Congenital abnormalities

RECOMMENDED BOOKS:
Clinical anatomy by Snell 7th Edition 2000 by Churchill Living Stone
Referral Book
Gray's anatomy by Roger War Wick Peter L. William in 1973 by Long Man group Ltd.
COURSE TITLE: PHYSIOLOGY OF RESPIRATORY SYSTEM

STUDY HOURS  190+114  MARKS
PAPER  2  THEORY: 100
PART  11  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTS:
To introduce to the students the significance of human Respiratory, nerves, cardiovascular system physiology related to the Anaesthesia

COURSE CONTENTS:
Definition and Physiology of respiratory system:
- Control of respiration
- Mechanism of respiration,
- Tidal volume, reserve volume, expiratory reserve volume,
- Residual volume
- Lung capacities
- Dead space/ shunt
- Surfactants
- Respiratory Reflexes
- Cough reflexes, sneezing reflexes, Laryngo spasm
- Gases exchanges & carriage

Cardiovascular system
Definition and Physiology of the Cardiovascular System
1. Heart Rate Regulation
2. Cardiac Performance
   a. Preload
   b. After load
   c. Myo Cardiac Contractility
3. Coronary Circulation
4. Cardiac output and regulating factors
5. Arterial blood pressure and regulating factors
6. ECG.
Nerves system Function of brain
Cerebral spinal fluids
Cerebral circulation
Synapses
Receptors
Neuro muscular junction
Intracranial pressure

RECOMMENDED BOOKS:
Text book of medical physiology by Gvyton in 1994 Sounders company Philadephia PA
Essentials of medical physiology Volume 1-2 Mustafa Ahmad in 2005 published by MERIT Multan
COURSE TITLE: ZONES OF INTEREST TO ANESTESIA, EQUIPMENT AND CLINICAL PRACTICE IN SURGERY UROLOGY AND ENT OT

STUDY HOURS: 228+114

MARKS
PAPER: 3
PART II

THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:

To introduce to the students the significance of human different zones to the Anesthesia point of views and anesthesia machine operating and practical work in general surgery, urology and ENT OT

COURSE CONTENTS:

- Diaphragm
- Intercostals Space
- Antecubital Fossa
- Thoracic Inlet

Use of Anesthesia machines, different circuits, drugs preparation & labeling. Use of stethoscope for COPD and heart beats and heart murmer; use of BP apparatus, techniques of anesthesia, different types of Laryngoscopes & their blades, different types of Endotracheal tubes, Embu beg, maintenance of I/V lines

RECOMMENDED BOOK:

Clinical anatomy by Snell 7th edition 2000 by Churchill living stones
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
# COURSE TITLE:
ANESTHESIA EQUIPMENT AND CLINICAL PRACTICAL IN ORTHOPEDIC, EYE AND GYNAE OT

<table>
<thead>
<tr>
<th>STUDY HOURS:</th>
<th>228+114</th>
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<tbody>
<tr>
<td>PAPERS:</td>
<td>4</td>
</tr>
<tr>
<td>PART:</td>
<td>II</td>
</tr>
</tbody>
</table>

**MARKS**
- THEORY: 100
- PRACTICAL: 50
- TIME: 3 HRS

## COURSE OBJECTIVE:
Introduce to the students the significance of Eye and Gynae O.T. Anesthesia point of view, the significance of orthopedic O.T. As Anesthesia point of view.

## COURSE CONTENTS
1. Anesthesia Machines Setup
2. Equipments of Anesthesia
3. Drugs / Dilution
4. Labeling
5. Investigations of patients
6. History of patients
7. Preparation of patients
8. I/V Line
9. Care and maintenance of anesthesia equipments
10. Mix drugs and labeling
11. Keep record of cases and any complication during anesthesia
12. Investigation of the patient
13. History of patient

## RECOMMENDED BOOKS:
- Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
- Text of anesthesia by Alan R. Atkin by Churchil living stone 4 edition in 2005
- Medical ethic by Dr. Mehmood Alam in 2006 by Health department NWFP
COURSE TITLE: PHARMACOLOGY RELATED TO ANESTHESIA AND CLINICAL PRACTICE

STUDY HOURS: 114+190 MARKS
PAPERS: 1 HEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students about pain management during anesthesia, the significance of various drugs in anesthetics, the significance of Muscle relaxant used in anesthesia

COURSE CONTENTS:
Analgesic
1. Knowledge about the various drugs used during anesthesia for pain
   Drugs:
   Narcotic analgesic
   Pharmacokinetics
   Pharmacodynamics
   Opioids receptors
   Classification of opioids
   Morpina, pethidine
   Fentanyl
   Remifentanil
   Pentazocine
   Buprenorphine
   Nalbuphine
   Naloxone
   Tramadol

2. Non-narcotic analgesics
   Non-steroidal anti-inflammatory drugs (NSAIDS)
   Physiological actions
   Unwanted actions
   Drugs:
   Diclofuscan
   Aspirine
   Piroxicame
   Ketorolac
   Celecoxib
   Meloxicam

   Anesthetic drugs
   1. Local anesthetics
      Mode of action
      Systemic toxicity and treatment
      Drugs
      Xylocaine
Bupivacaine
Rupivacaine

2. General anesthetics
   Mode of action
   Systemic toxicity and treatment
   Drugs
   Inhalational anesthetic
   Halothane, Isofurance
   Influrance, servofurnace
   Nitrous oxide
   Intravenous anesthetic
   Tiopental sodium
   Propufol, etomidate
   Katamine

Muscle relaxants
1. Knowledge about the muscle relaxant use in anaesthesia
   Drugs:
   1. Deplorizing agents
   2. Non deplorizing agents
   3. Reversal agents

RECOMMENDED BOOKS:
Pharmacology and medical physiology in anesthesia by Robert K Stonlting in 1995 by Lippin Cott William s and Walkins
COURSE TITLE: PRE-UP POST-UP MANAGEMENT AND CLINICAL PRACTICE IN NEUROSURGERY AND CARDIOTHORACIC

STUDY HOURS: 114+190 MARKS
PAPERS: 2 THEORY: 100
PART: III PRACTICAL:
50 TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of anesthesia in neurosurgery and cardiothoracic

COURSE CONTENTS:
1. Set up of anesthesia machine
2. Check up anesthesia equipments
3. Patient history
4. Investigation of patient
5. Clinical examination of patient
6. Choice of drugs for neurosurgery and cardiothoracic anesthesia
7. I/V line
8. Care of patient during anesthesia
9. Patient consents for anesthesia

RECOMMEND BOOKS:
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
COURSES TITLE: PRE-OPERATIVE MEDICATIONS, ASSESSMENTS AND CLINICAL PRACTICE IN CASUALTY

STUDY HOURS: 152+190 MARKS
PAPERS: 3 THEORY: 100
PART: III PRACTICAL:
50 TIME: 3 HRS

COURSE OBJECTIVE:
To introduce pre medication assessment and management in casualty

COURSE CONTENTS:
1. Shock
2. Type of shock
3. Treatment of shock
4. Assessment of difficult airway
5. Laryngeal mask
6. Management of full stomach anesthesia
7. Blood transfusion, crystalloids colloids
8. CPR
9. Banzodapines
10. Opioids
11. Anticholinergics
12. Betablockers
13. Inatrops

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
COURSE TITLE: DIFFERENT TYPES OF ANESTHESIA AND CLINICAL PRACTICE IN PRE-UP AND RECOVERY ROOM

STUDY HOURS: 152+190 MARKS
PAPERS: 4 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce different types of anesthesia, Anaesthetized the patient in surgical procedure under the supervision of anesthetics and Pre-up recovery

COURSE CONTENT:
General anesthesia
Local anesthesia
  Regional anesthesia
  Epidurals anesthesia
  Spinal anesthesia
  Cardial anesthesia
  Dental anesthesia
Anesthesia in OT
Pre-up anesthesia
Recovery room patient care
Recovery from anesthesia
Complication of anesthesia
Handing of complication

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
COURSE TITLE: ANESTHESIA AND CO-EXISTING DISEASES I AND CLINICAL PRACTICE

STUDY HOURS: 228+152
PAPERS: 1
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students about anesthesia in Co-existing diseases

COURSE CONTENTS:
Ischemic heart diseases
Hypertension
Diabetic mellitus
Chronic obstructive pulmonary diseases
Asthma
Hyper thyroidism
Hypothroidism
Myasthenia gravis

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
The current advance in anesthesia by Atkin Son in 1989 by Churchill living stone
Practice of anesthesia by David son, in 1996 by LG New Delhi
COURSE TITLE: ANESTHESIA AND CO-EXISTING DISEASES II AND CLINICAL PRACTICE

STUDY HOURS: 190+152
PAPERS: 2
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students about anesthesia in Co-existing diseases

COURSE CONTENTS:
- Hepatic failure
- Chronic renal failure
- Obstetrical anaesthesia
- Anaesthesia for ENT
- Anaesthesia for Eye
- Anaesthesia for Neurosurgery
- Anaesthesia for cardiothorasic surgery

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgan publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
The current advance in anesthesia by Atkin Son in 1989 by Churchill living stone
Practice of anesthesia by David son, in 1996 by LG New Delhi
COURSE TITLE: SPECIALIZED PRACTIC I IN ANESTHESIA IN DIFFERENT OT’S

STUDY HOURS: 152+152  MARKS
PAPERS: 3  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Knowledge about the role of graduate anesthesia students

COURSE CONTENTS:
1. Clinical methods (use of stethoscope, BP apparatus)
2. Pre operative assessment
3. Self confidence of students in General Surgery, Gynae and ENT, Eye OT

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgon publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
The current advance in anesthesia by Atkin Son in 1989 by Churchill living stone
Practice of anesthesia by David son, in 1996 by LG New Delhi
COURSE TITLE: SPECIALIZED PRACTICE II IN ANESTHESIA IN DIFFERENT OT’S

STUDY HOURS: 152+114 MARKS
PAPERS: 4 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Knowledge about the role of graduate anesthesia students

COURSE CONTENTS:
Keep record of cases and any other complication
Administration of general and regional anesthesia under the observation of anesthesia consultant in cardiothorasic Orthopedics, neurosurgery and intensive care unit

RECOMMENDED BOOKS:
Clinical anesthesiology by Morgan publisher MC Graw health 3rd edition in 2005
Text of anesthesia by Alan R. Atkin by Churchill living stone 4 edition in 2005
The current advance in anesthesia by Atkin Son in 1989 by Churchill living stone
Practice of anesthesia by David son, in 1996 by LG New Delhi
COURSES OF
B.SC (HONS) PARAMEDIC SCIENCES IN
HEALTH
## COURSES OF B.SC (HONS) IN HEALTH (ELECTIVE)

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Course Title</th>
<th>Study Hours</th>
<th>Paper</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Medicine-I &amp; Clinical Practice in Medical OPD and ward</td>
<td>228+114</td>
<td>1</td>
<td>II</td>
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<td>2.</td>
<td>Medicine II and clinical practice</td>
<td>228+76</td>
<td>2</td>
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<td>3.</td>
<td>Medicine III and clinical practice</td>
<td>228+114</td>
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<td>Medicine IV and clinical practice</td>
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<td>Medicine V and clinical practice</td>
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<td>Medicine VI and clinical practice</td>
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<td>7.</td>
<td>Surgery I and clinical practice</td>
<td>152+114</td>
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<td>8.</td>
<td>MCH, EPI and clinical practice</td>
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<td>9.</td>
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<td>12.</td>
<td>Medicine VII and clinical practice</td>
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- **Part I weeks / study hours** = 39 / 1092
- **Part II weeks / study hours** = 38 / 1292
- **Part III weeks / study hours** = 38 / 1292
- **Part IV weeks / study hours** = 38 / 1992
- **Total weeks / study hours** = 153 / 4968
- **Vacations for each examination preparation** = 2 weeks
- **Vacations for each examination** = 4 weeks
- **Vacations in each part** = 8 weeks
COURSE TITLE: MEDICINE-I & CLINICAL PRACTICE IN MEDICAL OPD AND WARD

STUDY HOURS: 228+114

COURSE OBJECTIVES:
To introduce to the student the significant of medical disorders, patient receiving, assessment in OPD and ward, maintain the patient and ward record

COURSE CONTENTS:
General methods of clinical observation, History taking, vital signs and
General systemic/physical examination
Knowledge of the disease producing agent’s i.e. Physical agents,
Chemical agents, Drugs effect of temperature, effect of electricity, effect or radiation
Infectious disease, Measeles, Rubella, hoping couch, Diphtheria
Diseases of gastrointestinal system
Diseases of liver spleen, stomach, intestine and colon
Diseases of metabolism
Vitamin deficiency diseases, diabetes melitis, gout, obesity
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwardsetal in 1995 by ELBS
COURSE TITLE: MEDICINE-II & CLINICAL PRACTICE
STUDY HOURS: 228+76 MARKS
PAPER: 2
PART: II
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of medical disorders, infection, transmitted diseases and preventive, curative care, patient receiving, assessment in OPD and ward, maintain the patient and ward record

COURSE CONTENTS:
Infections diseases. Rabies, Tetanus, Chicken pox, mumps
Infectious diseases. Typhoid fever, bacillary dysentery
Infectious diseases. Malaria, amoebiasis, cholera
Infectious diseases.
Infectious diseases acute and chronic bacterial viral and fungal, AIDS
Introduction, global impact, epidemiology, principles and basic between nutrition and infection, diagnosis, antimicrobial, chemotherapy, prevention, bacterial infections: gram positive and negative coccl, gram positive and negative bacilli, actinomycetes, mycobacterial, mycoplasma, sexually transmitted diseases, spirochetes rickettsiae and similar organisms viral infection: DNA viruses, RNA viruses, fungal infection: systemic fungal infection, local fungal infections. Protozoal infection: blood and tissue infections, intestinal and genital infections, helminthic infections: menatode round worm infections, trematode (fluke) infections, cestode (tape worm) infections.
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwardsetal in 1995 by ELBS
COURSE TITLE: MEDICINE-III & CLINICAL PRACTICE
STUDY HOURS: 228+114
PAPER: 3
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of cardiology disorders and pulmonology disorder and preventive, curative care, patient receiving, taking history, assessment, investigation in OPD and maintain the patient and ward record in cardiology and pulmonology

COURSE CONTENTS:
Circulatory system, Coronary heart disease
Circulatory system, hypertension, Rheumatic heart diseases, heart failure
Upper Respiratory infections acute coryza, acute tonsillitis, laryngitis, bronchitis
Lower Respiratory Tract Infections, Pneumonia’s,
Pulmonary T.B, COPD, Asthma
Diseases of cardiovascular system
Disturbance of rate and rhythm, myocarditis, pericarditis, endocarditis,
Chronic valvular disease, myocardial degeneration, the angina syndrome, congenital cardiac failure, hypertension and arteriosclerosis, essential hyper tensions, thromboangitis obliterans, vasomotor disorders, raynaud’s disease, acroparastesia, venous conditions, thromboangitis oblitrance embolish, varicose, veins, diseases of the blood, anemia.
Diseases of respiratory tract
Bronchitis, bronchiectasis, pleurisy, empyema, emphysema, pneumonia, lung abscess, tuberculosis of the lungs, asthma, hayfever
Patient attending, assessment, provisional diagnosis, treatment plan in investigations, output input chart, temperative chart, special investigation chart, provisional, diferential diagnosis patient and ward record and preparation the patient for discharge

RECOMMENDED BOOK:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of medicine by CRW Adwarsetal in 1995 by ELBS
COURSE TITLE: MEDICINE-IV & CLINICAL PRACTICE
STUDY HOURS: 152+152 MARKS
PAPER: 4 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce to the student the significant of alimentary tract disorders and neurology disorder, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in medical and neurology

COURSE CONTENTS:
Diseases of the alimentary tract acute Gastro enteritis, Gastritis, Peptic Ulcer
Worm infestation. Pin worm, thread worm, Hook worm Tape worm
Liver Diseases (Viral Hepatitis 9ABC) liver Cirrhosis, Liver failure
Disease of the nervous System (headache, meningitis, Conveulsions, Coma, Strokes, Sub Arachnoids hemorrhage, movement disorder
Blood Disorder (Anemia and its types leukemia, Thromobocytopenia, Hemophilia
Diseases of the nervous system (neurology)
Upper motorneurone lesions lower motor neurone lesions extra-pyramidal system, cerebellum and sensory System: hemilegia, paraplegia, monoplegia, facial paralysis, acute infections, encephalitis and herpes Zoster. Vascular disorders of the brain, hemiplegia, rheumatic chorea, multiple-peripheral neuritis. Neuralgia, motor neurone disease; cerebral palsy and poliomyelitis, muscular dystrophies, thoracic inlet Syndrome, Acroparaesthesia, disseminated sclerosis, subacute combined degeneration of the cord, Freidrich’s ataxia, parkinsonism
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwardsetal in 1995 by ELBS

REFERRAL BOOK:
Robbins pathology in 1998 by IE sounder
COURSE TITLE: MEDICINE-V & CLINICAL PRACTICE
STUDY HOURS: 228+114
MARKS
PAPER: 1
PART: III
THOERY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significance of urinary disorders and endocrine disorder, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in nephrology and medical

CORUSE CONTENTS:
Disease of the UT Urinary Tract infection, Nephric System, Urinary stone
Endocrine disorder Hypothyroidism, Graves’s diseases Medical Unit
Endocrine disorder Diabetes mellitus
Disease of connective Tissue Rheumatoit Arthritis, Osteo, Arthritis SLE
Sigh and symptoms of renal disease, Clinical assessment of hyponetrimia
Hypernetrimia, Metabolic acidosis, Respiratory acidosis/alkalosis
Hyperkalmia, hypocalcemia, hperphospatemia, Oedema and clinival use of diuretics, introduction to glomerula disease, Renal involvement in cardiovascular disease/connective tissue disorder diabetes chest disease cancer git disease, Etiology and pathophysiology of acute renal failure, Acute renal failure and metabolic derangement, Developmental disorder of the kidney, uretar and bladder, pathology of common renal disease, pathology of acute renal failure, Chronic renal failure, Renal cell carcinoma, Functional pathology of kidney, Acid base, fluid, electrolyte disorder,
Patient attending, assessment, provisional diagnosis, treatment plan in investigations, output input chart, temperature chart, special investigation chart, provisional, diferential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMNEDED: BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwardsetal in 1995 by ELBS

REFERRAL BOOK:
Current Medical Diagnosis and Treatment
General pathology by Walten Israel 9th edition in 1999 by Churchill living stone
COURSE TITLE: MEDICINE-IV & CLINICAL PRACTICE
STUDY HOURS: 228+114 MARKS
PAPER: 2 THEORY: 100
PART; III PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of medical disorders and emergency, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in medical and casualty

COURSE CONTENTS:
Toxicology, kerosene Oil, Poisoning, Organo phosphorus poisoning
Toxicology Opium Poisoning, Alkali poisoning, Acid Poisoning
Emergency in care Strokes TIA, CVA) Status asthmatics
Emergency in care Hypertension Emergency Hyperpyrexia
Emergency cover in casuality and referral to consult ward/unit
Patient management and record in casuality
Patient receiving an assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional differential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of medicine by CRW Adwardsetal in 1995 by EIBS

REFERRAL BOOK:
Current Medical Diagnosis and Treatment
General pathology by Walten Isreal 9th edition in 1999 by Churchill living stone
COURSE TITLE: SURGERY I AND CLINICAL PRACTICE
STUDY HOURS: 152+114
MARKS
PAPER: 3
THEORY: 100
PART: III
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
The objectives of the courses to handle the common Orthopedic and neurosurgery, procedure and care by the health technologist

COURSE CONTENTS:
Orthopedic Unit Common fractures. Their management and prevention
Orthopedic Unit care of Orthopedic patients
General surgery, cardio & neurosurgery, diseases procedure and care of the patient in the mentioned units
Orthopedics surgery
Fractures and dislocation (general aspect)
Types of fractures and dislocation, mechanism of injuries, clinical presentation, diagnostic methodology, principles of management, first aid management, open and closed fracture, complications of fractures, rehabilitation principles, healing process and abnormalities, complications (ischemic contractures, myositis, joint stiffness)
Rheumatic disorders (orthopaedic management)
Rheumatoid arthritis, rheumatic arthritis, osteo arthritis, variants of rheumatoid arthritis, juvenile cortical arthritis, ankylosing spondylitis, low back pain
Bone and joint infections
Osteomyelitis acute, chronic
Tuberculous, septic arthritis, typhoid arthritis Tuberculous arthritis
Neurosurgery
Spinal injuries, spinal cord injuries, disc problems, head injuries spondylolisthesis, brain tumours, spial tumours
Orthopedic neurology
Erb's palsy, wrist drop, foot Drop, post polio deformities, cerebral palsy their presentation, complication, principles of surgical management, post surgical rehabilitation.
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record
Preparation for surgery, pre and post operative care and preparation the patient for discharge

RECOMMENDED BOOKS:
Outline of Orthopedic by Johan Crawfard Adam and devid hamblin in 1990 by ELBS
Cash textbook of orthopedic and Rheumatology by Mercyam in 1992 by Mosby
COURSE TITLE: MCH, EPI & CLINICAL PRACTICE
STUDY HOURS: 228+114
PAPER: 4
PART: III
MARKS: THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of mother and child disorders and six target diseases, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in gynaec ward labour room, antenatal room and EPI unit.

