Curriculum/ Syllabi of B.sc (Hons) Paramedical Sciences

RECOMMENDED BY THE ACADEMIC COUNCIL IN ITS 2nd MEETING HELD ON 30-10-2008 & APPROVED BY THE SYNDICATE IN ITS 3rd MEETING HELD ON 15-11-2008
## CONTENTS

<table>
<thead>
<tr>
<th>S. No</th>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Introduction</td>
<td>01</td>
</tr>
<tr>
<td>2.</td>
<td>Basic Medical Sciences and other related subject</td>
<td>05</td>
</tr>
<tr>
<td>3.</td>
<td>Physiotherapy</td>
<td>20</td>
</tr>
<tr>
<td>4.</td>
<td>Pathology</td>
<td>49</td>
</tr>
<tr>
<td>5.</td>
<td>Anesthesia</td>
<td>62</td>
</tr>
<tr>
<td>6.</td>
<td>Health</td>
<td>73</td>
</tr>
<tr>
<td>7.</td>
<td>Radiology</td>
<td>85</td>
</tr>
<tr>
<td>8.</td>
<td>Dental</td>
<td>101</td>
</tr>
<tr>
<td>9.</td>
<td>Surgery</td>
<td>114</td>
</tr>
<tr>
<td>10.</td>
<td>Neurophysiology</td>
<td>125</td>
</tr>
<tr>
<td>11.</td>
<td>Pulmonology</td>
<td>138</td>
</tr>
<tr>
<td>12.</td>
<td>Dialysis</td>
<td>148</td>
</tr>
<tr>
<td>13.</td>
<td>Gastroenterology</td>
<td>160</td>
</tr>
<tr>
<td>14.</td>
<td>Mother and child health care (MCH)</td>
<td>170</td>
</tr>
<tr>
<td>15.</td>
<td>Cardiology</td>
<td>186</td>
</tr>
</tbody>
</table>
INTRODUCTION

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)

3. Bachelor of Paramedic Sciences program / duration will be 4 years approved by academic council and syndicate KMU.

3.1 The program will be conventional annual system; to start with however, it will eventually convert to semester system.

3.2 It shall spread over 4 parts of 38 weeks intensive course work in each part.

3.3 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
4. Each student has to complete 153 weeks, which includes practical work in the relevant specialty.

4.1 Each student is required to attend regularly each class in the curriculum and to perform satisfactory the work of the class.

4.2 100% attendance is required for examination otherwise he/she will not be entitled for examination in that part and will be informed accordingly.

4.3 All study hours should be distribute in to courses of basic sciences professional, specialty profession and practical profession to produce quality teaching and learning.

5. There will be four parts.

5.1 Part-1 will be common to all specialties and will comprise of basic medical sciences and other related subjects.

5.2 Subsequent 3 parts will comprise of specialized courses in the relevant specialty.

6. Eligibility criteria for admission.
   a. FA with one year certificate course from NWFP Medical Faculty or any recognized institution + Five year regular Govt. Service in health department including 2 years in relevant field.
   b. Diploma in relevant specialty from NWFP Medical Faculty or equivalent qualification from any recognized institution equallace certificate.
   C. F.Sc or equivalent qualification with 2 years regular Govt. Service in relevant field + 1 year certificate from NWFP medical faculty.

6.2 Fresh candidates: 40% of the seats
   a. F.Sc Pre-Medical at least with 50% marks

6.3 There will be maximum of 100 seats, which can be adjusted according to need for every specialty. The admission for in service candidate will be on the basis of seniority cum fitness.

7. The course will be morning / evening in the beginning the morning course will be held and will increasing facilities, evening shift will be added according to need / requirement. In the beginning admission will be on yearly basis and will be biayearly ultimately.

8. In conventional annual system following will be the scheme of study and exam.

   **Curriculum**

   There will be 2 professional phases.

8.1 1st professional: this include courses of basic medical sciences (compulsory subjects) to be taught of 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.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Anatomy</td>
<td>150</td>
</tr>
<tr>
<td>ii. Physiology</td>
<td>150</td>
</tr>
<tr>
<td>iii. Pathology</td>
<td>100</td>
</tr>
<tr>
<td>iv. Pharmacology</td>
<td>100</td>
</tr>
<tr>
<td>v. Biochemistry</td>
<td>100</td>
</tr>
</tbody>
</table>
vi. Islamiyat /Pak Study 150  
vii. Public Health and Epidemiology 150  
viii. Research Methodology 100  
ix. Sociology 100  
x. Biostatistics and Basic Community Skill 150  

xi  Ethic, management and computer skill  150

The basic professional is compulsory to pass however the student will get admission to next year as the specialty is skill based and needs bed side experience also supplementary period before promotion.  
Note: No promotion before passing the part-I

9.2  2nd Professional:

This phase includes specialty and practical professional courses to be taught of part-2, part-3 and part-4 covering 3876 studies hours with 114 weeks, two weeks for preparation and 4 weeks for preparation and 4 weeks for weeks for each examination. Papers and marks will be as follows.