COURSE CONTENTS:
M.C.H. Maternal & Child health Antenatal Care Nutrition
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record
Preparation for surgery, pre and post operative care and preparation the patient for discharge
Patient assessment in labour room and gynae OT
E.D.D.C Diarrhea and Dehydration Dysentery Mengitis (EDDC)
Hyperpyrexia
E.P.I Six Target Disease Their Vaccination Schedule Routes of administration Doses of Vaccine
E.P.I Cold Chain Definition, maintenance, Clinical Significance

RECOMMENDED BOOKS:
Conveat clinical management of obstetrics and gynaecology disease 9th edition
Rashid A. Latif Gynaecology
COURSE TITLE: SURGERY II AND CLINICAL PRACTICE
STUDY HOURS: 152+152
PAPER: 1
PART: IV
MARKS: THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of Eye disorders, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in Eye OPD and ward

COURSE CONTENTS:
Eye problems conjunctivitis (Allergic, seasonal, bacterial and viral keratites Eye problems Uvites, Extra ocular foreign bodies, injuries to eye
Inflammation of Eye lids Dacrocyslites, cataract
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, provisional, differential diagnosis, patient and ward record
Preparation for surgery, pre and post operative care and preparation the patient for discharge

RECOMMENDED BOOKS:
Basic Ophthalmology (by Goggi)
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
COURSE TITLE: SURGERY III AND CLINICAL PRACTICE
STUDY HOURS: 228+114
PAPER: 2
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of ENT disorders, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in ENT OPD and ward

COURSE CONTENTS:
ENT Diseases Ear Boil in Ear, Foreign bodies Otites media, Otites Externa
Boil in Nose, Epitaxis, DNS Feature of nose, Foreign bodies Rhinitis, Sinusitis
Throat, ENT Tonsillitis Diphtheria, laryngitis
Throat, ENT Foreign body in throat. Tracheotomy
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record
Preparation for surgery, pre and post operative care and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwarsetal in 1995 by ELBS

Referral BOOK:
Current medical Diagnosis and Treatment
General pathology by Walten Israel 9th edition in 1999 by Churchill living stone
COURSE TITLE: SURGERY IV AND CLINICAL PRACTICE

STUDY HOURS: 152+152

PAPER: 3

PART: IV

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of General Surgery disorders, preventive, curative care and patient receiving, taking history, assessment, investigation in OPD, maintain the patient and ward record in General Surgery OPD and ward

COURSE CONTENTS:
Sign/Symptoms, first aid referred knowledge of Surgical problem Acute appendicitis
Surgical problems (Intestinal) Acute Intestinal obstruction Chest Injuries/Abdominal injuries
Surgical V.T.I Renal Colic Acute urinary Obstruction
Surgical U.T.I Haematuria Catheterization
General Surgery
Wound, ulcer, boil, abscess, carbuncle, varicose veins hemorrhage, shock hernia and hydrocele, varicocele
Plastic surgery
Basic principles of plastic surgery and reconstruction, burns and its management, reconstruction surgery
Hair, lip, cleft palate, syndactily, polydactility
Introduction, etiology and pathogenesis, principal signs and symptoms, diagnostic methodology, out Line of medical treatment. The place of Physiotherapy, clinical case discussion and demonstration
Surgery of body systems
Patient attending, assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record
Preparation for surgery, pre and post operative care and preparation the patient for discharge

RECOMMENDED BOOKS:
Text book of surgery 4th edition by Dr. Hai Rabindra B. Shrivastava, published by publishing company Ltd new Delhi
Robbens pathology 6th edition 1998 IE sounder
COURSE TITLE: MEDICINE VII AND CLINICAL PRACTICE
STUDY HOURS: 228+114 MARKS
PAPER: 4 THEROERY: 100
PART: IV PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significant of Pediatrics disorders, dermatology disorders preventive, curative care and patient receiving, taking history, assessment, investigation in OPD and ward, maintain the patient and ward record in Pediatrics and dermatology, psychiatry ward

COURSE CONTENTS:
Dermatological problems, Common skin diseases in the Community, their identification and management.
Pediatrics Birth asphyxia fits in new born
Jaundice in new born, respiratory treat infections pyrexia of unknown origin
Pediatrics
General principles and specific aspects of pediatric disease psychiatry
General aspect, personalities its growth and development, relationship between illness and Personality, psychological consideration management and treatment of handicap
Patient attending, assessment, provisional diagnosis, treatment plain OPD, patient receiving, admission, history taking, assessment, investigations, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge

RECOMMENDED BOOKS:
Clinical Medicine by Parveen Kumar, Michalclark in 1994 by ELBS
ABC of Dermatology (Paul k Buxton)
COURSES OF
B.SC (HONS) PARAMEDIC SCIENCES IN
RADIOLOGY
## COURSES OF B.SC (HONS) IN RADIOLOGY (ELECTIVE)

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Course Title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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<tr>
<td>1.</td>
<td>Radiological physics I and clinical practice</td>
<td>152+114</td>
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<tr>
<td>2.</td>
<td>Radiological procedures I and clinical practice</td>
<td>190+152</td>
<td>2</td>
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<td>3.</td>
<td>Radiological anatomy I and clinical practice</td>
<td>190+152</td>
<td>3</td>
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<td>4.</td>
<td>Radiological positioning and clinical practice</td>
<td>190+152</td>
<td>4</td>
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<tr>
<td>5.</td>
<td>Radiological physics II and clinical practice</td>
<td>190+114</td>
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<td>6.</td>
<td>Radiological procedures II and clinical practice</td>
<td>228+114</td>
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<td>7.</td>
<td>Radiological anatomy II, conventional radiography and clinical practice</td>
<td>228+152</td>
<td>3</td>
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<td>8.</td>
<td>Radiographic positioning II and clinical practice</td>
<td>152+114</td>
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<tr>
<td>9.</td>
<td>Radiological physics and clinical practice</td>
<td>152+114</td>
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<tr>
<td>10.</td>
<td>Radiological procedures, conventional radiography and clinical practice</td>
<td>228+114</td>
<td>2</td>
<td>IV</td>
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<td>11.</td>
<td>Radiographic positioning, conventional radiography and clinical practice</td>
<td>114+76</td>
<td>3</td>
<td>IV</td>
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<tr>
<td>12.</td>
<td>Radiological anatomy and clinical practice</td>
<td>114+38</td>
<td>4</td>
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<td>13.</td>
<td>Radiological Crossectional Anatomy and clinical Practice</td>
<td>76+38</td>
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<td>14.</td>
<td>Radiological Pathology and clinical</td>
<td>114+114</td>
<td>6</td>
<td>IV</td>
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</table>

| Part I weeks / study hours | = 39 / 1092 |
| Part II weeks / study hours | = 38 / 1292 |
| Part III weeks / study hours | = 38 / 1292 |
| Part IV weeks / study hours | = 38 / 1292 |
| Total weeks / study hours  | = 153 / 4968 |
| Vacations for each examination preparation | = 2 weeks |
| Vacations for each examination | = 4 weeks |
COURSE TITLE: PRADIOLOGICAL PHYSICS I AND CLINICAL PRACTICE

STUDY HOURS: 152 + 114

PAPER: 1

PART: II

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 3 HOURS

COURSE OBJECTIVES:
To study the fundamentals of physics related to radiology, atom, concept of radiation and the basic principles of electricity and magnetism, what is x-ray machine, how x-rays are produced and what are its sources and how they interact with matter.

COURSE CONTENT:

Concepts of radations:
- Nature of our surrounding
- Sources of ionizing radiation
- Discovery of x-rays
- Developments of modern radiology
- Radiation injury
- Radiation protection

Fundamentals of physics:
- Review of mathematics
- Units of measurement
- Mechanics
- Heat

The atom:
- Discovery combination of atoms
- Fundamental particles
- Atomic structure
- Radioactivity
- Ionizing radiation

Electricity radiation:
- Photon
- Electromagnetic spectrum

Electricity and magnetism:
- Electrostatics, current, electricity
- Electrodynamics
- Magnetism

Electromagnetism:
- Electromagnetic effect
- Electromagnetic induction
- Electric generators and motors
- Transformers
- Rectification

The x-ray machine:
- x-ray tube
- operating console
SYLLABUS OF B.SC (HONS) PARAMEDIC SCIENCES

high voltage section

x-ray production:
  election target interaction
  x-ray emission spectrum
  factors affection x-ray emission spectrum

x-ray emission:
  x-ray quantity
  x-ray quality

x-ray interaction with matter:
  five basic interactions
  differential absorption
  contrast examinations

RECOMMENDED BOOKS:
COURSE TITLE: RADIOLOGICAL PROCEDURES I AND CLINICAL PRACTICE

STUDY HOURS: 190+152
PAPER: 2
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To know about the contrast media its types and the special procedures of the GIT that are performed with contrast media, how the various special procedures of the gallbladder, liver, pancreas, urinary tract, reproductive system and Practical work on conventional radiography, correct positioning of the patient and the part to be examined.

COURSE CONTENTS:

Intravenous contrast media:
- Historical developments
- Toxic effects of IV contrast media
- Fetal reactions
- Non fetal reactions
- Prophylaxis for adverse reactions
- Contrast agents in MRI
- Contrast agents in Ultrasonography

Gastrointestinal tract:
- Introduction to water soluble contrast media
- Barium swallow
- Barium meal
- Barium follow through
- Small bowel enema
- Barium enema

Liver, biliary tract & pancrease:
- Billiary contrast media
- Oral cholecystography
- Intravenous cholangiography
- E.R.C.P
- P.T.C

Urinary tract:
- Excretion urography
- Micturating cystourethrography
- Ascending urethrography
- Retrograde pyeloureterography

Reproductive system:
- Hysterosalpingography

Conventional radiography:
- Correct position on the patient
RECOMMENDED BOOKS:
COURSE TITLE: RADIOLOGICAL ANATOMY I AND CLINICAL PRACTICE

STUDY HOURS: 190+152 MARKS
PAPER: 3 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To study the anatomy that is important from the radiological point of view

COURSE CONTENTS:
Shoulder joint
Hip joint
Pelvic
Upper limbs
Lower limbs
Receiving of patient in X-ray department
Preparation of patient for X-ray and Ultrasound
Maintanence of department
Maintanence of department and patient record
Principal of protection from X-rays

RECOMMENDED BOOKS:

REFERENCE BOOK:
Gray's Anatomy by Williams, Bannister 38 edition in 2001 by Churchill living stone
COURSE TITLE: RADIOLOGICAL POSITIONING AND CLINICAL PRACTICE

STUDY HOURS: 190+152

MARKS

PAPER: 4

THEORY: 100

PART: II

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVES:
To study that what’s the correct position of the patient and the part that is radiographic in order to produce an accepted image. Practical work on conventional radiography and special procedures studied.

COURSE CONTENTS:

Upper limbs:
- Fingers
- Hand
- Wrist
- Forearm
- Humerus

Lower limbs
- Toes
- Foot
- Calcaneus
- Ankle
- Leg
- Knee
- Patella
- Femur

Shoulder joint:
- Glenoid fossa
- Acromioclavicular joints
- Bicipital groove
- Clavicle
- Scapula

Hip joint:
- Hip joint
- Acetabulum

Conventional radiography
- Biliary tract, liver and pancreas procedures
- Urinary tract procedures

RECOMMENDED BOOKS:
COURSE TITLE: RADIOLOGICAL PHYSICS II AND CLINICAL PRACTICE

STUDY HOURS: 190+114 MARKS
PAPER: 1 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To study that how latent image is formed, how it can be concerted to a manifest image, what is radiographic film, what is scattered radiation and how they can be reduced and how a good quality radiograph can be produced

COURSE CONTENTS:
Radiographic exposure:
- KVP
- MA
- Exposure time
- MAS
- Image characteristics

Select plane film procedures:
- Tomography
- Stereo radiography
- Magnification radiography

Mammography:
- Basics for mammography
- x-ray apparatus
- image receptors
- xero radiographic process

Fluoroscopy:
- Visual consideration
- Practical fluoroscopic technique
- Image intensification
- Fluoroscopic image monitoring

Introduction to computer:
- History
- Anatomy of computer
- Computer software
- Processing methods

Radiographic film:
- Film construction
- Formation of latent image
- Handling and storage of films

Processing the latent image:
- Evolution of the film processing
- Processing chemistry
- Automatic processing

SYLLABUS OF B.SC (HONS) PARAMEDIC SCIENCES
Alternative processing methods

**Intensifying screen:**
- Screen construction
- Luminescence
- Screen characteristics
- Care of screen

**The grid:**
- Characteristics of grid construction
- Measuring grid performance
- Types of grid
- Grid selection

**Radiographic quality:**
- Film factors
- Geometric factors
- Subject factors
- Consideration for improved radiographic quality

**RECOMMENDED BOOK:**
Radiological science for technologists by Stewart C. Bushong
Radiological science for technologists by Stewart C. Bushong 7th edition
In 2001 published by Mosby, Inc: A harcourt health company
COURSE TITLE: RADIOLOGICAL PROCEDURES II AND CLINICAL PRACTICE

STUDY HOURS: 228+114

MARKS

PAPER: 2

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVES:
To study and know how to perform the special procedures of the Lymphatic system and venography and to know about the intravenous contrast media and gastrointestinal tract, Practical work on conventional radiography and the special procedures studied.

COURSE CONTENTS:

Venography:
- Central venography:
  - Orbital venography
  - Internal jugular venography
  - Superior venacaval venography
  - Inferior venacaval venography
  - Ascending lumbar venography
  - Portal venography
  - Transhepatic portal venous

- Catheterization
  - Hepatic venography
  - Renal venography
  - Adrenal venography
  - Selective retrograde venography
  - Pelvis venography
  - Intra ossues venography

- Peripheral venography:
  - Limbs venography

Lymph glands & lymphatics:
- Lymphography

General notes
- Intravenous contrast media:
  - Historical developments
  - Toxic effects of IV contrast media
  - Fetal reactions
  - Non fetal reactions
  - Prophylaxis for adverse reactions
  - Contrast agents in MRI
  - Contrast agents in Ultrasonography

Gastrointestinal tract:
- Introduction to water soluble contrast media
  - Barium swallow
  - Barium meal
  - Barium follow through
  - Small bowel enema
  - Barium enema
Conventional radiography
Respiratory system procedures
Arteriography
Angiocardiography

RECOMMENDED BOOKS:
A guide
COURSE TITLE: RADIOLoGICAL ANATOMY II, CONVENTIONAL RADIOGRAPHY AND CLINICAL PRACTICE

STUDY HOURS: 228+152

MARKS

PAPER: 3

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVES:
To study the anatomy of the vertebral column and bones of the thorax relating to radiology, the anatomy of the skull and facial bones relating to radiology, Practical work on conventional radiography, mammography, fluoroscopy and the special procedures and clinical practice in X-ray department

COURSE CONTENTS:
Vertebral column
Bones of the thorax
Skull
Facial bones
Conventional radiography
Mammography
Fluoroscopy
Venography
Lmphography
Ultrasound transducers
Ultrasound transducers
Ultrasonic beam
Operation modes
Biological effects
Receiving of patient in X-ray department
Preparation of patient of X-ray and Ultrasound
Preparation of patient for CT and MRI
Maintanence of department
Principal of protection from X-rays

RECOMMENDED BOOK:

REFERENCE BOOK:
Gray’s anatomy by Williams, Bannister 38 edition in 2001 by Churchill living stone
COURSE TITLE: RADIOGRAPHIC POSITIONING II AND CLINICAL PRACTICE

STUDY HOURS: 152+114 MARKS
PAPER: 4 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To study and perform the various projections of the vertebral column and bones of the thorax, perform the various projections of the skull and facial bones

COURSE CONTENTS:
Vertebral column:
- Cervical vertebrae
- Thoracic vertebrae
- Lumbar vertebrae
- Sacrum
- Coccyx

Bones of the thorax:
- Sternum
- Sternoclavicular joints
- Ribs
- Diaphragm

Introduction to Tomography

Skull:
- Cranium
- Sella turcica
- Orbits
- Optic foramen

Facial bones:
- Mandible
- Zygomatic arches
- Temporomandibular joints
- Nasal bone
- Petrous portion
- Mastoid portion

Introduction to stereo radiography

RECOMMENDED BOOK:
Clark positioning Radiography by R-A Swallow, E Naylor, EJ Roebock
As Whiteley 11th edition in 1999 by Heine Menu
COURSE TITLE: RADIOLOGICAL PHYSICS AND CLINICAL PRACTICE

STUDY HOURS: 152+114
MARKS

PAPER: 1
THEORY: 100

PART: IV
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To study the non-ionizing radiations used in MRI and Ultrasound, computed tomography and about the quality control. To study the radiobiology, radiologic facilities and radiation protection.

COURSE CONTENTS:

Computed tomography:
- Principles of operation
- Operation modes
- System components
- Image characteristics
- Image quality

Quality control:
- Radiographic systems
- Special x-ray system
- Radiographic procedures
- Artifacts

Physical principles of MRI:
- Why MRI
- Fundamental concepts
- NMR parameters
- MRI versus CT
- Imaging principles

Equipments with images (MRI):
- Imaging magnets
- Secondary coils
- MR images
- Biological hazards

Physical principles of ultrasound:
- Diagnostic ultrasound
- Acoustic intensity and power
- Acoustic reflection
- Acoustic absorption

Diagnostic ultrasound:

Principles of radiobiology:
- From molecules to human
- Human biology
- Physical factors affecting radio sensitivity
Biological factors affecting radio sensitivity
Dose response relationship

**Molecular and cellular radiobiology:**
- Irradiation of macromolecules
- Radiolysis of water
- Cell survival kinetics
- Target theory

**Effects of radiations:**
**Early effects:**
- Acute radiation lethality
- Local tissue damage
- Hematological effects
- Cytogenetic effects

**Late effects:**
- Local tissue effects
- Life span shortening
- Risk estimation
- Radiation induced malignancy
- Total risk of malignancy
- Radiation in pregnancy

**Health physics:**
- Cardinal principles of radiation
- Maximum permissible dose

**Design for radiological imaging facilities:**
- Designing team
- Department activity
- Location of x-ray department
- Place layout
- Construction consideration

**Radiation protection procedures:**
- Occupational exposure
- Patient dose
- Reduction of occupational Exposure
- Reduction of un-necessary patient dose

**RECOMMENDED BOOK:**
Radiological science for technologists by Stewart C. Bushong
Radiological science for technologists by Stewart C. Bushong 7th edition
In 2001 published by Mosby, Inc: A Harcourt health company
COURSE TITLE: RADIOLOGICAL PROCEDURES, CONVENTIONAL RADIOPHGRAPHY AND CLINICAL PRACTICE

STUDY HOURS: 228+114 MARKS
PAPER: 2 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To study and know how to perform the special procedures of the Lacrimal system and salivary glands, to know how to perform the special procedure of the central nerve system and autography, Practical work on conventional radiography, CT, Ultrasound, angiography, MRI and the special procedures

COURSE CONTENTS:
Lacrimal system:
- Dacreocystography

Salivary glands:
- Sialography

Central nervous system:
- Contrast media for myelography
- Lateral cervical puncture
- Cisternal puncture
- Myelography with water soluble contrast media
- Air encephalography
- Ventriculography
- Air metatography
- Cisternography

Arthrography:
- General points
- Double contrast knee arthrography
- Hip arthrography
- Double contrast shoulder arthrography
- Elbow arthrography
- Wrist arthrography

Ankle arthrography
Conventional radiography
Arthrography
Central nervous system procedures
C.T. Techniques, Protocols and images
M.R.I Techniques, Protocols & images

RECOMMENDED BOOK:
Clinical sonography by Roger C, 3rd edition in 2003 company Wolters Dluwar
Diagnostic and CT scan by MC paint, LC Gupta 1st edition in 1995 by Japee brothers publisher Ltd new Delhi
COURSE TITLE: RADIOGRAPHIC SPOSITIONING, CONVENTIONAL RADIOGRAPHY AND CLINICAL PRACTICE

STUDY HOURS: 114+76 MARKS
PAPER: 3 THEORY: 100
PART: IV PRACTICAL: 50 TIME: 1:30 HRS

COURSE OBJECTIVES:
To study and perform the various projections of the abdomen and pelvis, perform the various projections of the teeth and para-nasal sinuses and clinical practice in CT and MRI department

COURSE CONTENTS:
The abdomen
Pelvies:
- Pelvic bones
- Ilium
- Acetabulum

Foreign bodies
Ward radiography
Theater radiography
Various projections of:
- Para- nasal sinuses
- Dental radiography

Introduction to macro radiography
Receiving of patient in X-ray department
Preparation of patient for X-ray and Ultrasound
Preparation of patient for CT and MRI
Maintanence of department
Maintanence of department and patient record
Principal of protection from X-rays

RECOMMENDED BOOK:
Clark positioning Radiography by R-A Swallow, E Naylor, EJ Roebock, As Whiteley 11th edition in 1999 by Heine Menu
COURSE TITLE: RADIOLOGICAL ANATOMY AND CLINICAL PRACTICE

STUDY HOURS: 114+38
PAPER: 4
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To study the anatomy of the Teeth and para nasal sinuses relating to radiology, anatomy of the abdomen and pelvis relating to radiology and clinical practice eon MRI, CT

COURSE CONTENTS:
Para-nasal sinuses
Teeth
Abdomen
Pelvis
Receiving of patient in X-ray department
Preparation of patient for X-ray and Ultrasound
Preparation of patient for CT and MRI
Maintanence of department
Maintanence of department and patient record
Principal of protection from X-rays

RECOMMENDED BOOKS:

REFERENCE BOOK:
Gray’s Anatomy by Williams, Bannister 38 edition in 2001 by Churchill living stone
COURSE TITLE: RADIONLOGICAL CROSSECTIONAL ANATOMY AND CLINICAL PRACTICE

STUDY HOURS: 76+38

PAPER: 5

PART: IV

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 1:30 HRS

COURSE OBJECTIVES:
To study coronal, Sagittal and cross sectional / Axial anatomy of various compartments of the human body. To full fill the needs for C.T.M.R. ultrasound imaging techniques. To do best imaging and procedure quality images in ultrasound, C.T. and M.R.I

COURSE CONTENT:
Head and neck:
Vertebral column & spinal cord
Upper limb
Thorax
Abdomen pelvis
Lower limb
Guide to ossification table

RECOMMENDED BOOKS:
Human cross sectional anatomy, by David Dean Thomas E. Herbener, 1st edition in 2000 by Lippincott William & Wilkins
COURSE TITLE: RADIOLOGICAL PATHOLOGY AND CLINICAL PRACTICE

STUDY HOURS: 114+114 MARKS
PAPER: 6 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
To study various diseases of the whole body systems & radiological appearances of diseases in the structured form. To study radiological appearances of diseases on M.R.I. Conventional Radiography of the 10 systems based chapters mentioned below, practical work on conventional radiography, CT, Ultrasound, angiography, MRI and the special procedures

COURSE CONTENTS:
1. Thorax
2. C.V.S
3. G.I.T
4. Liver, Biliary System Pancrease & spleen
5. Urinary tract & testes
6. Obstetrics
7. Musculo skeletal system
8. C.NS
9. Head & Neck
10. Breast & endocrine
11. Conventional radiography
12. Arthrography
13. Central nervous system procedures
14. C.T. Techniques, protocols & images
15. Ultrasound Techniques, Protocols & images

RECOMMENDED BOOKS:
Aids to radiological differential diagnosis by Stephan Champmann & Richard Nakeilny
Clinical sonography by Roger C, 3rd edition in 2003 company Wolters Kluwar
Diagnostic and CT scan by mc paint, IC Gupta 1st edition in 1995 by Japee brothers publisher ltd new Delhi
COURSE OF

B.SC (HONS) PARAMEDIC SCIENCES IN DENTAL
### COURSE OF B.SC (HONS) IN DENTAL (ELECTIVE)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Course title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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<tr>
<td>1.</td>
<td>Anatomy related to dentistry</td>
<td>228</td>
<td>1</td>
<td>II</td>
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<td>2.</td>
<td>Physiology related to dentistry</td>
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<td>II</td>
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<tr>
<td>3.</td>
<td>Clinical practice in dental OPD and ward</td>
<td>228+190</td>
<td>3</td>
<td>II</td>
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<td>4.</td>
<td>Operation Theater technique and clinical practice</td>
<td>228+190</td>
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<td>5.</td>
<td>Oral pathology I and clinical practice</td>
<td>114+114</td>
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<td>III</td>
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<td>6.</td>
<td>Pharmacology and clinical practice</td>
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<td>III</td>
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<td>7.</td>
<td>Oral medicine and clinical practice</td>
<td>190+114</td>
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<td>III</td>
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<td>8.</td>
<td>Oral pathology II and clinical practice</td>
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<td>9.</td>
<td>Instruments and clinical practice</td>
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<td>10.</td>
<td>Preventive dentistry and clinical practice</td>
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<td>11.</td>
<td>Community dentistry and clinical practice</td>
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<td>12.</td>
<td>Dental chemistry and clinical practice</td>
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<td>Prosthodontics and clinical practice</td>
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<td>14.</td>
<td>Orthodontic I and clinical practice</td>
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<td>Dental surgery and clinical practice</td>
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<td>16.</td>
<td>Dental radiology and clinical practice</td>
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<td>17.</td>
<td>Orthodontic II and clinical practice</td>
<td>114 + 114</td>
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Part I weeks / study hours = 39 / 1092  
Part II weeks / study hours = 38 / 1292  
Part III weeks / study hours = 38 / 1292  
Part IV weeks / study hours = 38 / 1292  
Total weeks / study hours = 153 / 4968  
Vacations for each examination preparation = 2 weeks  
Vacations for each examination = 4 weeks  
Vacations in each part = 8 weeks
COURSE TITLE: ANATOMY RELATED TO DENTISTRY
STUDY HOURS: 228
PAPER: I
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significance of anatomy and physiology related to dental technology and other applied fields

COURSE CONTENT:
Introduction and application of
1. Tooth morphology
2. Oral cavity
3. General features of head and neck
4. Slivery glands
5. Muscles of facial expression
6. Muscle of mastication
7. Skull, maxilla and mandible
8. General vessels of head and neck
9. Facial sinuses
10. Facial bones
11. Relation with other structure
12. Details features of head and neck
13. Nerves supply to oral cavity
14. Cranial nerves in detail
15. Muscles of head and neck (origin, insertion and nerve supply)
16. Muscles of mastication (origin, insertion, action and nerve supply)
17. Structure of tongue
18. Facial muscles (origin, insertion, action and nerve supply)
19. Blood supply to neck and oral cavity
20. Introduction to dental physiology in detail
21. Tooth morphology
22. Oral cavity
23. General features of head and neck
24. Slivery glands and its secretions
25. Cranial nerves and its functions
26. Lymphatic drainage of head and neck
27. Muscles of head and neck their origin and insertion
28. Structure of tongue and its physiology

RECOMMENDED BOOKS:
Clinical anatomy by Snail 7th edition 2000 by Churchill living stone

REFEREAL BOOK:
Gray anatomy Roger War wick peter, I William in 1973 by longman group Ltd
COURSE TITLE: PHYSIOLOGY RELATED TO DENTISTRY
STUDY HOURS: 228 MARKS
PAPER: 2 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVE:
To introduce the students the significance of Dental physiology

COURSE CONTENTS:
Physiology of oral cavity
Function of Salivary glands
Function of Muscle of mastication
Function of muscle of expirations
Function of teeth
Tooth morphology
Oral cavity
General feature of neck and head
Slavery glands and its secretion
Cranial nerves and its function
Lymphatic drainage of head and neck
Muscle of head and neck, face and their function
Structure of tongue and its physiology

RECOMMENDED BOOKS:
Guyton physiology by W.R. in 1994 by Saunders Company Philadelphia P.A
COURSE TITLE: CLINICAL PRACTICE IN DENTAL OPD AND WARD

STUDY HOURS: 228+190 MARKS
PAPER: 3 THOERY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The students about introduction and attend the patients in OPD

COURSE CONTENTS:
Principal of receiving patient
Principal of attending patient
Principal of history taking
Investigation
Diagnosis
Advice treatment and procedures
Sterilization of OPD instruments
Care and maintain of instruments
Patients record and ward management
History taking in ward
Investigation in ward
Pre up medication
Post up medication in care Dressing and nursing care
Preparation for discharge of the patients

RECOMMENDED BOOKS:
The text book of surgery 4th edition by Dr. Ahmad Hai, Rabindra B. Shrivastava, by TATA publishing company Ltd new Delhi
COURSE TITLE: OPERATION THEATER TECHNIQUE AND CLINICAL PRACTICE

STUDY HOURS: 228 + 190 MARKS
PAPER: 4 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVE:
We introduce the students in different aspects of dental surgery, i.e. dental extractions, minor oral surgery, soft tissues surgery, gingivectomy and OT sterilization and care

COURSE CONTENTS:

Scrubbing
Important of scrubbing
Principal of scrubbing
Sterilization
The principal of sterilization
Method of sterilization
Principal of avoidance of crossing infection
Care instrument and material during and office sterilization
Preparation for surgery
Preparation of the patient
Checking the treatment chair and equipment
Sharpening of instrument
Assessment of surgery patient with the dentist

Local anesthesia
Definition used by surgeon
Instrument
Syringes, hubs, needles
Local anesthetic solutions epinephrine, procaine, lignocaine, topical anesthetics
Types of local anesthesia, block infiltration, anatomical distribution of nerves for anesthesia
Site and location for injection, technique, contra-indication for use of local and general anesthetics, post injection complications

RECOMMENDED BOOKS:
The text book of surgery 4th edition by Dr. Ahmad Hai, Rabindra B. Shrivastava, by TATA publishing company Ltd New Delhi
COURSE TITLE: ORAL PATHOLOGY I AND CLINICAL PRACTICE
STUDY HOURS: 114+114 MARKS
PAPER: I THEORY: 100
PART: III PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To introduce the basic dental technology students significance of oral diseases

COURSE CONTENTS:
Introduction and application of
1. Development and disorders of teeth
2. Dental caries
3. Disorders of dental pulp
4. Tooth wear and tears
5. Restorative surgery dentistry
6. Medical ethics
7. Emergency in the dental surgery
   a. Responsibility of dental hygienist in an emergency
   b. Emergencies and their treatment
      Fainting, cardiac arrest, coronary thrombosis, respiratory
      Obstruction, epileptic fit, diabetic crisis, management of unconscious patient

RECOMMENDED BOOKS:
Oral pathology by JV Soames and JC Sotham 3rd edition in 1998 by
Oxford medical publication New York
COURSE TITLE: PHARMACOLOGY AND CLINICAL RACTICE
STUDY HOURS: 114+114
MARKS
PAPER: 2
PART: III
THEORY: 100
PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES
In this we introduce the students about medicine related to dentistry

COURSE CONTENTS:
Antibiotics
Anti inflammatory
Anti fungal
Anti microbial
Agents used to controlled bleeding
Drugs and dental use
Conditions which ulter dental hygienist treatment plan
Pregnancy, hepatitis and bleeding disorders

RECOMMENDED BOOKS:
Lippincot’s pharmacology by Mycek 2nd edition in 2000 published by Lippincot Raven
COURSE TITLE: ORAL MEDICINE AND CLINICAL PRACTICE
STUDY HORUS: 190+114 MARKS
PAPER: 3 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce the students about medicines and oral aspects of medicines

COURSE CONTENTS:

1. Dental caries
2. Allergy and its significance
3. Oral ulceration
4. Medications
5. Fungal infections
6. Sterilization with different types
7. Lichen planus
8. Acute ulcerative gingivitis, cancrum oris
9. Acute herpetic gingivo stomatitis
10. Acute non-specific gingivitis, periodontal abscesses, stomatitis
11. Aphtous ulceration, candidiasis cold sores oral keralosis, oral tumour

RECOMMENDED BOOKS:
Lippicott’s pharmacology by Mycek 2nd edition in 2000 published by Lippincot Raven
COURSE TITLE: ORAL PATHOLOGY II AND CLINICAL PRACTICE

STUDY HOURS: 114 + 76

MARKS

PAPER: 4

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce the students the significance of oral disease and their managements

COURSE CONTENTS:
1. Periodontitis
2. Periapical periodontitis
3. Cyst of the jaws and oral soft tissues
4. Disease of periodontium
5. Tumors
6. Oral ulceration
7. Infections of oral mucosa
8. Diseases of TMJ
9. Facial pain
10. Period ontology

RECOMMENDED BOOKS:
COURSE TITLE: INSTRUMENTS AND CLINICAL PRACTICE
STUDY HORUS: 114+114 MARKS
PAPER: 5 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
In this we take students about identification in care of instruments and equipments used and dental surgery

COURSE CONTENTS:
Hand piece and care
Sharpening of instruments and care
Care of dental chari units, evacuator air compressor, ultrasonic scalar sterilizer, endodentic kit (function, operation, maintenance, common hazards, how to coupe up)
Auto claving, identification of various dental instruments and examination instruments
Scaling instruments, polishing instruments, filling instruments, rotary instruments, edodentic instruments, minor oral surgery instruments, ultrasonic scalar, dental material, dressing material
Patient requiring special attention

  a. Physical handicap
  b. Mental handicap
  c. Orthodontic
  d. Oral surgery

RECOMMENDED BOOKS:
Wilkins E.M, clinical practice of Dental Hygienist Lea of Febiger
COURSE TITLE: PREVENTIVE DENTISTRY AND CLINICAL PRACTICE

STUDY HOURS: 76+38

MARKS

PAPER: 6

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 1:30 HRS

COURSE OBJECTIVES:
To impart the students the detail knowledge of preventive and protective measures of dental disorders

COURSE CONTENTS:

1. Gingivitis
2. Prevention of dental caries
3. Dental plaque
4. Acute ulcerative gingivitis
5. Dental flask
6. Oral hygiene
7. Dental carries control and preventin
   a. Definition of dental carries, teeth affected, order and surface of types of carries
   b. Epidemiology: Age, sex, distribution, genetics
   c. Etiology theories, diet, acid attack control in prevention
      Fluoride, enzyme inhabitors
   d. Diet control, tooth past, natural hygiene
   e. Fluorides, fluoridation, prophylactic,odonotoomy
8. Dental health education
   a. Meaning of health, positive health, dental health, dental education
   b. Objective and pre requisites, responsibility for dental education
   c. Chairs side talks, lecture and group talks, exhibition, health weeks, window displaced, film shows, press radio and television article

RECOMMENDED BOOKS:
Wikins E.M, clinical practice of Dental hygienist lea of Febiger
Clinical dental hygience CV Mosby Co
COURSE TITLE: COMMUNITY DENTISTRY AND CLINICAL PRACTICE

STUDY HOURS: 76+38 MARKS
PAPER: 7 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To introduce the students about dental awareness and dental hygiene in a society and to improve the total social dental knowledge in a community

COURSE CONTENTS:
1. Oral hygiene
2. Community dentistry
3. Dental education
4. Dental floss
5. Dental awareness in school education
6. Community mobilization on dental health
7. Benefits of good oral hygiene
8. Relation of oral hygiene to other medical disorders

RECOMMENDED BOOKS:
Wilkins E.M, clinical practice of Dental Hygienist Lea of Febiger
Clinical dental hygiene CV Mosby Co
COURSE TITLE: DENTAL CHEMISTRY AND CLINICAL PRACTICE
STUDY HOURS: 114+76
MARKS
PAPER: I
STUDY HOURS: 114+76
MARKS
PART: IV
PAPER: I
STUDY HOURS: 114+76
MARKS
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student about chemical basis of dental materials their chemistry and uses dental materials properties and their clinical significance and finally their usage in dentistry.