Part-II  
a. Paper-1 ________ 300  
b. Paper-2 ________ 300  
c. Paper-3 ________ 300  
d. Paper-4 ________ 300

Part-III  
a. Paper-1 ________ 300  
b. Paper-2 ________ 300  
c. Paper-3 ________ 300  
d. Paper-4 ________ 300

Part-IV  
a. Paper-1 ________ 300  
b. Paper-2 ________ 300  
c. Paper-3 ________ 300  
d. Paper-4 ________ 300

Note: All specialties have the same number of paper but technology will be added before the paper number e.g. physiotherapy paper-1 pathology paper-1.

The total study hours and marks will be:

<table>
<thead>
<tr>
<th>Study Hours</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1092</td>
<td>1400</td>
</tr>
<tr>
<td>3876</td>
<td>3600</td>
</tr>
</tbody>
</table>

9.3. The already held bachelor courses and on going courses will tailor-made and will hold credit on the bases of carried over facilities course attendance and study hours will be given accordingly.

Mode of Examination:

a. The examination will be conducted by the 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 2\textsuperscript{nd}, 3\textsuperscript{rd} and 4\textsuperscript{th} 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. The 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.

11. The grading system will be as follow.

Grading under annual system

1\textsuperscript{st} division _________ 60% and above

2\textsuperscript{nd} division _________ 50% and above

Passed marks _________ 50%

Failed marks _________ below 40%

Any those who gets 80% or marks will get distinction certificate.

**Note:** In all Bachelor program minimum passing marks are 50% with No Aggregate.

12. The honoraria will be paid as per KMU rules.

13. Those students who have already qualified will be given credit benefit at equivalent courses has already been covered.
Basic Courses (Compulsory) of B.Sc (Hons) Paramedical Sciences
<table>
<thead>
<tr>
<th>S. No</th>
<th>Course Title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anatomy</td>
<td>117</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Physiology</td>
<td>117</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pathology</td>
<td>78</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pharmacology</td>
<td>78</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Bio-Chemistry</td>
<td>78</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Islamiyat</td>
<td>39</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pak Study</td>
<td>39</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Public Health</td>
<td>78</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Basic Epidemiology</td>
<td>39</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Research Methodology</td>
<td>78</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sociology</td>
<td>39</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Bio-Statistics</td>
<td>39</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Basic Community Skill</td>
<td>39</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Management &amp; Ethics</td>
<td>39</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Computer Skills Practice in Computer Lab</td>
<td>39+117</td>
<td>11</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Demonstration</td>
<td>39</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Part 1 week / study hours = 39 / 1092
Vacations for each examination preparation = 2 weeks
Vacations for each examination = 4 weeks
Vacations in each part = 8 weeks
Total weeks / Study Hours = 52 / 1092
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:
Snell’s clinical Anatomy (Text Book) by Snell 7thg Edition 2000 published by Churchill Living Stone

COURSE TITLE: PHYSIOLOGY

STUDY HOURS: 114
PAPER: 2
PART: 1

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
PAPER: 5
PART: 1

MARKS
THEORY: 100
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
PAPER: 6 MARKS
PART: 1 THEORY: 100
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 stream of Parents 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 MARKS
PAPER: 6 THEORY: 100
PART: 1 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: 7
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
PAPER: 7
PART: 1
MARKS
THEORY: 100
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
PAPER: 8
PART: 1
MARKS
THEORY: 100
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
i. Relevance ii. Avoidance of duplication iii. Physibility iv. Political acceptability
v. Applicability vi. Cost efficiencies vii. Ethical consideration and scales for rating research topic mentioned above
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, work 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 lange 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:  SOCIOLOGY

STUDY HOURS:  39  MARKS  39
PAPER:  9  THEORY: 100
PART:  1  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
   illness 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 Turonto

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 MARKS
PAPER: 10 THEORY: 100
PART: 1 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, sampling 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 gimm 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:** 10  
**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

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**COURSE TITLE:** COMPUTER SKILLS  
**STUDY HOURS:** 39+117  
**MARKS**  
**PAPER:** 11  
**PRACTICAL:** 50  
**PART:** 1  
**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

COURSE TITLE: ETHICS AND MANAGEMENT
STUDY HOURS: 39 MARKS
PAPER: 11 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
Courses of B.Sc (Hons) Paramedical Sciences
In Physiotherapy
<table>
<thead>
<tr>
<th>S. No</th>
<th>Course Title</th>
<th>Study Hrs</th>
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<tr>
<td>1.</td>
<td>Anatomy 1</td>
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Part 1 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 I

STUDY HOURS: 76
PAPER: 1
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce the students about the human anatomy related to the physiotherapy and its application in management and rehabilitation of patient.

COURSE CONTENTS:
1. Skeletal System
Classification of bones, important bones, classification of ligaments, important ligaments, joints, classification and important joints.
2. Muscular system
Types of muscles, attachments of muscles, innervations of muscles, mechanism of muscular contraction.
3. Respiratory System
Nose, nasopharynx, larynx, trachea, bronchi, lungs & its lobes
4. Nervous System
Brain & Spinal cord, Spinal nerves & plexuses

RECOMMENDED BOOKS:
B.D Chaurasia Anatomy
Gray’s Anatomy, (Reference Book) written by Roger War Wick Peter L. Williams in 1973, Publishing by Lang Man Group LTD

COURSE TITLE: ANATOMY-II

STUDY HOURS: 76
PAPER: 1
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the students the significance of the human anatomy related to the physiotherapy and his application of rehabilitation.

COURSE CONTENTS:
Urinary system
Kidney
Ureter
Urinary bladder
Urethra
Genital system
Male genital organs
Female genital organs
Digestive system
  Mouth
  Esophagus
  Stomach
  Intestine (small, large)
  Rectum

Endocrine system
  Pitutalory gland
  Thyroid gland
  Suprarenal gland

Special senses
  Eye
  Ear
  Nose skin

RECOMMENDED BOOKS:
Clinical Anatomy test books by Snell 7th Edition 2000 by CHURCHIL living stone
Gray’s Anatomy; (Referral books) by Roger War Wich Peter L. Williams in 1973 by Langman group LTD
B.D Chauresia (Referral Books)

COURSE TITLE: PHYSIOLOGY –I

STUDY HOURS: 76
PAPER: 2
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVE:
To introduce to the students to the significance of human body system and system function related to physiotherapy

COURSE CONTENTS:
1. Bones & Joints
   Composition & functions
2. Muscles:
   Types & functions
3. Vascular system:
   Introduction
   Blood circulation
4. Respiration:
   Physiology of respiration
   Effects of exercise on respiration
5. Nervous system:
   Functions of different parts of brain and spinal cord
RECOMMENDED BOOKS:
Essential of medical physiology, Vol, 1 (Mustafa) 1994 MEMIT
MEDICAL PHYSIOLOGY (Shamim)
GUYTON PHYSIOLOGY (Reference Books) 1994 W.R Saunders Company
Hercourt Brace, Jovanovichinc Philadelphia P.A

COURSE TITLE: PHYSIOLOGY II

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COURSE OBJECTIVES:
To introduce to the students the significance of human body and system function related to physiotherapy

COURSE CONTENTS:
Urinary system
Kidney
Ureter
Urinary bladder
Urethra
Genital system
Male genital organs
Female genital organs
Special senses
Eye
Nose
Ear
Skin
Digestive system
Mouth
Esophagus
Stomach
Intestine (small, large)
Rectum
Endocrine system
Pitutatory gland
Thyroid gland
Suprarental gland

RECOMMENDED BOOKS:
The test book of medical physiology (GVYTON AC) 1994 W.R Sounders Company Hercourt
Brace Jovanovichinc Philadelphia P.A
REFERAL BOOKS:
Essential of medical physiology, Vol I, II (Mustafa Ahmad) 1994 MEMIT
MEDICAL HYSIOLOGY (Shamin) referral Book

COURSE TITLE: KINSIOLOGY I AND CLINICAL PRACTICE

STUDY HOURS: 114+76   MARKS
PAPER 3          THEORY: 100
PART: II        PRACTICAL: 50
                 TIME: 1 HR

COURSE OBJECTIVE:
To introduce to the students the significance of the discipline of mechanism of body movement, body muscle contraction, muscle grading, posture, re-adduction or walking, which is applied for rehabilitation.