COURSE CONTENTS:
1. Introduction to filling materials
2. Introduction to prosthetic material
3. Temporary filling
4. Permanent filling
5. Chemistry of dental materials
6. Manipulation of dental material (conservative materials)
7. Uses of dental materials
8. Precautions for dental materials

RECOMMENDED BOOKS:
Churchill pocket notebooks of chemical dentistry by Ivone and chestnatt and Johen Gibson 2nd edition in 202 Harcourt publisher Ltd
COURSE TITLE: PROSTHODONTICS AND CLINICAL PRACTICE
STUDY HORUS: 76+38 MARKS
PAPER: 2 THEORY: 100
PART: IV PRACTICAL: 50
TIME 1:30 HRS

COURSE OBJECTIVE:
To introduce to the student about partial and complete dentures, different processes of fixed and removable prosthesis

COURSE CONTENTS:
1. Partial dentures
2. Impressions and its materials
3. Full dentures
4. Precautions of materials
5. Crown bridge work
6. Manipulation of prosthetic materials
7. Uses and abuses
8. Clinical significance

RECOMMENDED BOOKS:
MC crackins removable partial prosthodontics 11th edition in 2005 by Alan B carr, Glen PMC Giveney David T brown publisher by Elseveir India

REFERRED BOOK:
Essential of period dentology and periodontics 2nd edition in 197 by Torquil Macphee and Jeuoffrey Cowley by Black well scientific Oxford London
COURSE TITLE: ORTHODONTIC I AND CLINICAL PRACTICE  
STUDY HOURS: 76+38  
MARKS  
PAPER: 3  
PART: IV  
THEORY: 100  
PRACTICAL: 50  
TIME: 1:30 HRS

COURSE OBJECTIVES:  
In this branch of dentistry we introduce the patients with the methodology of orthodontic appliances. E.g. uses of removable and fixed appliance as well as functional appliances

COURSE CONTENTS:  
Definition, brief outline of growth of skull and mandible, eruption dates, paths of eruption, deciduous, mixed & adult dentition, arches, roles of muscle in normal development, brief outline of angle’s classification, skeletal classification, etiology of malocclusion, local and general factors, habit effect of premature loss of primary teeth, permanent teeth, brief account of methods of treatment by removable appliances, fixed appliances imitations of treatment, limitations of prevention

RECOMMENDED BOOKS:
Contemporary orthodontic 3rd edition in 2000 by profit William R with Hengry W fields by United States Mosby Inc  
Planning of making crowns bridges 2nd edition in 1990 by Berned mord  
GN smith by Martin Donit Ltd London
COURSE TITLE: DENTAL SURGERY AND CLINICAL PRACTICE
STUDY HOURS: 114 + 114 MARKS
PAPER: 4 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce the student the significance of Dental Surgery

COURSE CONTENT:
Minor oral surgery
Maxilla and mandible surgery
Close and open instruction
Removal of impacted tooth
Pediatric surgery
Cosmetic surgery
Abnormalities of facial expression
Gingivectomy, apisectomy
Surgical procedure for orthodontic treatment
Trigeminal neuralgia
Orthodontic surgery
Dental abnormalities
Attrition, abrasion erosion, developmental abnormalities and his surgical procedure
Restorative dentistry
Restoration of teeth, root canal therapy and apicoectomy, periodontal disease, prosthetic procedure 9treatment and procedure the above)

Instruments
Identification care and maintenance of instruments, appliance and apparatus used in minor and major surgery

Problems patients
Mentally handicap
Geriatrics
Nervous, non co-operative patients
Children, here lip and cleft patients (care and handling of the above patient)

RECOMMEND BOOKS:
Oral and maxillofacial surgery by W Hary Archer in 19100 by W saounders company
Kennedys operative pediatric dentistry in 1996 by Mej, Carzone JF
Roberts DB by Oxford Bostin in New Delhi
COURSE TITLE: DENTAL RADIOLOGY AND CLINICAL PRACTICE
STUDY HOURS: 38+38 MARKS
PAPER: 5 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To introduce to the student about basics of radiology which is concerned with the dental field

COURSE CONTENTS:
1. OPG
2. Principal radiograph
3. Occlusal radiograph
4. Bite wing
5. Panoramic x ray
6. Cephalométrics
7. Techniques
8. Hazards
9. Benefits
10. Developing
11. Dangerous and precautions
12. Practical work based on above

RECOMMENDED BOOKS:
Dental radiology by Joen kenneucci Hairing in 1996 WB saounder
COURSE TITLE: ORTHODONTIC II AND CLINICAL PRACTICE
STUDY HOURS: 114+114
MARKS
PAPER: 6 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce the student the significance of Orthodontic treatment and surgery

COURSE CONTENTS:
1. Introduction to Orthodontic treatment
2. Aims of orthodontic treatment
3. Causes of malocclusion
4. Treatment of malocclusion
5. Simple removable appliance
6. Fixed appliances
7. Functional appliances
8. Advantage of orthodontics treatment
9. Disadvantages of orthodontics treatment
10. Marketing strategies

RECOMMENDED BOOKS:
Contemporary orthodontic 3rd edition in 2000 by profit William R with
Hengry W fields by united States Mosby inc
Planning of making crowns bridges 2nd edition in 19909 by Berned mord
GN smith by martin Donit ltd London
COURSES OF
B.SC (HONS) PARAMEDIC SCIENCES
IN SURGERY
### COURSES OF B.SC (HONS) IN SURGICAL TECHNOLOGY

<table>
<thead>
<tr>
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<th>Paper</th>
<th>Part</th>
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<td>1.</td>
<td>Anatomy, physiology I</td>
<td>190+152</td>
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<td>II</td>
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<td>Pathology I, Surgical procedure and clinical practice</td>
<td>190+114</td>
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<td>II</td>
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<td>3.</td>
<td>Clinical Practice I</td>
<td>190+114</td>
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<td>II</td>
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<td>4.</td>
<td>Clinical practice II</td>
<td>190+152</td>
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<td>5.</td>
<td>Anatomy, physiology II</td>
<td>114+114</td>
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<td>6.</td>
<td>Pathology II and surgical procedure</td>
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<td>7.</td>
<td>Emergency an post op complication and management and clinical practice</td>
<td>190+114</td>
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<td>8.</td>
<td>OT, Sterilization and positioning and clinical practice</td>
<td>114+76</td>
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<td>9.</td>
<td>Pharmacology and clinical practice</td>
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<td>10.</td>
<td>Anatomy and physiology III</td>
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<td>11.</td>
<td>Pathology III &amp; Surgical procedure and clinical practice</td>
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<td>12.</td>
<td>Surgical incision &amp; introduction to anesthesia and clinical practice</td>
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<td>13.</td>
<td>Pathology IV &amp; Surgical procedure and clinical practice</td>
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<td>14.</td>
<td>Intensive care &amp; management of OT and clinical practice</td>
<td>152+152</td>
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<td>Part IV weeks / study hours</td>
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<td>Vacations for each examination</td>
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<td>Vacations in each part</td>
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COURSE TITLE: ANATOMY AND PHYSIOLOGY –I
STUDY HORUS: 190+152 MARKS
PAPER: 1 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the students the significance of abdominal anatomy & Physiology related to General surgery

COURSE CONTENTS:
Digestive system
Urinary system
Liver
Spleen
Gallbladder
Pancreases
Glands
Skin

RECOMMENDED BOOKS:
Gray,s Anatomy by rogerwar Vick peter L Williams in 1973 group LTD.
Medical physiology by Guyton in1991 published by W.B. saunder Company
COURSE TITLE: PATHOLOGY – I AND SURGICAL PROCEDURES
STUDY HOURS: 190+114 MARKS
PAPER: 2 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce the students the significance of Abdominal pathology and Surgical procedures

COURSE CONTENTS:
Abdominal peritonitis, Appedicitis, Peptic Ulcer
Intestinal obstruction
Intra abdominal obstruction
Gastritis
Carcinoma
Hernia, types
Hepatitis
Cirrhosis
Liver Abscess
Cholecystittis
Gallstones
Pancreatittis
Carcinoma
Uremia, nephritic Disorder, Renal stone, Kidney Cyst, U.T Obstruction,
Kidney T.B.
Prostate
Burns, Types, Degrees
Thromboses
Fistula
Colitis
Hemorrhoids etc.

RECOMMENDED BOOKS:
COURSE TITLE: CLINICAL PRACTICE-I IN SURGICAL WARD AND OPD

STUDY HOURS: 190+114

MARKS
PAPER: 3
PART: II

THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To discusses the organizational structure of surgical Department, including the management of Daily working in surgical ward.

COURSE OBJECTIVES:
To discusses the organizational structure of surgical Department, including the management of Daily working in surgical ward.

COURSE CONTENTS:
Deptt of surgery & surgical ward
Organization and structure
Ward management
Maintenance of different record/register.
Preparation for admission and discharge of surgical patient.
History taking of surgical patient
Examination of patient
Observation
Physical examination, palpation
Percussion, auscultation.
Use of stethoscope, vital signs
Maintaining I/V line, NG tube
Catheterization, CVP line
Stoma care, Blood transfusion and complications.
Nursing care of patient in surgical wards
Importance of investigations
Blood, Urine R/E
CSF, Stool, U/S CT Scan
MRI, X-Rays, knowledge about X-ray examination.
Records of investigations

RECOMMENDED BOOK:
Morosney, s Surgery by MALCOMER COLMER, 1986, 16th edition by EL.BS

REFEREEAL BOOK:
COURSE TITLE: CLINICAL PRACTICE-II INSURGICAL WARD
STUDY HOURS: 190+152
PAPER: 4
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVE:
To introduce to the student the significance of patient preparation of surgery investigation, surgical procedures, practical and handling of patient in surgical ward

COURSE CONTENTS:
Predation of patient for surgery.
Consent, pre-op bath, shaving of concerned area, weight
Preparation for gut surgery
Preparation of diabetic and Hypertensive patient for surgery.
Fluid
Electrolytes balance
Surgical nutrition.
Care of MLC in wards and OT.
Resuscitation of patient in surgical ward.
Practical procedure
Prevention of PVT.

RECOMMENDED BOOK:
Moroney,s surgery by MALCOMER COLMER, 1986, 16th edition, printed by EL.BS
COURSE TITLE: ANATOMY AND PHYSIOLOGY OF THORAX AND SKULL

STUDY HOURS: 114+114
PAPER: 1
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the students the significance of anatomy & Physiology of Thorax and Skull related to Cardiothoracic and Neurosurgery

COURSE CONTENTS:
Structure of Thorax and Skull
Cardiovascular system
Respiratory system
Nervous system (brain)

RECOMMENDED BOOKS:
Gray,s Anatomy by rogerwar Vick peter L Williams in 1973 large group LTD
Medical Physiology by Guyton in 1991 published by W.B saunder Company
COURSE TITLE: PATHOLOGY-II AND SURGICAL PROCEDURES AND CLINICAL PRACTICE

STUDY HORUS: 190+152 MARKS
PAPER: II THEOERY: 100
PART: III PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
- Pneumothorax
- Carcinoma
- T.B. Empyema, Lungs abscess, Breast Tumor
- Cardiac Catherization
- Cardio pulmonary by pass
- Transposition of great vassals
- Aneurysms
- Angiography
- Angioplasty
- Valvuloplasty
- Brain Hemorrhage
- Thrombosis embolism

RECOMMENDED BOOKS:
- Shot textbook of pathology by Inam Danish by Johar Publishers Karachi
COURS TITLE: EMERGENCY AND POST OP COMPLICATIONS AND MANGEMENT AND CLINICAL PRACTICE

STUDY HOURS: 190+114 MARKS

PAPER: 3 THEORY: 100

PART: III PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVES:
To enable the students for preparation and management of patients in Emergency, and to educate about trauma and first aid techniques and post operation management

COURSE CONTENTS:
Trauma
Major disaster
Surgical triage,
Blood volume
Trauma t airway, chest injury
Fractures, Types, management
Abdominal injuries, head injuries
The crush syndrome
Burns and scalds: Definition, types, degrees, percentage and management.
Post operative pain, vomiting
Postoperative hemorrhage, types, and management
Shock, types, management
Wound, ulcer, gangrene, Definition, types, Management
Dressing, types and techniques

RECOMMENDED BOOKS:
Moroney, S Suger by MALCOMER COLMER, 1986, 16TH edition, by EL.BS

REFERRAL BOOK:
COURSE TITLE: OPERATION THEATRE, STERILIZATION, POSITIONING AND CLINICAL PRACTICE

STUDY HOURS: 114+76 MARKS

PAPER: 4 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To educate the students about environment discipline and management in OT and enable the student to operate different equipment in OT and sterilization

COURSE CONTENTS:
Operating theatre
Designs and different areas
Environment, light, tem, airflow
Movement in OT Restricted.
Semi-restricted and Non-restricted areas
Surgical instruments and their uses
Cleaning, Washing, decontamination, disinfections, fumigation.
Sterilization, Definition, types, methods
Equipments and their uses, ESU, Diathermy, Laser, Laparoscope’s, Microscope, endoscopes, airpower equipments.
Count of sponges, sharps instruments and legal aspects of counting
OT attire, scrubbing, gowning, gloving.
Procedure and importance.
The sterile field and its maintenance
Surgical skin preparation
Use of different Anti-septics.
Patient as an individual, Criteria for positioning.
OT table and common positioning devices.
Moving and lifting the patient.
Different surgical positions and related physiologic effects.
Common injuries related to medical instruments and procedures.

RECOMMENDED BOOKS:
Synopses of medical instruments and procedures. Published in 1st June 1992 by 1 – V ARORA 2. ARUN YADAN.
Publishers Jaypee Brothers Medical Publishers Pvt Ltd. (New Delhi)
By R.C.G Russell, Norman S. Williams, and Christopher J.K Bulstode
Published in 2004 by Hodder education, a member of hodder headline group London NW/ 3BH
COURSE TITLE: PHARMACOLOGY RELATED TO SURGERY AND CLINICAL PRACTICE

STUDY HOURS: 76+76 MARKS
PAPER: 5 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To enable the students to learn about the drugs related to surgery

COURSE CONTENTS:
Antibiotics, Analgesics, Muscle Relaxations
Sedative, Anti septic
Anti Hypertensive drugs
Anti Diabetics drugs, Classification, indication, contraindication, side effects.

RECOMMENDED BOOKS:
Pharmacology 2nd edition by Lippincott, s Illustrated Reviews
COURSE TITLE: ANATOMY AND PHYSIOLOGY OF PELVIS, LIMBS, SPINE AND EYE, EAR, NOSE AND THROAT

STUDY HOURS: 228+114 MARKS

PAPER: 1 THEORY: 100
PART: IV PRACTICAL:
50 TIME: 3HRS

COURSE OBJECTIVES:
To educate the students about Gynecology and Orthopedic Anatomy and Physiology

COURSE CONTENTS:
Pelvis structure
Bones of upper & lower limbs, spine
Reproductive system
Structure of Eye
Structure of Ear
Structure of Nose
Structure of Throat and Neck

RECOMMENDED BOOKS:
Gray,s Anatomy by rogerear Vick peter L Williams in 1973 large group LTD
Medical Physiology by Guyton in 1991 published by W.B Saunder Company
COURSE TITLE: PATHOLOGY –II RELATED TO GYNEA, ORTHOPEDIC AND SURGICAL PROCEDURE, CLINICAL PRACTICE

STUDY HOURS: 152+76 MARKS
PAPER: II THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significance of orthopedic and Gynae disorders, his pathology, procedures and clinical practice

COURSE CONTENTS:
Fractures, Classification, Types
Musculo skeletal Disorder
Pregnancy and Delivery, Abortion, Types
Leucorrhea
Female Sterility
Uterine Bleeding
Hemorrhage in late pregnancy etc.

RECOMMENDED BOOKS:
Out Line of Orthopedic by John Crawfurrd Adam & David Hambilin in 1990 by El.Bs Rashid A Latif Gynecology
COURSE TITLE: SURGICAL INCISION AND INTRODUCTION TO ANESTHESIA AND CLINICAL PRACTICE

STUDY HOURS: 114+114 MARKS

PAPER: III THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVE:
To introduce to the student the significance of different type of incision and introduction to anesthesia in surgery and clinical practice

COURSE CONTENTS:
Surgical incisions, types
Suturing material, absorbable, Non-absorbable types.
Suturing techniques
Definition, Types, Local, Spinal Epidural, General Anesthesia
Endotracheal intubation and anatomical review.
Knowledge about different anesthetic drugs.
Complication of anesthesia and management
Resuscitation of neo-nate in OT.
Temp, cleaning, early cry, Oxygenation
Detection of congenital defects, suctioning of meconium.

RECOMMENDED BOOK:
Synopses of medical instruments and procedures
Published in 1st June 1992 by I-V.S ARORA 2. ARUN YADAN
Publishers Jaypee Brothers medical Publishers Pvt Ltd New Delhi, India. Rashid A Latif Gynecology
COURSE TITLE: PATHOLOGY-IV RELATED TO EYE, ENT AND SURGICAL PROCEDURE, AND CLINICAL PRACTICE

STUDY HOURS: 114+76  MARKS
PAPER: 4  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To introduce to the student the significance of EYE, ENT Pathology his surgical procedures and clinical practice in Eye and ENT

COURSE CONTENTS:
Otitis
Tumors
Cholesteatoma
Otosclerosis
Deafness
Nasal Leason
Rehnitis
Adeneoid
Sinusitis
Conjectivitis
Tumor of Eye, new growth
Keratitis
Iritis
Retina Disorder
Orbital disorder

RECOMMENDED BOOK:
COURSE TITLE: INTENSIVE CARE AND MANAGEMENT OF OT AND CLINICAL PRACTICE

STUDY HOURS: 152+152

PAPER: 5

PART: IV

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVES:
To enable the student to have a look at the management, organization, smooth running of OT and ICU Care

COURSE CONTENTS:
Different records and register maintenance on OT
Accountability regarding OT protocol, equipments and instruments
Co-ordination of OT staff
Team work in OT
Hazards in OT and their prevention
Handling the unconscious patient
Clinical practices in ICU
Resuscitation

RECOMMENDED BOOK:
Moroney,s surgery for nurses. Edited by Malcolm R. Colmer, Sixteenth Edition, and Published in1986 by Longman Group (Female) Ltd in Hong Kong.
COURSES OF
B.SC (HONS) PARAMEDIC SCIENCES
IN
NEURO-PHYSIOLOGY
## COURSE OF B.SC (HONS) NEUROPHYSIOLOGY (ELECTIVE)

<table>
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<th>Course Title</th>
<th>Study hrs</th>
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<th>Part</th>
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<tr>
<td>1.</td>
<td>Neuro-anatomy –I</td>
<td>152</td>
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<tr>
<td>2.</td>
<td>Ward, patient management and clinical practice</td>
<td>114</td>
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<td>3.</td>
<td>Neuro physiology I</td>
<td>152</td>
<td>3</td>
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<td>4.</td>
<td>Patient management in OPD, ward and clinical practice</td>
<td>114</td>
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<td>Neuroanatomy II and clinical practice in OPD</td>
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<td>Clinical practice in OPD</td>
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<td>Neurophysiology II</td>
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<td>Pharmacology related to neurophysiology and clinical practice</td>
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<td>Instrumentation &amp; technique I and clinical practice</td>
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<td>EEG and EMG Machines and clinical practice</td>
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<td>Normal EEG Features I and clinical practice on EEG</td>
<td>228+114</td>
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<td>Normal EEG Features II and clinical practice</td>
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<td>13.</td>
<td>Instrumentation &amp; technique II and clinical practice on EMG</td>
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<td>EEG in different disease states I and clinical practice on EEG and EMG</td>
<td>228+190</td>
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<td>Instrumentation and technique III and clinical practice on EMG</td>
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Part I weeks / study hours = 39 / 1092
Part II weeks / study hours = 38 / 1292
Part II weeks / study hours = 38 / 1292
Part III weeks / study hours = 38 / 1292
Total weeks / study hours = 153 / 4968
Vacations for each examination preparation = 2 weeks
Vacations for each examination = 4 weeks
COURSE TITLE: NEURO-ANATOMY – I
STUDY HOURS: 152 MARKS
PAPER: I THEORY: 100
PART: II PRACTICAL: 50 TIME: 3 HRS

COURSE OBJECTIVES:
To introduce the students to various bones of skull, parts of the brain, brain stem, thalamus, cranial nerves, the various tracts and cerebellum motor connection; the sensory pathways; the hypothalamus and pituitary the retailer formation of brain stem and thalamus. Also to introduce the student to various functional areas of cerebral cortex and their major connection; the visual; the auditory and autonomic system and their spinal fluid pathway.

COURSE CONTENTS:
Basic anatomy of:
Thalamus
Hypothalamus
Ventricular system
Cerebrospinal fluid
Spinal cord
Cranial nerves
Autonomic nervous system
Brain vascular supply

RECOMMENDED BOOKS:
Clinical Snail Anatomy by Richard Snail 7th edition 2002 by Churchill living stone
Anatomy and physiology in health and illness by Anne Wauge Allison.
arrant illustrated by aralme chambers by Churchill living stone in Spain
COURSE TITLE: WARD, PATIENT MANAGEMENT AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 2
PART: II

COURSE OBJECTIVES:
To assist the neurologist in OPD and ward and ward management, patient care.