COURSE CONTENTS:
INTRODUCTION:
Definition of kinesiology, definition of rehabilitation, development of the work, historical survey, component parts of rehabilitation, professional etiquette, maintenance of records, kinesiology in patients care.

Muscle
Composition of muscle, mechanism of contraction, muscle tone, postural tone, classification of muscles according to architecture and shape, classification of muscles according a group action, clinical application of group action, muscle work and its types, clinical application of concentric, eccentric and static muscle works, types of muscle contraction, ranges of muscle work, clinical application of ranges of muscle wok and limiting factors, muscle action.

RECOMMENDED BOOKS:
The principle of exercise therapy (Gardiner M. D ) 1981 BELL
And Hyman, London, UK
Progressive exercise therapy in rehabilitation and physical education by (Colsonj) 19100 HOHN WRIGHT AND SONS LTD. BRISTOL UK.

COURSE TITLE: BIOMECHANICS-1 & CLINICAL PRACTICE

STUDY HOURS: 114+76   MARKS
PAPER 3          THEORY: 100
PART: II        PRACTICAL: 50
                 TIME: 1 HR

COURSE OBJECTIVE:
To introduce to the student the significance of joints structure & function. Type of joint, measurement of joints & application on his rehabilitation.

COURSE CONTENT:
Structure & function of joints, joint cavity, joints capsule, cartilage, synovial membrane & synovial fluid, difference between ligaments & tendons, role of joints structure in joint stability & mobility.
POSITION:
   a. Fundamental position
   b. Derived position
   c. Effects & uses
   d. Dinesiological application of starting & derived position

4. FORCE
   a. Definition of force
   b. Moments of force
   c. Composition of forces
   d. Parallelogram of forces

5. PRINCIPLES OF STABILITY
   a. Base support
   b. Centre of gravity
   c. Line of gravity
   d. Reflexes and receptors
   e. Equilibrium & its types
   f. Factors on which stability is based.

6. LEVERS
   Classification of lever
   Principles of lever
   Orders of lever

4. GRAVITY
   Effects of gravity
   Centre and line of gravity
   Effect of center of gravity on coordination
   And balance of human body

8) PRACTICAL JOURNAL WORK
   Axis and planes of movements
   Fundamental starting and derived position
   Joint structures and functions
   Classification of muscle fibers

RECOMMENDED BOOKS:
   Basic bio-mechanics of the skeletal system (Frankel VII and Norkim)
   1980 Lea and Feibiger, Philadelphia PA
   The principal of Exercises (M. Dina Gardiner) 1981 Bill and Hyman, London UK
   Joint motion method of measuring and recording (Stephonl)
   1990 CHURCHIL Living Stone London UK

COURSE TITLE: MANIPULATIVE METHOD I AND CLINICAL PRACTICE
STUDY HOURS: 114+76
PAPER: 3
PART: II
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1HR
COURSE OBJECTIVE:
To introduce the student the knowledge of Basic Exercises his classification Anatomical, manipulative techniques and Physiological Application and Classification of Movements.

COURSE CONTENTS:
Movement:
Definition of movement, Axis and Planes of Movement, Normal Movement with Anatomical and Physiological Application, Classification of Movement

ACTIVE AND PASSIVE MOVEMENT
SUB-DIVISIONS OF ACTIVE MOVEMENT:
Active free movement
Active assisted movement
Active assisted and resisted movements
Active resisted movements
SUB-DIVISION OF PASSIVE MOVEMENTS:
Relaxed passive movement
Passive accessory movement
Forced passive movement
Techniques effect and uses of all above movement

MANIPULATIONS
1. By manual
2. By mechanical
   Cervical traction
   Lumber traction

(Its effects uses, contra indication and precaution)

RECOMMENDED BOOKS:
The principal of exercises (M. Dina Gardiner) 1981 Bill and Hyman London Uk

COURSE TITLE: ELECTROTHERAPY-1 AND CLINICAL PRACTICE
STUDY HOURS: 114+114 MARKS
PAPER: 4 THEORY: 100
PART: II WEIGHT-AGE 6+4
          PRACTICAL: 50
          TIME:1.30HRS

COURSE OBJECTIVES:
To introduce to the significance of the current including low and high frequency current

COURSE CONTENTS:
Introduction and general consideration Types of current used (1) low frequency current (2) high frequency current
1. **Low frequency current**
   a. Faradic current
   b. Sinusoidal current
   c. Galvanic current
   d. Superimposed current
   e. Modified direct current
   f. Diadynamic
   g. Interferential current
   h. Bio feedback
   i. TENS
   j. Electrodiagnosis