COURSE CONTENTS:
1. Maintain patient, ward record.
2. Proper labeling of patient investigation.
3. History taking.
4. Investigations.
5. Patient preparation for procedure.
6. Pre procedure medication
7. Patient care in ward
8. Post procedure care
9. Preparation of discharge
10. OPD procedure and patient attending.

RECOMMENDED BOOKS:
Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: NEUROPHYSIOLOGY
STUDY HOURSE: 152
PAPER: 3
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
A working knowledge of Neurophysiology should conduct the understanding of the nerve impulses, neuro muscular transmission and the contracted process of the muscle; spinal reflex activity; central neuro transmission; the process of neural excitation, inhibition and releases and cortical activation and seizure production.

COURSE CONTENT:
Physiological properties of:
- Cerebrum
- Mid brain
- Cerebellum
- Brain stem
- Medulla
- Thalamus
- Hypothalamus
- Ventricular system
- Cerebrospinal fluid
- Spinal cord

RECOMMENDED BOOKS:
Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: PATIENT MANAGEMENT IN OPD, WARD AND CLINICAL PRACTICE

STUDY HOURSE: 114

PAPER: 4

PART: II

Marks:

Theory: 100

Practical: 50

Time: 3 hrs

COURSE OBJECTIVES:
To assist the neurologist in ward and OPD.

COURSE CONTENTS:
1. Maintain patient, ward record.
2. Proper labeling of patient investigation.
3. History taking.
4. Investigations.
5. Patient preparation for procedure.
6. Pre procedure medication
7. Patient care in ward
8. Post procedure care
9. Preparation of discharge
10. OPD procedure and patient attending.

RECOMMENDED BOOKS:
Medical Physiology by Mustafa Ahmad in 1994 published by M.EMIT Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: NEUROPHYSIOLOGY II AND CLINICAL PRACTICE IN OPD
STUDY HOURSE: 152 MARKS
PAPER: 5 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students to various bones of skull, parts of the brain, brain stem, thalamus, cranial nerves, the various tracts and cerebellum motor connection; the sensory pathways; the hypothalamus and pituitary the retailer formation of brain stem and thalamus. Also to introduce the student to various functional areas of cerebral cortex and their major connection; the auditory and autonomic system and then spinal fluid pathway.

COURSE CONTENT:
Basic anatomy of:
Skull
Meninges
Cerebrum
Cerebellum
Brain stem
Medulla

RECOMMENDED BOOKS:
Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: CLINICAL PRACTICE IN OPD
STUDY HOURSE: 228
Marks:

PAPER: 6
Theory: 100

PART: II
Practical: 50
Time: 3 hrs

COURSE OBJECTIVES:
To assist the neurologist in OPD.

COURSE CONTENTS:
1. Receiving and attending the patient in OPD.
2. History taking.
3. Investigations.
5. Patient record

RECOMMENDED BOOKS:
Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: NEUROPHYSIOLOGY II
STUDY HOURS: 152
MARKS
PAPER: 7
THEORY: 100
PART: II
PRACTICAL: 50
TIME: 30 HRS

COURSE OBJECTIVE:
A working knowledge of Neurophysiology should conduct the understanding of the nerve impulses neuro muscular transmission and the contracted process of the muscle; spinal reflex activity; central neuro transmission; the process of neural excitation, inhibition and releases and cortical activation and seizure production.

COURSE CONTENT:
Physiological properties of:
- Crania nerves
- Neurosis
- Action potential
- Synapses
- Salutatory propagation
- Plexus & roots
- Afferent & efferent pathways
- Peripheral nerves of limbs
- Autonomic nervous system
- Basic neurological examination
- Reflexes
- Motor system
- Sensory system

RECOMMENDED BOOKS:
Medical Physiology by Mustafa Ahmad in 1994 published by M.EMIT Anatomy and physiology in health and illness by Anne Wauge Allison arrant illustrated by aralme chambers by Churchill living stone in Spain.
COURSE TITLE: PHARMACOLOGY RELATED TO NEUROPHYSIOLOGY AND CLINICAL PRACTICE

STUDY HOURS: 114+114

PAPER: 8

PART: II

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 30 HRS

COURSE OBJECTIVE:
To introduce the student a significance of medicine related to neurophysiology.

COURSE CONTENT:
1. Antibiotics
2. Neuro tonic
3. Anti inflammatory
4. Analgesic and antipyretic
5. Muscle relaxcent etc
6. Classification, effects, mechanism of action, indication and contra indication

RECOMMENDED BOOKS:
COURSE TITLE: INSTRUMENTATION & TECHNIQUE 1 AND CLINICAL PRACTICE

STUDY HOURS: 114+76

MARKS

PAPER: 1

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVE:
The student should have basic knowledge of physics only regarding the slow of currents. He should know about the definition and the use of electrodes, amplifiers, filters, and stimulators. He should have the knowledge as to where and from what region the brain waves are recorded on electroencephalography machine.

COURSE CONTENT:

Electronics:
Ac & de voltage, current, Frequency
Resistance, Capacitance, Inductance
Impedance, Ohm’s law.

Instrumentation:

Electrodes:
Electrode material, Electrode potential
Electrode double layer, Electrode impedance
Effect of unbalance electrode resistance on CMRR

Amplifiers:
Inverting & non-inverting amplifiers
Differential amplifiers
Gain, Sensitivity, Linearity
Dynamic range, Input & output impedance.
Common mode rejection ratio, Polarity

Filters:
Resister/ capacitor circuits
Notch filters, Low filters
High filters, Frequency response curve

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: EEG AND EMG MACHINES AND CLINICAL PRACTICE
STUDY HOURS: 38+76 Marks:
PAPER: 2 Theory: 100
PART: III practical: 50

Time: 3 hrs

COURSE OBJECTIVE:
To introduce to the students the significance of EEG and EMG machine operating and clinical practice in different disease.

COURSE CONTENT:
Bandwidth for Eeg, EMG EVP
Effect of analogue & digital filters on biologic signals
Stimulators:
Motor electrical stimulators
Sensory electrical stimulators
Stroboscope
Pattern reversal
Headphone
Preparation for admission
History taking, Investigation, Preparation for procedures, Observation Examination, Physical examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/ admission, Receiving patient in procedure room (EEG and EMG room ) preparation for procedures and pre procedure and post procedure care.

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: NORMAL EEG FEATURES 1 AND CLINICAL PRACTICE ON EEG

STUDY HOURS: 228+114 MARKS
PAPER: 3 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The student should have knowledge about normal EEG features and practice on EEG

COURSE CONTENTS:
EEG:
Origin
Normal rhythms & patterns in;
Children
Adults
Common normal variants
Effects of drug on EEG
Hyperventilation;

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: NORMAL EEG FEATURES II AND CLINICAL PRACTICE ON EEG

STUDY HOURS: 228+114

MARKS
PAPER: 4
PART: III
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The student should have knowledge about normal EEG features and practice on EEG and clinical practice in OPD and Neurology ward.

COURSE CONTENTS:

EEG:
Effect on EEG in different age group Clinical role
Photic stimulation
Normal following response
Photomyoclonic response
Types of photosensitive response
Types of photosensitive response
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provisional diagnosis and differential diagnosis, Decision for treatment/admission

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: INSTRUMENTATION & TECHNIQUE II AND CLINICAL PRACTICE ON EMG

STUDY HOURS: 190+114  MARKS
PAPER: 5  THEORY: 100
PART: III  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The student should have basic knowledge of physics only regarding the slow of currents. He should know absent definition and the use of electrodes, amplifiers filters and stimulators. He should have the knowledge as to where and from what region the brain waves are recorded on electroencephalography machine.

COURSE CONTENTS:
Measurement for the placement of electrode (10-20 international system)
Montages (bipolar, referential montage)
Source of derivation
Mechanical control during recording
Methods of notation & labeling the recording
Source of artifacts & methods of elimination
Activation procedure;
Hyperventilation
Photic stimulation
Sleep deprivation
Drug induce sleep
Saving of recording
Factual report writing
Recording practice of EMG/NCV.
Standard electrode placement
Recording technique & parameters
Recognition & elimination of artifact

Trouble shooting, Assistance in EMG produce, Technical consideration,
Calibration, Sufficient paper, Paper speed, Pen centering, Pen alignment, Damping,
Low frequency
Filter, sensitivity, Amplitude Linearity, High frequency, Filter, Gain, Noise.

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: EEG IN DIFFERENT DISEASE STATES I AND AND CLINICAL PRACTICE ON EEG AND EMG

STUDY HOURS: 228+190  MARKS
PAPER: 1  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The student should have knowledge about common neurological disease especially these in which Neurophysiology equipments is used for diagnosis and management and clinical practice in OPD, Ward.

COURSE CONTENTS:
Epilepsy
Meningitis
Encephalitis
Brain abscess
Intracranial tumors
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/ admission

RECOMMENDED BOOKS:
Principle of Neurology by MauriceVictor & Allan II. Ropper
The edition 2001 by A.Division of the MC graw hill company U.S.A
COURSE TITLE: INSTRUMENTATION & TECHNIQUE III AND CLINICAL PRACTICE ON EMG

STUDY HOURS: 114+114
MARKS
PAPER: 2
THEORY: 100
PART: IV
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
The student should have basic knowledge of physics only regarding the slow of currents. He should know absent definition and the use of electrodes, amplifiers filters and stimulators. He should have the knowledge as to where and from what region the brain waves are recorded on electroencephalography machine.

COURSE CONTENTS:
Recording practice of Evoke Potential:
  Standard electrode placement
  Recording technique & parameters
  Recognition & elimination of artifacts
  Nation & measurements
  Saving of recording
  Factual report writing
Recording practice of sleep studies:
  Standard electrode placement
  Recording technique & parameters
  Recognition & elimination of artifacts
  Nation & measurements
  Saving of recording
  Factual report writing
Technical consideration:
  Calibration
  Sufficient paper
  Paper speed
  Pen centering
  Pen alignment

RECOMMENDED BOOKS:
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
**COURSE TITLE:** INSTRUMENTATION & TECHNIQUE IV AND CLINICAL PRACTICE ON EEG  

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**MARKS**  
- THEORY: 100  
- PRACTICAL: 50  
- TIME: 3 HRS

**COURSE OBJECTIVE:**  
The student should have basic knowledge of physics only regarding the slow of currents. He should know absent definition and the use of electrodes, amplifiers filters and stimulators. He should have the knowledge as to where and from what region the brain waves are recorded on electroencephalography machine.

**COURSE CONTENTS:**  
- Calibration,  
- Sufficient paper,  
- Paper speed,  
- Pen centering,  
- Pen alignment,  
- Damping,  
- Low frequency Filter,  
- Sensitivity,  
- Amplitude Linearity,  
- High frequency,  
- Filter,  
- Gain,  
- Noise.

**RECOMMENDED BOOKS:**  
EEG Technology by J.C. SHAW 2nd edition printed by Butter Warth group London.
COURSE TITLE: EEG IN DIFFERENT DISEASE STATES II AND CLINICAL PRACTICE ON EEG AND EMG

STUDY HOURS: 190+190

MARKS

PAPER: 4

THEORY: 100

PART: IV

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVE:
The student should have knowledge about common neurological disease especially these in which Neurophysiology equipments is used for diagnosis and management.

COURSE CONTENTS:
Metabolic & toxic disorders
Head injury
Cerebrovascular disease
Demenia
Coma of various causes
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/ admission

RECOMMENDED BOOKS:
Principle of Neurology by MauriceVictor & Allan II. Ropper
The edition 2001 by A.Division of the MC graw hill company U.S.A
COURSE OF B.SC (HONS) PARAMEDIC SCIENCES IN PULMONOLOGY
COURSES OF B.SC (HONS) IN PULMONOLOGY

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<td>Pulmonology procedures, clinical practice</td>
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Part I weeks/study hours = 39/1092
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Part III weeks/study hours = 38/1292
Part IV weeks/study hours = 38/1292
Total weeks / study hours = 153/4968
Vacation for each examination preparation = 2 weeks
Vacation for each examination = 4 weeks
Vacation in each part = 8 weeks
COURSE TITLE: PHYSIOLOGY I
STUDY HOURS: 228
PAPER: 1
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce basic concept of respiratory and cardiovascular system
To train the paramedics regarding emergency treatment in respiratory disease
To train the students regarding life saving procedures, such as needle aspiration, chest intubations etc in detail

COURSE CONTENTS:
Oxygen transport, Carbon dioxide transport, Pulmonary circulation, Ventilation perfusion defects, Control of Breathing, Plethysmography

COURSE TITLE: ANATOMY I
STUDY HOURS: 114+76
PAPER: 2
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the student significance of anatomy related to pulmonology and clinical practice in OPD and ward.

COURSE CONTENTS:
Heart, Diaphragm, Esophagus, Stomach, Intestines, Patient receiving Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provisional diagnosis and differential diagnosis, Decision for treatment/ admission
COURSE TITLE: PULMONOLOGY PROCEDURE-I AND CLINICAL PRACTICE

STUDY HOURS: 228
PAPER: 3
PART: II

Marks:
Theory: 100
Practical: 50
Time: 3 hrs

COURSE CONTENTS:
Follow up of pleurdesis/ streptokinase, Peak flow, Pleurodesis, Therapeutic aspiration

RECOMMENDED BOOKS
Medical physiology by Gyaton 10 edition by saundern in 2002
Physiology Ganang 20 edition in 2000 published by Land Medical Book
R.J. last Anatomy 10 edition in 2000 by Churchill living stone
Clinical anatomy by Sneil 7th edition in 2000 by Churchill living stone
Sneil Neuro Anatomy 2nd edition in 1987 by little brown and company Boston Toronto

COURSE TITLE: PHYSIOLOGY II RELATED TO PULMONOLOGY

STUDY HOURS: 228
PAPER: 4
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce basic concept of respiratory and cardiovascular system
To train the students regarding life saving procedures, such as needle aspiration, chest intubations etc.

COURSE CONTENTS:
Lungs volume and capacities, Mechanism of Breathing, Compliance of lungs, Surface tension of alveoli and surfactant, Gas exchange

Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/ admission
COURSE TITLE: ANATOMY II RELATED TO PULMONOLOGY
STUDY HOURS: 114+76
PAPER: 5
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE CONTENTS:
Mediastinum
Antomical classification
Contents
Pleura
Visceral
Parietal
Bronchial Tree
Trachea
Lungs

COURSE TITLE: MANAGEMENT OF WARD, PATIENT AND CLINICAL PRACTICE
STUDY HOURS: 228
PAPER: 6
PART: II
Marks:
Theory: 100
Practical: 50
Time: 3 hrs

COURSE CONTENTS:
1. Record keeping
2. Proper labeling and arrangeemnt of the Lab reports and X-ray
3. Intake output charts
4. History of patient
5. Preparation of patient for procedure
6. Investigation
7. Preparation of patient for discharge

RECOMMENDED BOOKS
Medical physiology by Gyaton 10 edition by saundern in 2002
Physiology Ganang 20 edition in 2000 published by Land Medical Book
R.J. last Anatomy 10 edition in 2000 by Churchill living stone
Clinical anatomy by Snieil 7th edition in 2000 by Churchill living stone
Sneil Neuro Anatomy 2nd edition in 1987 by little brown and company Boston Toronto
COURSE TITLE: PHARMACOLOGY I AND CLINICAL PRACTICAL
STUDY HOURS: 114+76
PAPER: 1
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To train the paramedics regarding indications and proper doses of day to day drugs used in the field of Pulmonogy, how to cope with over doses and toxic effect of the drugs, regarding emergency procedures such as needle aspiration Chest intubations etc, regarding basic concepts of common diseases and how to use invasive and non-invasive ventilators.

COURSE CONTENTS:
1. Sedative
2. H2-Blockers
3. Antibiotics
   Pencillin
   Macrolides
   Sulphonamides
   Aminoglycosides
   Quinolones
   Cephalosporin
   New respiratory quinolones

COURSE TITLE: PHATHOLOGY I AND CLINICAL PRACTICAL
STUDY HOURS: 114+114
PAPER: 2
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE CONTENTS:
1. Pneumonias
2. Lung Abscess
3. Asthma
4. Bronchiectasis
5. Tuberculosis
6. COPD
COURSE TITLE: PULMONOLOGY PROCEDURE-I AND CLINICAL PRACTICE

STUDY HOURS: 228  
PART: III  
PAPER: 3  
Marks:  
Theory: 100  
Practical: 50  
Time: 3 hrs

COURSE OBJECTIVE:
To introduce the student significance of pulmonology procedures and clinical practice in OPD and ward.

COURSE CONTENTS:
1. Pleural aspiration.
2. Pleural Biopsy
3. Intubation
4. Post intubation care
Patient receiving
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/ admission

RECOMMENDED BOOKS
Kat-zung Pharmacology in 1999 published by application and large
Lipincott Pharmacology 2nd edition 2000 by lippincord raven
Synopsis of Pharmacology by Dr. Wahid Shah in 1992 K.M.C
Robbins Pathology 2nd edition in 1998 by E Saundern
General Pathology by Walter Israel 9th edition in 1999 by Churchill living stone
COURSE TITLE: PHARMACOLOGY II AND CLINICAL PRACTICAL
STUDY HOURS: 114+76
PAPER: 4
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To train the paramedics regarding indications and proper doses of day to day drugs used in the field of Pulmonogy, how to cope with over doses and toxic effect of the drugs, regarding emergency procedures such as needle aspiration Chest intubations etc, regarding basic concepts of common diseases and how to use invasive and non-invasive ventilators.

COURSE CONTENTS:
Anithypertesive, Bronchodilators, Aerosols/ Nebulizers, Steroids, ATT, Local anaesthesia and general anaesthesia

COURSE TITLE: PATHOLOGY II AND CLINICAL PRACTICAL
STUDY HOURS: 114+114
PAPER: 5
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE CONTENTS:
Chronic Bronchitis, Emphysema, Lung tumors, Plural effusion, Pulmonary embolism, Interstitial Lung Diseases

COURSE TITLE: PULMONOLOGY PROCEDURE-III AND CLINICAL PRACTICAL
STUDY HOURS: 228
PAPER: 6
PART: III

COURSE CONTENTS:
1. Specimen collection (Proper collection and proper transporation)
2. Peak flow
3. N.I.P.P.V
4. Endotracheal Intubation

RECOMMENDED BOOKS
Kat-zung Pharmacology in 1999 published by application and large
Lipincott Pharmacology 2nd edition 2000 by lippincord raven
Synopsis of Pharmacology by Dr. Wahid Shah in 1992 K.M.C
Robbins Pathology 2nd edition in 1998 by E Saundern
General Pathology by Walter Israel 9th edition in 1999 by Churchill living stone
COURSE TITLE: MEDICINE I AND CLINICAL PRACTICAL
STUDY HOURS: 228+190 MARKS
PAPER: 1 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To train the paramedics how to do PETs, DOTS and DOTS-plus, regarding life saving emergency procedure, regarding different procedure and equipments in the field of Pulmonology such as Pleural Biopsy, ventilator, Bronchoscopy etc.

COURSE CONTENTS:
Sarcoidosis
Interstitial Lung Diseases
Bronchial Carcinoma
Pleural effusion
Pneumothorax

COURSE TITLE: PULMONOLOGY PROCEDURE-IV AND CLINICAL PRACTICAL
STUDY HOURS: 114+114 MARKS
PAPER: 2 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE CONTENTS:
Bronchoscopy
NIPPV
Patient receiving
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/admission

RECOMMENDED BOOKS
Principal of Medicine by Davidson 9th edition in 2002 publisher by Haslet chelvern
Crofton and daylong danglous respiratory medicine 5th edition 2005 by Blahwel science
COURSE TITLE: MEDICINE II AND CLINICAL PRACTICAL
STUDY HOURS: 114+76
PAPER: 3
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To train the paramedics how to do PETs, DOTS and DOTS-plus, regarding life saving emergency procedure, regarding different procedure and equipments in the field of Pulmonology such as Pleural Biopsy, ventilator, Bronchoscopy etc.

COURSE CONTENTS:
1. Respiratory failure
2. COPD
3. Chronic Bronchitis
4. Emphysema
5. Bronchial Asthma
6. Management of static asthma
7. Bronchiectasis
8. Pneumonia
   i. Community acquired Pneumonia
   ii. Pneumococcal Pneumonia
   iii. Legionella Pneumonia
   iv. Nosocomial Pneumonia
   v. Aspiration Pneumonia
9. Lung Abscess
10. Tuberculosis

COURSE TITLE: MEDICINE III AND CLINICAL PRACTICAL
STUDY HOURS: 114+114
PAPER: 4
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE CONTENTS:
Pleurisy
Pleural effusion
Pneumothorax
Sleep Apnea
Arterial Blood Gases
Adult respiratory Distress Syndrome
Ventilation
Invasive and non-invasive ventilation
COURSE TITLE: PULMONOLOGY PROCEDURE-V AND CLINICAL PRACTICAL

STUDY HOURS: 228
PAPER: 5
PART: IV

MARKS:
Theory: 100
Practical: 50
Time; 3 hrs

COURSE OBJECTIVE:
To introduce the student significance of pulmonology procedures and clinical practice in OPD and ward.

COURSE CONTENTS:
PEAK FLOW
PFT (Plethymography)
Patient receiving
Preparation for admission
History taking, Investigations, Preparation for procedures, Observation Examination, Physical Examination, Nursing care, Ward management, Maintainence of patient and ward record, Preparation for discharge, Receiving patient in OPD, History taking and investigation, provinsional diagnosis and differential diagnosis, Decision for treatment/admission

RECOMMENDED BOOKS
Principal of Medicine by Davidson 9th edition in 2002 publisher by Haslet chelvern
Crofton and daylong danglous respiratory medicine 5th edition 2005 by Blahwel science
COURSE OF
B.SC (HONS) PARAMEDIC SCIENCES
IN DIALYSIS (NEPHROLOGY)
## COURSES OF B.SC (HONS) IN DIALYSIS (ELECTIVE)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Course Title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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<td>1.</td>
<td>Renal anatomy and physiology related to Urology</td>
<td>228</td>
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<td>2.</td>
<td>Clinical aspect of urology patients and clinical practice</td>
<td>114+114</td>
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<td>Urology surgical procedure and clinical practice</td>
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<td>4.</td>
<td>Pathology I of renal tract related to urology and clinical practice</td>
<td>228+228</td>
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<td>Anatomy and physiology related to nephrology</td>
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<td>6.</td>
<td>Renal pathology and clinical practice</td>
<td>228</td>
<td>2</td>
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<td>7.</td>
<td>Renal disease, pharmacology and clinical practice</td>
<td>228+190</td>
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<td>8.</td>
<td>Clinical aspect of pathology and clinical practice</td>
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<td>9.</td>
<td>Clinical aspect of renal pathology II and specialized clinical practice</td>
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<td>10.</td>
<td>Renal disease and management and specialized clinical practice</td>
<td>114+114</td>
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<td>11.</td>
<td>Treatment of advance renal disease life support procedure and specialized clinical practice</td>
<td>304+114</td>
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<td>12.</td>
<td>Dialysis and clinical aspect and specialized clinical practice</td>
<td>304+114</td>
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Part I weeks/study hours = 39/1092
Part II weeks/study hours = 38/1292
Part III weeks/study hours = 38/1292
Part IV weeks/study hours = 38/1292
Total weeks / study hours = 153/4968
Vacation for each examination preparation = 2 weeks
Vacations for each examination = 4 weeks
Vacations in each part = 8 weeks
COURSE TITLE: ANATOMY AND PHYSIOLOGY RELATED TO UROLOGY

STUDY HOURS: 228 MARKS
PAPER: 1 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of renal anatomy and physiology related to urology.

COURSE CONTENTS:
Embryology of renal tract:
- Kidney
- Uretar
- Bladder
- Prostate
- Urethera

Developmental anomalies of renal tract
Anatomy of renal tract
- Kidney
- Uretar
- Bladder
- Prostate
- Urethera

Physiology of renal tract;
- Kidney
- Uretar
- Bladder
- Prostate
- Urethera

RECOMMENDED BOOKS
Clinical anatomy by Rechard Snal 7th edition 2000 by Churchill living stone
Essential for medical physiology by Mustafa in 1994 by MEMIT

REFERRAL BOOK:
Guyton physiology by Hercourt Brace in 1994 by WR Sounder Company
Gray anatomy by roger War wick, Peter L Williams in 1973 by Lang man group Ltd
COURSE TITLE: CLINICAL ASPECTS OF UROLOGY PATIENT AND CLINICAL PRACTICE

STUDY HOURS: 114+114  
MARKS
PAPER: 2  
THEORY: 100
PART: II  
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of clinical aspects of Urology patients in OPD, ward and ward management.

COURSE CONTENTS:
Ward management, patient preparation for the admission, wound care addressing, care of nasogastric tube, catheter and drain tube.
History of the patient, ward investigation, tetnness immunization, preparation of patient for surgery, preup medication, suture removing, preparation of the patient for discharge.
Patient attendant in OPD
Receiving of the patient
History taking
Assessment
Investigastion
Advice treatment/ admission

RECOMMENDED BOOKS
Books of surgical instruments by doctor S Das Japee
**COURSE TITLE:** UROLOGY SURGICAL TECHNIQUE AND CLINICAL PRACTICE  
**STUDY HOURS:** 228+152  
**PAPER:** 3  
**PART:** II  
**MARKS**  
**THEORY:** 100  
**PRACTICAL:** 50  
**TIME:** 3 HRS

**COURSE OBJECTIVE:**  
To introduce the students the significance of Urology surgical technique and clinical practice in Urology OT, OPD and ward.

**COURSE CONTENTS:**  
Surgical scrubbing  
Important of scrubbing, principal of scrubbing  

**Positioning for surgery**  
Principal for position  
Equipment for position  

**Preparation for operation**  
Physical preparation  
Catheterization, skin preparation, suture material, surgical needle and surgical drain  
Introduction to operation theater, OT table.

**Instrument**  
Use in operation, his maintenance, operating care and introduction to anesthesea  
Ward management, patient preparation for the admission, wound care addressing, care of nasogastric tube, catheter and drain tube.  
History of the patient, ward investigation, tentness immunization, preparation of patient for surgery, preup medication, suture removing, preparation of the patient for discharge.  
Patient attendant in OPD  
Receiving of the patient  
History taking  
Assessment  
Investigastion  
Advice treatment/ admission

**RECOMMENDED BOOKS**  
Operative techniques by doctor S das JAPEE  
Moroneys surgery by Malcomr colmer, 1986 by EL.BS
COURSE TITLE: PATHOLOGY-I RELATED TO UROLOGY, SURGICAL PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 228+228
PAPER: 4
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of renal pathology related to urology and his surgical procedure/ clinical practice in Urology OPD and ward.

COURSE CONTENTS:

Infection
Pyelonephritis, Cystitis, Prostatitis
Epididymoorchitis, Tuberculosis

Stone
Renal stone, Ureteric stone
Vesical stone, Uretheral stone

Obstructive disease
Puj obstruction, Vuj obstruction
Due to stone, Bph

Traumatic disease
Renal injuries, Ureteric injuries
Bladder injures, Uretheral injuries

Tumors/neoplastic disease
Renal tumor, Testicular tumor, Ca:prostate, Ca:penis

Fistulas
U.v.f., V. intestinal f, V.uterine f

A.v fistula, dialysis, renal transplantation

Urological investigation
Urine, Blood
Radiological x-ray. Usg, ct, mineral scan
Ward management, patient preparation for the admission, wound care addressing, care of nasogastic tube, catheter and drain tube.
History of the patient, ward investigation, tentness immunization, preparation of patient for surgery, preup medication, suture removing, preparation of the patient for discharge.
Patient attendant in OPD, Receiving of the patient, History taking, Assessment, Investigation
Advice treatment/ admission

RECOMMENDED BOOKS
Moroneys surgery by Malcomr colmer, 1986 by EL.BS
Spiral of Uroogy
COURSE TITLE: ANATOMY AND PHYSIOLOGY RELATED TO NEPHROLOGY

STUDY HOURS: 228
PAPER: 1
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of renal anatomy and physiology related to nephrology, dialysis and clinical practice in Nephrology ward and OPD.

COURSE CONTENTS:
Morphology of the kidney and its developments
General feature and its relation to different body organ
Surface anatomy of the kidney
Brief anatomy ureter, bladder and urethra
Brief description of renal gland
Physiology function of nepheron
Urine formation
Effect of hormones on the kidney
Ward management, patient preparation for the admission, wound care addressing, care of nasogastric tube, catheter and drain tube.
History of the patient, ward investigation, tentness immunization, preparation of patient for surgery, preop medication, suture removing, preparation of the patient for discharge.
Patient attendant in OPD, Receiving of the patient, History taking, Assessment, Investigation
Advice treatment/ admission

RECOMMENDED BOOKS
Clinical anatomy by Rechard Snal 7th edition 2000 by Churchill living stone
Essential for medical physiology by Mustafa in 1994 by MEMIT

REFERRAL BOOK:
Guyton physiology by Hercourt Brace in 1994 by WR Sounder Company
Gray anatomy by roger War wick, Peter L Williams in 1973 by Lang man group Ltd
COURSE TITLE: RENAL PATHOLOGY II AND CLINICAL PRACTICE IN NEPHROLOGY OPD, WARD

STUDY HOURS: 228 MARKS
PAPER: 2 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of renal pathology related to Nephrology and dialysis.

COURSE CONTENTS:
1. Sigh and symptoms of renal disease
2. Clinical assessment of hyponetrimia
3. Hypernetrimia
4. Metabolic acidosis
5. Respiratory acidosis/ alkalosis
6. Hyperkalimia
7. Hypocalcemia
8. Hyperphosphatemia
9. Oedema and clinical uses of diuretics
10. Introduction to glomerula disease
11. Renal involvement in cardiovascular disease/connective tissue disorder
   diabetes chest disease cancer git disease.
12. Etiology and pathophysiology of acute renal failure
13. Acute renal failure and metabolic derangeemnt
14. Developmental disorder of the kidney, uretar and bladder
15. Pathology of common renal disease
16. Pathology of acute renal failure
17. Chronic renal failure
18. Renal cell carcinoma
19. Functional pathology of kidney
20. Acid base, fluid, electrolyte disorder.

RECOMMENDED BOOKS
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clark in 1989
Know you kidney by wook
COURSE TITLE: RENAL DISEASE, PHARMACOLOGY AND CLINICAL PRACTICE

STUDY HOURS: 228+190

PAPER: 3

PART: III

MARKS

THEORY: 100

PRACTICAL: 50

TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of renal disorder

COURSE CONTENTS:
1. Management of acute renal failure
2. Drugs during different nephritides
3. Principal of drugs therapy in renal failure
4. Sickle cell nephropathy
5. Polycystic and acquired cystic disease
6. Alport’s syndrome and related disorder
7. Medullary cystic disease
8. Tubular interstitial disease
9. Nephrolithiasis
10. UtI
11. Kidney in infants, children, pregnancy Aging Kidney
12. Introduction to chronic renal failure
13. Hypertension

PHARMACOLOGY RELATED TO NEPHROLOGY
Anti diuretics, Anti hypertensive, Antibiotic, Anti inflammatory
Anti dialysis etc
Ward management, patient preparation for the admission, wound care and dressing, care of nasogastric tube, cateter and drain tube
History of the patient, ward investigation, tetness immunization, preparation of patient for surgery, pre-up medication, sture removing, preparation the patient for discharge
Patient attendant in OPD. Receiving of the patient
History taking, assessment, Investigation and provisional / differential
Advice treatment / admission

RECOMMENDED BOOKS
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Pharmacology by Shamin in 2006 by Shamin publication
Synopsis of pharmacology by Dr. Wahid Shah in 1992 KMC
COURSE TITLE: CLINICAL ASPECTS OF RENAL PATHOLOGY I AND CLINICAL PRACTICE

STUDY HOURS: 228+190

MARKS
PAPER: 4
THEORY: 100
PART: III
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the students the significance of clinical aspect of renal pathology and clinical practice in ward and dialysis

COURSE CONTENTS:
Renal/ glomerular disease
Introduction
Sign and symptoms
Drug therapy
Clinical assessment of:
Hypernatremia/hyponatremia
Hyperkaliemia/hypokaliemia
Hypercalcemia/hypocalcemia
Hyperphosphatemia
Metabolic disorder
Metabolic acidosis/ alkalosis
Respiratory acidosis/ alkalosis
Renal involvement in:
Cardiovascular disease
Connective tissue disease
Diabetes
Chest disease
Git disease
Cancer
Hypertension
Definition
Types pathogenesis
Essential hypertension
Renal vascular hypertension
Treatment

RECOMMENDED BOOKS:
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Paracology by Shamin in 2006 by Shamin publication
Synopsis of pharmacology by Dr. Wahid Shah in 1992 KMC

REFERRAL BOOK:
General pathology by water Israel in 1999 by Churchill living stone
COURSE TITLE: CLINICAL ASPECTS OF RENAL PATHOLOGY II AND SPECIALIZED DIALYSIS CLINICAL PRACTICE

STUDY HOURS: 114+114 MARKS
PAPER: 1 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the student the significance of renal pathology and clinical practice in dialysis

COURSE CONTENTS:
Urinary tract infections in
Infants
Childrens
Pregnancy
Nephrolithiasis
Definition
Types
Causes
Sign and symptoms
Treatment
Sickle cells nephropathy
Cystic disease of kidney
Tubular interstitial disease
Acute renal failure
Definition
Causes
Pathogenesis
Metabolic derangement
Principal of drug therapy in renal failure
Management of ARF
Chronic renal failure
Introduction
Causes, Pathogenesis, sign and symptoms and the aging kidney

RECOMMENDED BOOKS:
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Nephrology dialysis by Davidson

REFERRAL BOOK:
General pathology by water Israel in 1999 by Churchill living stone
COURSE TITLE: RENAL DISEASE AND MANAGEMENT AND SPECIALIZED DIALYSIS CLINICAL PRACTICE

STUDY HOURS: 114+114
PAPER: 2
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the student the significance of renal disease his management and clinical practice in dialysis

COURSE CONTENTS:
1. Treatment of metabolic derangement
2. Ecg-normal and abnormal in renal disease
3. Treatment of glomerular disease
4. Role of steroid in renal disease
5. Treatment modalities in acute renal failure and chronic renal failure.
6. Treatment of renal emergencies
7. Complication of dialysis
8. Pre and post dialysis care and instruction
9. Shock and renal involvement in shock
10. Septicemia
11. Cardiac arrest
12. Use of contrast in renal medicine
13. Important of cardio pulmonary resuscitation
14. Receiving and attending the patient in dialysis room
15. Preparation of patient for dialysis procedure
16. Pre dialysis medication
17. Dialysis procedure technique, principles
18. Post dialysis care and home management.

RECOMMENDED BOOKS:
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Nephrology dialysis by Davidson
Embryology review board series and management of renal disease

REFERRAL BOOK:
General pathology by water Israel in 1999 by Churchill living stone
COURSE TITLE: TREATMENT OF ADVANCED RENAL DISEASE LIFE SUPPORT PROCEDURE AND SPECIALIZED DIALYSIS CLINICAL PRACTICE

STUDY HOURS: 30414+114 MARKS
PAPER: 3 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the student the significance of advance renal disease and his treatment

COURSE CONTENTS:
Treatment of metabolic derangement
Metabolic acidosis
Metabolic alkalosis
Respiratory acidosis
Respiratory alkalosis

Treatment of electrolytes imbalance
Hypnentrimia/hyponetrimia
Hyperkalimia/hypokalimia
Hypercalcimia
Hypocalcimia
Hyperphospatemia

Ecg
Normal reading
Abnormal in renal disease

Treatment of
Glomerular disease
Renal emergencies

Role of steroids in renal disease

Treatment modalities in
Acute renal failure
Chronic renal failure

RECOMMENDED BOOKS:
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Nephrology dialysis by Davidson
Embryology review board series and management of renal disease

REFERRAL BOOK:
General pathology by water Israel in 1999 by Churchill living stone
COURSE TITLE: DIALYSIS, CLINICAL ASPECT AND SPECIALIZED DIALYSIS CLINICAL PRACTICE

STUDY HOURS: 30414+114
PAPER: 4
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce the student the significance of pre and post dialysis care and complications and clinical practice in dialysis

COURSE CONTENTS:
Dialysis
Pre-dialysis
Care and instructions
Post-dialysis care and instructions
Complication of dialysis
Septicemia
Cardiac arrest
Use of contrast in renal disease
The importance of cardiopulmonary resuscitation

Practice in dialysis
Receiving and attending the patient in dialysis room
Preparation of patient for dialysis procedure
Pre dialysis medication
Dialysis procedure technique, principals
Post dialysis care and home management

RECOMMENDED BOOKS:
Robbins pathology 6th edition in 1998 by IE Soundarn
Ref Primary of kidney disease
Clinical medicine by Perveen Kumar + Mochaol L clarak in 1989
Know you kidney by wook
Nephrology dialysis by Davidson
Embryology review board series and management of renal disease

REFERRAL BOOK:
General pathology by water Israel in 1999 by Churchill living stone
COURSE OF
B.SC (HONS) PARAMEDIC SCIENCES IN
GASTRO-ENTEROLOGY
## COURSES OF B.SC (HONS) IN GASTROENTROLOGY (ELECTIVE)

<table>
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<tr>
<th>S.No</th>
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<th>Paper</th>
<th>Part</th>
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<tr>
<td>1.</td>
<td>Anatomy I of GIT</td>
<td>228</td>
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<td>Physiology I of GIT</td>
<td>190</td>
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<td>3.</td>
<td>Ward, patient management and Clinical practice</td>
<td>114+114</td>
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<td>Anatomy II of GIT</td>
<td>228</td>
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<td>5.</td>
<td>Physiology II of GIT</td>
<td>190</td>
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<td>6.</td>
<td>Gastroenterology procedure and clinical practice</td>
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<td>7.</td>
<td>Pathology I and clinical practice</td>
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<td>Pharmacology I clinical practice</td>
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<td>Pathology II and clinical practice</td>
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<td>Pharmacology II and clinical practice</td>
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<td>Upper GIT Endoscopy I</td>
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<td>Lower GIT Endoscopy II</td>
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<td>ERCP procedure and clinical practice</td>
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<td>FRCP II procedure and clinical practice</td>
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Part I weeks/study hours = 39/1092
Part II weeks/study hours = 38/1292
Part III weeks/study hours = 38/1292
Part IV weeks/study hours = 38/1292
Total weeks / study hours = 153/4968
Vacation for each examination preparation = 2 weeks
Vacations for each examination = 4 weeks
Vacations in each part = 8 weeks
COURSE TITLE: ANATOMY I OF GIT
STUDY HOURS: 228+114
PAPER: 1
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce students the anatomy of GIT

COURSE CONTENTS:
Gross anatomy. Blood supply, lymphatics and Nervous control of mouth, pharynx, esophagus, stomach

COURSE TITLE: PHYSIOLOGY I OF GIT
STUDY HOURS: 190+114
PAPER: 2
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce students the physiology GIT

COURSE CONTENTS:
Physiology of esophagus, stomach, duodenum, jejunum, ileum, colon

COURSE TITLE: WARD, PATIENT MANAGEMENT IN CLINICAL PRACTICE
STUDY HOURS: 114+114
PAPER: 3
PART: II
MARKS
Theory: 100
Practical: 50
Time: 3 hrs

COURSE OBJECTIVE:
To introduce to the student the significance of ward, patient management in clinical practice in ward and OPD

COURSE CONTENTS:
Patient receiving
Preparation for admission history taking
Investigations
Preparation for procedures
Observation
Examination
Physical examination
Nursing care
Ward management
Maintainence of patient and ward record
Preparation for discharge
Receiving patient in OPD
History taking and investigation
Decision for treatment / admission
COURSE TITLE: ANATOMY II OF GIT
STUDY HOURS: 228+114  
PAPER: 4  
PART: II  
MARKS
THEORY: 100  
PRACTICAL: 50  
TIME: 3 HRS

COURSE OBJECTIVE:
Introduction of anatomy of GIT in detail

COURSE CONTENTS:
Liver, Gallbladder, pancreas, duodenum, jujum, ileum, caecum, colon
(ascending transverse, descending, sigmoid, rectum and anal region)

COURSE TITLE: PHYSIOLOGY II OF GIT
STUDY HOURS: 190+114  
PAPER: 5  
PART: II  
MARKS
THEORY: 100  
PRACTICAL: 50  
TIME: 3 HRS

COURSE OBJECTIVE:
Introduce students with in detail regarding physiology of GIT:

COURSE CONTENTS:
Mechanism of enzyme production, function of liver, mechanism of bile production, process of digestion, control of intestinal, Gastric secretion, etc. sphinteric function of GIT
COURSE TITLE: GASTRO PROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 114+114
PAPER: 6
PART: II
Marks: Theory: 100
Practical: 50
Time: 3 hrs

COURSE OBJECTIVE:
To introduce to the student of the significance of gastoenterolgy procedures and clinical practice

COURSE CONTENTS:
Endoscopes of different types and accessories endoscopy unit/function. Holding and endoscopes fiberoptic versus video imaging
Upper and lower Gi forceps.
Injection scleroetherapy needles, esophageal bands, stricture dilatation assistance, poly pectomy assistance and snare handling, collection of biopsy specimen, loading esophageal bands
Patent attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

RECOMMENDED BOOK:
Gray Anatomy by Rogerwar Vick Peter L Williams in 1973 published by man group limited.
Medical physiology by Guyton in 1999 published by W.Be saundern company
COURSE TITLE: PATHOLOGY I OF GIT AND CLINICAL PRACTICE
STUDY HOURS: 228+114
MARKS
PAPER: 1
PART: III
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce students pathology of GIT to know the cause of the GIT disease briefly

COURSE CONTENTS
Dyspepsia, ulcers, (gastric and duodenum) and malignancies
Oral cavity: Ulcerative and inflammatory lesions, cancer of the oral cavity slivery gland disease
Esophagus: Motor disorders, miscellaneous lesions, reflux esophagitis, esophageal carcinoma
Stomach: Pyloric stenosis, gastritis, stress ulcers, peptic ulcers, tomors.

COURSE TITLE: PHARMACOLOGY I, GASTROPROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 190+114
MARKS
PAPER: 2
PART: III
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To give brief knowledge regarding the medicine used in GIT, procedure and clinical practice in gastroenterology.

COURSE CONTENTS
H2 receptor antagonists, Cimitidine, famotidine, renatidine, Proton pump inhibitors (PPI)
Infections control during GIT endoscopies, routine endoscopes cleaning, sterilization and disinfections of endoscopes
COURSE TITLE: PATHOLOGY III AND CLINICAL PRACTICE
STUDY HOURS: 228+114
PAPER: 3
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Introduction of GIT pathology in connection to know the cause of disease in detail

COURSE CONTENTS:
Malignancies, infections (protozoal, bacterial, viral, fungal) sphinteric dysfunction, motility disorder, congenital anomalies, inflammatory bowel diseases, chronic diarrhea, mal absorption, syndromes, polyps.

Small and large intestine: Development anomalies, diverticula, vascular disorders, inflammatory diseases, infectious enterocolities, malabsorption syndromes, neoplasms of small and large intestine, obstructive lesions, appendicitis

Liver: Jaundice and hereditary disorders of bilirubin metabolism, hepatic failure, pediatric liver disease, circulatory disorders, viral hepatitis, autoimmune chronic hepatitis, drug and toxin-induced liver diseases cirrhosis and tumors.

Billary tract: Cholangitis, cholelithiasis, cholecystitis, carcinoma of gall bladder, carcinoma of extrahepatic bile duct including ampulla of vatar

Pancreas: Diabetes mellitus, islet cell tumors, acute, chronic, pancreatitis, carcinoma of the pancreas.

RECOMMENDED BOOKS:
Gastrointestinal pathology by Maron Band Dawson IMP in 1979 published by Oxford black well scientific
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
COURSE TITLE: PHARMACOLOGY II, PROCEDURE ROOM MANAGEMENT CARE AND CLINICAL PRACTICE

STUDY HOURS: 190+114
PAPER: 4
PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To give detail knowledge about the medicine used in GIT, to provide practical training to students and procedure room and clinical practice in ward and OPD

COURSE CONTENTS:
Lansaprazol, panprazol antemetic (domperidone, metaclopamide, sedative diazepam, medazolam) infections control during GIT endoscopy, routine endoscope cleaning, sterilization and disinfections of endoscope
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

RECOMMENDED BOOKS:
Gastrointestinal pathology by Maron Band Dawson IMP in 1979 published by Oxford black well scientific
Clinical pharmacology DR. LAURENACE P.N Bennett Scron editon 1992 by lang man group Singapore.
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
COURSE TITLE: UPPER GIT ENDOSCOPY PROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 228  MARKS
PAPER: 1  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Recognition of upper GIT and pathology practically and practice in OPD and Ward.

COURSE CONTENTS:
Indications and contraindication of therapeutic OGD
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating.
Pre procedure and post procedure care
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

COURSE TITLE: LOWER GIT ENDOSCOPY PROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 114  MARKS
PAPER: 2  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Recognition of lower GIT and pathology practically

COURSE CONTENTS:
Indications and contraindication of sigmoidoscopy, colonoscope
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating
Pre procedure and post procedure care.

RECOMMENDED BOOKS:
Gastrointestinal pathology by Maron Band Dawson IMP in 1979 published by Oxford black well scientific
Clinical pharmacology DR. LAURENACE P.N Bennett Scron editon 1992 by lang man group Singapore.
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
COURSE TITLE: ERCP PROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 228+76 MARKS
PAPER: 3 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To know about the procedure endoscopic retrograde colangiopancreatography and to give brief knowledge about the accessories used in Gastroenterology and clinical practice.

COURSE CONTENTS:
Drugs used for sedation, fluoroscope handling. Indications and contraindications of ERCP binding catheter, papilotome of different types, needle knife, balloons, dormia basket, identification of hepatobiliary anatomy
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating.
Pre procedure and post procedure care
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

RECOMMENDED BOOKS:
Gastrointestinal pathology by Maron Band Dawson IMP in 1979 published by Oxford black well scientific
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
COURSE TITLE: UPPER GIT ENDOSCOPY PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 114
PAPER: 4
PART: IV

COURSE OBJECTIVE:
Recognition of upper GIT and its pathology practically

COURSE CONTENTS:
Recognition of esophagus, stomach, duodenum, biopsy/ brushing/ aspiration
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating.
Pre procedure and post procedure care
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

COURSE TITLE: LOWER GIT ENDOSCOPY PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 228
PAPER: 5
PART: IV

COURSE OBJECTIVE:
Recognition of lower GIT and fits pathology practically
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating.
Pre procedure and post procedure care
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

COURSE CONTENTS:
Indications and contraindication of bowel preparation, colonoscopic, anatomy, common pathologies

RECOMMENDED BOOKS:
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
COURSE TITLE: ERCP-II PROCEDURE AND CLINICAL PRACTICE
STUDY HOURS: 76+228
PAPER: 6
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To know about the procedure endoscopic retogade colingiopancreatiogaphy and to provide detial knowledge about the accessories used in Gastroenterology.

COURSE CONTENTS:
Contrast agents used, concentration of contrast. Therapeutic accessories Anatomy/identification of papilla, billary drainage, complication.
Patient receiving and assessment in procedure room
Scrubbing for procedures, principals of scrubbing
Equipment Operating.
Pre procedure and post procedure care
Patient attending assessment, provisional diagnosis, treatment plan in OPD, patient receiving, admission, history taking, assessment, investigation, output input chart, temperature chart, special investigation chart, provisional, differential diagnosis, patient and ward record and preparation the patient for discharge.

RECOMMENDED BOOKS:
Gastrointestinal pathology by Maron Band Dawson IMP in 1979 published by Oxford black well scientific
Practical Gastrointestinal endoscopy by Colton PB and Williams CB in 1980 published by Oxford black well scientific
Text book of gastroterentroentroloy by Bailliere tindall in London.
Clinical medicine by perveen Kumar and Nochal L claric in 1989 by Villicer international London
COURSE OF
B.SC (HONS) PARAMEDIC SCIENCES
IN MOTHER AND CHILD HEALTH
### COURSES OF B.SC (HONS) MCH TECHNOLOGY (ELECTIVE)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Course Title</th>
<th>Study hrs</th>
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<th>Part</th>
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<td>1.</td>
<td>Anatomy I</td>
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<td>Physiology I</td>
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<td>Fetal anatomy and development</td>
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<td>Clinical practice I</td>
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<td>Applied anatomy and clinical practice</td>
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<td>Applied physiology and Clinical practice</td>
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<td>8.</td>
<td>Maternal nutrition and Clinical practice</td>
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<td>Pregnancy and Clinical practice</td>
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<td>Growth monitoring and clinical practice</td>
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<td>Clinical practice II</td>
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<td>12.</td>
<td>Community factors and Clinical practice</td>
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<td>Diagnostic and Clinical practice</td>
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<td>Pharmacology and Clinical practice</td>
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<td>Complications of pregnancy and clinical practice</td>
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<td>Personal hygiene and sanitation and Clinical practice</td>
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<td>Immunization and Clinical practice</td>
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<td>Asepsis and minor surgery and Clinical practice</td>
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<td>Infertility and reproduction and Clinical practice</td>
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<td>Breast feeding and Clinical practice</td>
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<td>Infant and toddler care and clinical practice</td>
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<td>Management of MCH services and clinical practice</td>
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<td>Clinical practice VI</td>
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- Part I weeks/study hours = 39/1092
- Part II weeks/study hours = 38/1292
- Part III weeks/study hours = 38/1292
- Part IV weeks/study hours = 38/1292
- Total weeks / study hours = 153/4968
- Vacation for each examination preparation = 2 weeks
- Vacations for each examination = 4 weeks
- Vacations in each part = 8 weeks
COURSE TITLE: ANATOMY I
STUDY HOURS: 114
PAPER: 1
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce the student about the anatomy of pelvis and its characteristic

COURSE CONTENTS:
1. Male and female pelvis
2. Bone of pelvis
3. Diameter of pelvic
4. Role of pelvic diameter in pregnancy and delivery

RECOMMENDED BOOKS:
Gynecology by Rashid A. Latif
Manual of emergency 7th edition distraction care

COURSE TITLE: PHYSIOLOGY I
STUDY HOURS: 114
PAPER: 2
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce the student about the human physiology in related to mother and child health

COURSE CONTENTS:
Blood + its content
Physiology of menstruation
Physiology of various system
Physiology changes in pregnancy

RECOMMENDED BOOKS:
COURSE TITLE: FOETUS ANATOMY AND DEVELOPMENT
STUDY HOURS: 114
PAPER: 3
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce the student about the anatomy of foetus and its intrauterine development

COURSE CONTENTS:
Foetus as an entity
Foetal skull and its diameter
Foetal heart
Development of foetus and various systems
Foetus muscular system, nerves system, circulatory system, GIT

RECOMMENDED BOOKS:
Embryology by large 6th editor
Current obstetrical gynecology 9th edition by Alan H Decherney + Marton Pernell
Lavge Medical Company

COURSE TITLE: FOETAL PHYSIOLOGY OF NEW BORN
STUDY HOURS: 114
PAPER: 4
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce the student about foetus physiology of in born error of new born and identification and management

COURSE CONTENTS:
Foetal physiology
Anatomocal errors of new born
Enzymatic errors of new born
Consignment & its applications

RECOMMENDED BOOKS:
Care craige of the newly born infant by A. J.Keay and D.M Morgan in 1974 Churchil living stone Newyark
Current pedriatric diseases 8th Edition
COURSE TITLE: CLINICAL PRACTICE I IN GYNAE OPD
STUDY HOURS: 76
PAPER: 5
PART: II
Marks:
Theory: 100
Practical: 50
Time: 1:30 hrs

COURSE OBJECTIVE:
To introduce to the student the significant of Gynae patient receiving attending, assisting in Gynae OPD

COURSE CONTENTS:
Receiving of the patient
History taking
Observation
Assessment
Investigation
Advice treatment, admission

COURSE TITLE: APPLIED ANATOMY AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 6
PART: II
MARKS
Theory: 100
Practical: 50
Time: 1:30 HRS

COURSE OBJECTIVE:
To introduce to the student anatomy related to pregnancy and delivery

COURSE CONTENTS:
2. Charges in pelvis during pregnancy
3. Pelvis diameter
4. Muscle attachment

RECOMMENDED BOOKS:
Snell anatomy . By Snell 7th Addition 2002 (Churchill Living Stone)
Rashid A. Latif Gynecology
COURSE TITLE: APPLIED PHYSIOLOGY AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 7
PART: II
MARKS THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the student about physiology

COURSE CONTENTS:
1. Blood + Blood Disease
2. Menstrual Cycle
3. Normal Changes in Pregnancy
4. Their changes in System Physiology

RECOMMENDED BOOKS:
Rashid A. Lateef Gynaecology

COURSE TITLE: MATERIAL NUTRITION AND CLINICAL PRACTICE
STUDY HOURS: 152
PAPER: 8
PART: II
MARKS THEORY: 100
PRACTICAL: 50
TIME: 1.00 HRS

COURSE OBJECTIVE:
To introduce to the student about Nutrition needs of pregnant women lactating mother

COURSE CONTENTS:
1. Nutritional need of Adolescence girl
2. Nutrition need of pregnant mother
3. Nutrition need of Lactating mother
4. Supplementary Nutrition

RECOMMENDED BOOKS:
Pakistan chilled survival project govt. of Pakistan
COURSE TITLE: PREGNANCY AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 9
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.00 HRS

COURSE OBJECTIVE:
Student about process and progress in pregnancy

COURSE CONTENTS:
1. Conception
2. Development of Foetus
3. Stages of Development
4. Charges during pregnancy
5. Various stages of pregnancy

RECOMMENDED BOOKS:
Where there is no doctor by David Werner in 1979 by Macmillan Press Ltd. London
Rashid A.Lateef Gynaecology

COURSE TITLE: GROWTH MONITORING AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 10
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.00 HRS

COURSE OBJECTIVE:
To introduce to the student about growth monitoring of new born

COURSE CONTENTS:
1. Growth Developemnt
2. Body Weight
3. Liner Growth
4. Weight to length ratio
5. Growth Spruts
6. Growth Chart
7. Dentition, bone, skull development

RECOMMENDED BOOKS:
Nutrition in growth and Health by Mushtaq in 1980 by planning and development division Islamabad.
COURSE TITLE: CLINICAL PRACTICE II  
STUDY HOURS: 228  
PAPER: 11  
PART: II

COURSE OBJECTIVE: 
To introduce to the student clinical practice in child clinic and antinatal clinic

COURSE CONTENTS:  
1. Child Clinic.  2. Antinatal Clinic

COURSE TITLE: COMMUNITY FACTORS AND CLINICAL PRACTICE  
STUDY HOURS: 114  
PAPER: 1  
PART: III

COURSE OBJECTIVE: 
Introduction about values, customs and norms in community about fertility & infertility to the students

COURSE CONTENTS:  
1. Community Customs about pregnancy. 2. Community values about infertility. 3. Community behavior seeking for reproductive health facilities. 4. Gender imbalance and its effects

RECOMMENDED BOOKS:  
Gender Role in community development project by Catherine over halt in 1984 U.S.A on being incharge by R.Mc Alizabath Barton and Mau

COURSE TITLE: DIAGNOSTIC IN MCH AND CLINICAL PRACTICE  
STUDY HOURS: 114  
PAPER: 2  
PART: III

COURSE OBJECTIVE: 
To introduce to the student about diagnostic procedure used in MCH

COURSE CONTENTS:  
Weight/height, Blood investigation, Ultra sound, Photoscopy, Radiological imaging in Gyna/Obs

RECOMMENDED BOOKS:  
Boyd's Pathology 6th Edition  
Lab Diagnosis Rock 7th Edition  
Ultra Sound and Radiology by Mushtaq
COURSE TITLE: PHARMACOLOGY AND CLINICAL PRACTICE
STUDY HOURS: 152
PAPER: 3
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the student about treatment, drugs used in pregnancy and child health

COURSE CONTENTS:
1. Use of drugs in childern, Pregnancy and lactation
2. Drugs passing through placeents, Milk
3. Drugs Contra inuction in pregnancy, lactation and children
4. Drug and supplements used in mother and child.

RECOMMENDED BOOKS:
Pharma Guide 23rd BD (refrel book)

COURSE TITLE: CHILD AND MATERNAL RIGHTS AND CLINICAL PRACTICE
STUDY HOURS: 152
PAPER: 4
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
Introduction to the students about the Mother and Child rights

COURSE CONTENTS:
1. Children rights
2. Mother rights
3. Constitution of Pakistan and Woman and child rights
4. Millennium Goal

RECOMMENDED BOOKS:
Child Health African Medical Ragaces
Practice of Paediatric Asian Teacher 1984 oxford press Karachi
COURSE TITLE: CLINICAL PRACTICE III
STUDY HOURS: 152
PAPER: 5
PART: III

COURSE OBJECTIVE:
Introduction to the students about post natural care and growth monitoring of child

COURSE CONTENTS:
1. Postnatal Care
2. Growth monitoring of child

COURSE TITLE: DISEASES OF NEW BORN AND CLINICAL PRACTICE
STUDY HOURS: 114
PAPER: 6
PART: III

COURSE OBJECTIVE:
Introduce the disease of newborn and their management to the students

COURSE CONTENTS:
1. Factors responsible for disease of new born
2. Disease of new born
3. Management of disease

RECOMMENDED BOOKS:
Diseases of New Born, Schaffer Awary WB Saunders Company Philadelphia London Toronto
Child Health African Foundation
Preventive Medicine for Tropics by M Gillis 3rd addition
COURSE TITLE: NURSING CARE OF MOTHER, NEW BORN AND CLINICAL PRACTICE

STUDY HOURS: 114  MARKS
PAPER: 7  THEORY: 100
PART: III  PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
Introduction about the Nursing Care of Mother and new born to the students

COURSE CONTENTS:
1. Maternal Care during 1st Trimeter
2. Maternal Care during 2nd Trimeter
3. Maternal Care during 3rd Trimeter
4. Maternal Care during post nature
5. Baby Tray and Re-suscitation
6. Apgan Scoring
7. Care of new born Handling Clothing and Feeding.

COURSE TITLE: COMPLICATION OF PREGNANCY AND CLINICAL PRACTICE

STUDY HOURS: 114  MARKS
PAPER: 8  THEORY: 100
PART: III  PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
Introduction about complication in pregnancy to the students.

COURSE CONTENTS:
1. Complication of 1st Trimeter
2. Complication of 2nd Trimeter
3. Complication of 3rd Trimeter
4. Complication of Labour
5. Complication of post nature

RECOMMENDED BOOKS:
1. Rashid A. Lateef Gynaecology
2. Asghari K. Awan, Maternal and Child Health
COURSE TITLE: PERSONAL HIGIENCE, SANITATION AND CLEAN WATER SUPPLY AND CLINICAL PRACTICE

STUDY HOURS: 152 MARKS
PAPER: 9 MARKS
PART: III

THEORY: 100
PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
Introduction about personal Hygiene and clean water, sanitation and its importance to the students

COURSE CONTENTS:
Personal Hygiene
General
During pregnancy
During lactation
Personal Hygiene of child
Sanitation and Disposal of operate and other aspects
Importance of clean water supply

RECOMMENDED BOOKS:
Public Health by K. Park Community Medicine by Ilyas Ansari

COURSE TITLE: PRACTICE IV IN CHILD, NURSERY AND CHILD ICU WARD

STUDY HOURS: 228
PAPER: 10
PART: III

COURSE OBJECTIVE:
To introduce to the student the Child, Nursery and Child and child ICU patient History, assessment investigation and management

COURSE CONTENT:
1. Child ward duty.
2. Nursery ward duty
3. Child ICU ward duty.
(receiving patient, admission, maintenance record, history, assessment, observation, investigation, labeling, provisional diagnosis, treatment and discharge preparation)
COURSE TITLE: FAMILY PLANNING AND CLINICAL PRACTICE
STUDY HOURS: 114 MARKS
PAPER: 1 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce to student about method of contraception

COURSE CONTENTS:
1. Natural methods of Family Planning.
4. Islam and Family planning.
5. Side effect of contraception.
6. Counseling in Family Planning Books

RECOMMENDED BOOKS:
Model of LHWON FPS PHC ministry of health Pakistan in 1994 IPPP Manual of family planning in 1982 geneva
Safe voluntary surgical contraception W.F.H

COURSE TITLE: IMMUNISATION AND CLINICAL PRACTICE
STUDY HOURS: 114 MARKS
PAPER: 2 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce to the students immunity and immunization against diseases

COURSE CONTENTS:
1. Immunity.
2. Immunizable of diseases.
3. Vaccines, their natural and cold chain
4. Vaccines and vaccination schedule.
5. EPI program in Pakistan.
6. Role of immunisation in versus disease.

RECOMMENDED BOOKS:
WHO Modules for Health Worker 2005 geneva Pan to provide immunyzation in 1989 who dester Ltd.
COURSE TITLE: ASPEPSIS, MINOR SURGICAL PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 228

MARKS
PAPER: 3
PART: IV

THEORY: 100
PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce to the student sepsis and asepsis

COURSE CONTENT:
Sepsis.
Asepsis.
Chemical.
Boiling.
Minor injury and their management

RECOMMENDED BOOKS:
Where there is no doctor by david Werner in 1979 the macmillan press Ltd London
Publich Healthby K. Park

COURSE TITLE: INFERTILITY, REPRODUCTION AND CLINICAL PRACTICE

STUDY HOURS: 114 + 76

MARKS
PAPER: 4
PART: IV

THEORY: 100
PRACTICAL: 50
TIME: 1:30 HRS

COURSE CONTENTS:
1. What is reproduction
2. Cause of infertility.
3. Management of infertility

RECOMMENDED BOOKS:
Rashid A. Latif Gynaecology.
Cenveat clinical management of obstetrics gynaecology diseases 9th Edition
COURSE TITLE: CLINICAL PRACTICE V ON ULTRASOUND & RADIOLoGY

STUDY HOURS: 152 Marks:
PAPER: 5 Theory: 100
PART: IV Practical: 50

Time: 1:30 hrs

COURSE OBJECTIVE:
To introduce to the student, the ultrasound and radiology related to pregnancy.

COURSE CONTENT:
1. Ultrasound.
2. Radiology.

COURSE TITLE: BREAST FEEDING AND CLINICAL PRACTICE

STUDY HOURS: 76 MARKS

PAPER: 6 THEORY: 100
PART: IV PRACTICAL: 50

TIME: 1:30 HRS

COURSE OBJECTIVE:
Introduction of Breast Feeding to the Students

COURSE CONTENTS:
1. Breast feeding attitudes.
2. Breast milk its properties and benefits.
3. Lactating management.
4. Encouraging mother in breast feeding.
5. Failure of breast feeding.

RECOMMENDED BOOKS:
Helping mother to breast feeding WHO in 1993 african medical academy research foundation NAIROBI KENYA
Integrated MCH WHO PHC GENEVA
COURSE TITLE: INFANT AND TODDLER CARE AND CLINICAL PRACTICAL
STUDY HOURS: 114 MARKS
PAPER: 7 THEORY: 100
PART: IV PRACTICAL: 50
      TIME: 1:30 HRS

COURSE OBJECTIVE:
To introduce to the student to the infant and toddler care

COURSE CONTENTS:
Infant care
Toddler
Problem of infancy
Growth monitoring
Nutrition in infancy and toddler
Pre school children care
Recommended books
Management of young children
Material and child health by Asghar Awan

COURSE TITLE: MANAGEMENT OF MCH SERVICES AND CLINICAL
PRACTICE
STUDY HOURS: 76 MARKS
PAPER: 8 THEORY: 100
PART: IV PRACTICAL: 50
      TIME: 3HRS

COURSE OBJECTIVE:
Introduction of MCH Services to the Students

COURSE CONTENTS:
1. MCH Services in Community
2. MCH Cente and its Functions
3. TBA’s and Midwifery Services in Community
4. Comprehension MCH Services

RECOMMENDED BOOK:
Primary health care for L.H.V/FMT by Agha Khan university 2005
Mother and Child Health
COURSE TITLE: CLINICAL PRACTICE VI INOBS, GYNAE O.T AND GYNAE WARD, LABOUR ROOM

STUDY HOURS: 228 Marks
PAPER: 9 Theory: 100
PART: IV Practical: 50

Time: 3 hrs

COURSE OBJECTIVE:
Introduction of Practical work in Obst: and Gynae O.T and Wards

COURSE CONTENTS:
1. Gynae Ward
2. O.T Obst: and Gynae Labour room
COURSE OF
B.SC (HONS) PARAMEDIC SCIENCES
IN CARDIOLOGY
### COURSE OF B.SC (HONS) IN CARDIOLOGY (ELECTIVE)

<table>
<thead>
<tr>
<th>S/No.</th>
<th>Course Title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anatomy I and clinical practice on ECG</td>
<td>152+76</td>
<td>1</td>
<td>II</td>
</tr>
<tr>
<td>2.</td>
<td>Physiology I and clinical practice on ETT</td>
<td>114+114</td>
<td>2</td>
<td>II</td>
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<tr>
<td>3.</td>
<td>Anatomy 2 and clinical practice in OPD</td>
<td>152+228</td>
<td>3</td>
<td>II</td>
</tr>
<tr>
<td>4.</td>
<td>Physiology 2 and clinical practice in ICU</td>
<td>228+228</td>
<td>4</td>
<td>II</td>
</tr>
<tr>
<td>5.</td>
<td>Pathology I and clinical practice in ICU</td>
<td>228+114</td>
<td>1</td>
<td>III</td>
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<tr>
<td>6.</td>
<td>Pharmacology I and clinical practice in Cardiology</td>
<td>190+114</td>
<td>2</td>
<td>III</td>
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<tr>
<td>7.</td>
<td>Clinical practice in CCU</td>
<td>228</td>
<td></td>
<td>III</td>
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<tr>
<td>8.</td>
<td>Pathology 2 and clinical practice on Holter</td>
<td>190+76</td>
<td>3</td>
<td>III</td>
</tr>
<tr>
<td>9.</td>
<td>Pharmacology 2 and clinical practice</td>
<td>152+228</td>
<td>4</td>
<td>III</td>
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<tr>
<td>10.</td>
<td>Pathology 3 and clinical practice</td>
<td>228+152</td>
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<td>IV</td>
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<tr>
<td>11.</td>
<td>Pharmacology 3 and clinical</td>
<td>228+152</td>
<td>2</td>
<td>IV</td>
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<tr>
<td>12.</td>
<td>Cardiac cath lab-I and clinical practice</td>
<td>114+152</td>
<td>3</td>
<td>IV</td>
</tr>
<tr>
<td>13.</td>
<td>Cardiac cath lab-II and clinical practice</td>
<td>114+152</td>
<td>4</td>
<td>IV</td>
</tr>
</tbody>
</table>

Part I weeks/study hours = 39/1092
Part II weeks/study hours = 38/1292
Part III weeks/study hours = 38/1292
Part IV weeks/study hours = 38/1292
Total weeks / study hours = 153/4968
Vacation for each examination preparation = 2 weeks
Vacation for each examination = 4 weeks
Vacation in each part = 8 weeks
COURSE TITLE: CARDIAC ANATOMY I AND CLINICAL PRACTICE ON ECG

STUDY HOURS: 152+76 MARKS
PAPER: 1 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce to the student the significance of cardiac anatomy and electrocardiography

COURSE CONTENTS:
1. Introduction
2. Surface Anatomy
3. Thoracic Anatomy
4. Internal structure of heart
5. Valve of the Heart
6. Anatomy of Aortic Valve
7. Anatomy of Mitral Valve
8. Anatomy of Pulmonic Valve
9. Anatomy of Tricuspid Valve
10. Normal ECG.
11. Heart rate, Rhythm
12. Heart axis.
13. Abnormal ECG

RECOMMENDED BOOKS:
Clinical Anatomy by Snell, in 2000 by Churchill living stone
Gray anatomy by Williams warwick Dysone banister in 1980 by Churchill living stone
COURSE TITLE: CARDIAC PHYSIOLOGY I AND CLINICAL PRACTICE ON ETT

STUDY HOURS: 114+114

MARKS

PAPER: 2

THEORY: 100

PART: II

PRACTICAL: 50

TIME: 3HRS

COURSE OBJECTIVES
To introduce students basics of Cardiac Physiology and knowledge about ETT and practice on ETT

COURSE CONTENT:
1. Introduction
2. Function of Mitral Valve
3. Function of Aortic Valve
4. Function of Pulmonic Valve
5. Pulmonary Circulation
6. Function of CardaeTendenae
7. Function of Cardiac Muscles
8. Function of Atria
9. Function of Ventricles
10. Introduction to E.T.T (Exercise Tolerance Test)
11. Precautions performing E.T.T. i.e.

RECOMMENDED BOOKS:
Anatomy and physiology by ross and willison in 2003 by Churchill living stone
Physiology Gyton physiology in 1994 by WR sounder company Hercourt Brace Philadelphia PA
COURSE TITLE: CARDIAC ANATOMY II AND CLINICAL PRACTICE IN OPD

STUDY HOURS: 152+228

MARKS
PAPER: 3
PART: II
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce students Gross Cardiac Anatomy and clinical practice in cardiac OPD

COURSE CONTENTS:
1. Introduction
2. Gross Anatomy
3. Blood supply of the Heart, Venous drainage
4. Systemic Circulation
5. Pulmonary Circulation
6. Function of Cardiac Muscles
7. Function of Cardae Tendenae
8. Function of Atria
9. Function of Ventricles
10. Patient receiving and attending in OPD
11. History taking and his principal
12. Examination and his principal
13. Cardaic investigation
14. Assessment
15. Advice and preparation the patient for admission

RECOMMENDED BOOKS:
Clinical Anatomy by Snell, in 2000 by Churchill living stone
Gray anatomy by Willians warwich Dysone bansister in 1980 by Churchill living stone

REFERRAL BOOKS:
RJ Last anatomy by RMH Meminn in 1995 by Churchill living stone
COURSE TITLE:  CARDIAC PHYSIOLOGY II AND CLINICAL PRACTICE IN CARDIOLOGY

STUDY HORUS:  228+228 MARKS
PAPER:  4 THEORY: 100
PART:  II PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce students Cardiac Physiology in detail and clinical practice in Cardiology

COURSE CONTENTS:
1. Functions of Cardiac Muscles.
2. Functions of Cardiac Tendae.
3. Physiology of Right Heart.
4. Physiology of Left Heart.
5. Electrical activity of Cardiac Muscle.
6. Physiology of S.A Node.
7. Physiology of A-V node
8. Bundle of His
9. Left and Right Bundle Branch
10. Purkenje System
11. Ward Management
12. Patient record
13. Admission of the patient
14. History and his principal
15. General, special investigation
16. Assessment of the patient
17. Preparation of the patient for cardiac surgery procedures
18. Preoperative medication
19. Pre and post up care
20. Preparation for discharge
21. B.P and temperature record

RECOMMENDED BOOKS:
Anatomy and physiology by Ross and willison in 2003 by Churchill living stone
Physiology Gyton physiology in 1994 by WR sounder company
Hercourt Brace Philadephia PA
COURSE TITLE: CARDIAC PATHOLOGY AND CLINICAL PRACTICE IN CCU
STUDY HOURS: 228+114
MARKS
PAPER: I
THEORY: 100
PART: III
PRACITCAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce students’ different cardiac disease and Patho physiology and clinical practice in CCU

COURSE CONTENTS:
1. Introduction to cardiac pathology
2. Acute Myocardial infarction
3. Old myocardial infarction
4. Post M. I angina
5. Iscahemia
6. Angina Pactoris
7. Ward management and patient record
8. History and his principal
9. Investigation and assessment
10. Emergency treatment of cardiac patient
11. Emergency cover of cardiac patient
12. Hypertension and hypotension knowledge and management
13. Diabetic patient management and care in CCU
14. Preparation for discharge

RECOMMENDED BOOKS:
ROBBIN pathology by Cotran Kumar Robbins in 1989 by WB saunders
COURSE TITLE: CARDIAC PHARMACOLOGY I AND CLINICAL PRACTICE IN CARDIOLOGY

STUDY HOURS: 190+114

MARKS

PAPER: 2

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3 HRS

CORUSE OBJECTIVES:
Knowledge about indications, Contraindications, dosage & preparation of Cardiac Medicine and clinical in Cardiology unit

COURSE CONTENTS:

Vasodilators
Indications, Contra indications, Dosage, Preparation

Beta Blockers
Indications, Contra indications, Dosage, Preparation

ACE inhibitors
Indications, Contra indications, Dosage, Preparation

Cardiac Glycocide
Indications, Contra indications, dosage, Preparation

Ward management and patient record

History and his principal

Investigation and assessment

Emergency treatment of cardiac patient

Emergency cover of cardiac patient

Hypertension and hypotension knowledge and management

Diabetic patient management and care in CCU

Preparation for discharge

RECOMMENDED BOOKS:
Clinical Pharmacology by Shamim Chazala in 2003 by Khurram and brother Karachi
Lippincot Pharmacology by Mycek 2nd edition Lipincot raven
COURSE TITLE: CARDIAC PATHOLOGY II AND CLINICAL PRACTICE ON HOLTER AND B.P

STUDY HOURS: 190+190

MARKS

PAPER: 3

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3HRS

COURSE OBJECTIVES:
To introduce students’ other cardiac disease and their treatment and clinical practice on 24 hours Holter machine and B.P monitoring

COURSE CONTENTS:
1. Rheumatic heart Disease
2. Ischaemic heart disease
3. Congestive heart Failing
4. Cardiomyopathies
5. Pericardial Disease.
6. 24 hrs holter monitoring
7. 24 hrs B.P recording
8. Arrhythmias & PVCc
9. Holter Machine, introduction, Operating, Function and precaution

RECOMMENDED BOOKS:
ROBBIN pathology by Cotran Kumar Robbins in 1989 by WB saunders
Pathology by Water Israel by S.W Water in 1996 by Churchill living stone

COURSE TITLE: PHARMACOLOGY II AND CLINICAL PRACTICE

STUDY HOURS: 152+114

MARKS

PAPER: 4

THEORY: 100

PART: III

PRACTICAL: 50

TIME: 3HRS

COURSE OBJECTIVES:
Knowledge about indication, Contra indications, dosage and Preparation of Cardiac Medicines and clinical practice in cardiology OPD

COURSE CONTENTS:
1. Diuretics, Anti angina drugs, Anti Arrhythmic agents
2. Antropes, Anti hypertensive drugs, OPD management
3. How to deal with Cardiac Patient First come to OPD
4. How to deal outpatient Department
5. Taking history of patient
6. Knowledge about taking blood pressure

RECOMMENDED BOOKS:
Clinical Pharmacology by Shamim Ghazala in 2003 by Khurram and brother Karachi
Lippincot Pharmacology by Mycek 2nd edition Lipincot raven
COURSE TITLE: PATHOLOGY III AND CLINICAL PRACTICE
STUDY HOURS: 228+152
MARKS
PAPER: 1
THEORY: 100
PART: IV
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce students other Congenital hear disease and clinical practice on TTE

COURSE CONTENTS:
1. Introduction to Cardiac pathology
2. Congenital heart Disease CHD i.e. Ventricle septal defect, Atrial septal defect, TOF, PDA, TGA etc
3. Rheumatic heart disease mitral stenosis & regurgitation
4. Aortic Stenosis & regurgitation
5. Echo cardiography machine
6. Operating echo machine
7. Trnnssthorasic and trans esophageal echo
8. Operating echo machine

RECOMMENDED BOOKS:
Bruanwald by Uqene branwaled in 2005 by Elsevier Sawders

COURSE TITLE: PHARMACOLOG III AND CLINICAL PRACTICE
STUDY HOURS: 228+152
MARKS
PAPER: 2
THEORY: 100
PART: IV
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
Knowledge about Indications, Contraindications, dosage and Preparation of Cardiac Medicine and clinical practice on TTE

COURSE CONTENTS:
1. A.C.E inhibitors
2. Cardiac Glycocides
3. Dopamine, Dobatrex, Dobutamine, Adrenaline, Nor Adrenaline
4. Trans oesophageal echo under supervision of consultant cardiologist
5. Knowledge about 2D eco, motionmode or M-Mode
6. Use of Doppler Echo-1 colour Doppler, continuous wave Doppler, pulse wave Doppler

RECOMMENDED BOOKS:
Clinical Pharmacology by Shamin Ghazala in 2003 by Khurram and brother Karachi Lippincot Pharmacology by Mycek 2nd edition Lipincot raven
Echo made easy by same Khaddoura in 2002 by Elsevier sciences
COURSE TITLE: CARDIAC CATH LAB I AND CLINICAL PRACTICE
STUDY HOURS: 114 + 152
PAPER: 3
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce to the student the significance of cath machine and different invasive procedures.

COURSE CONTENTS:
Cath machine: maintenance, care, operating, uses
Invasive procedures, Angiolography

RECOMMENDED BOOKS:
Echo made easy by sam Khaddoura in 2002 by Elsevier sciences
Braunwald by Uqene branwaled in 2005 by Elsevier Sawders

COURSE TITLE: CARDIAC CATH LAB II AND CLINICAL PRACTICE
STUDY HOURS: 114 + 152
PAPER: 4
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To introduce to the student about angioplasty, valvulo plasty procedure, PTMC, cardio cath

COURSE CONTENTS:
Percutaneous trans luminal mitral valve
Commesurgotmy
Aortic and pulmonic, valvulo plasty
Percutaneous luminal coronary, angio plasty, cardiac cath for diagnosis of various congenital disease
Ward management and patient record
History and his principal
Investigation and assessment
Provisional diagnosis / treatment of cardiac patient
Differential diagnosis of cardiac patient
Hypertension and by hypotension knowledge and management
Diabetic patient management and care in Cardiology ward
Preparation for discharge

RECOMMENDED BOOKS:
Echo made easy by sam Khaddoura in 2002 by Elsevier sciences
Brauwanwald by Uqene branwaled in 2005 by Elsevier Sawders