1. **High frequency current (brief introduction)**
   a. Short wave diathermy
   b. Micro wave diathermy
   c. Ultrasound

2. **Faradic and sinusoidal current**
   Introduction and definition, physiological effect, therapeutic effects uses, methods and technique of application, care of equipments, electrodes and reber starps, dangers and precautions.
   a. Earth shocks in apparatus working or mains
   b. Antiseptic technique and precautions

**Galvanic:**
Introduction and definition, physical effect, physiological effects and uses, techniques and methods of application.
   a. Bath treatments
   b. Size and position of electrodes
   c. Ionization
   i. Therapy of medical ionization
   ii. Proof of medical ionization
   iii. Effect of various ions
      a. Iodine
      b. Salicylate
      c. Chlorine
      d. Albucid
      e. Zinc
      f. Copper
      g. Histamine
      h. Carbachol
      i. Amichol
      j. Renotin
      k. Novocain
      l. Lithium

**Technique of medical ionization:**

*general technique*
   a. Wounds b. sinususes c. The nose d. The Eye e. The Ear, surgical ionization
RECOMMENDED BOOKS:
Fundamental of physiotherapy by Parveen Kumar, Parvathiraju, Venkatarsad 1st Edition in 2005 Jypee Brother Medical Publisher (P) Ltd New Delhi
Clayton’s electrotherapy and actinotherapy (PAULINEM. SCOTT) 1997 the William Co. Baltimore London
Electrotherapy and electro diagnosis (SIDNEY LICHT) 1998 CHURCHIL living Stone London

LIST OF ELECTROTHERAPY PRACTICAL LOW FREQUENCY CURRENT
1. Safety rules
2. Pads making
3. Carbonized electrodes
4. Metal electrodes
5. Terminals
6. Leedes and wires
7. Fixing the electrode
8. Using rubber straps
9. Using adhesive tapes
10. Using suction cups

FARADIC CURRENT:
1. SAFETY RULES

MOTOR POINT:
A. UPPER Extremity muscles
B. Lower extremity muscles
C. Bach muscles
D. Face muscles
E. Pelvic floor muscles

2. Group action muscles
   A. Quadriceps
   B. Claf
   C. Dorsiflexors of foot
   D. Trapeze
   E. Flexors or wrist
   F. Extensors of wrist
   G. Pelvic floor muscles

3. FARADIC BATHS (monopolar & bipolar):
   a. Flexors of wrist
   b. Extensors of wrist
   c. Archies of foot, tongitudinal and transverse

4. Faradism Under Pressure:
   a. Upper extremity
   b. Lower extremity

5. FARADISM UNDER TENSION:
   a. Wrist flexors and extensors
   b. Quadriceps
   Constant galvanic (direct) current
   Safety rules

1) Anodal Rules
Dosage-duration of treatments
   A. Brachial neuralgia
   B. Tennis elbow
C. Facial neuritis / neuralgia
D. Frozen shoulder
E. Sprained ankle

1. **Chathodal Galvanism**
   Dosage-duration of treatment
   - A. Brachial neuralgia
   - B. O.A knees
   - C. Tennis elbow
   - D. Sprained ankle
   - E. Sprained wrist

2. **Galvanic baths (monopolar)**
   A. Brachial neuritis / neuralgia

   **Calf muscle pull**
   B. Ankle sprain

   **C. Tired feet**
   (bipolar)
   - A. Tennis elbow
   - B. Sprained wrist
   - C. Sprained ankle
   - D. Metatarsalgia

Advantages and disadvantages of Monopolar and Bipolar baths, Selection of Methods
Ion tophoresis
   The method
   The proof
Seadative ions
   - A. Salicylate ions
   - B. Novocaine/ procaine ions

Counter-irritants ions.
   - Copper sulphate ions
   - Carbachol ions
   - Histamine ions
   - Renotin (ethyle-methyle hydrochloride) ions

Abiotic ions:
   - Zinc sulphate ions

**Interrupted galvanic (direct) current**

Characteristic
Wave forms and their significance
Stimulation of denervated muscles:
   - A. Facial nerve palsy
   - B. Median nerve palsy
   - C. Ulnar nerve palsy
   - D. Radial (spiral) nerve palsy
   - E. Erb’s palsy
   - F. Klumpke palsy
   - G. Lateral popliteal nerve parsy
COURSE TITLE: ACTINOTHERAPY-1 AND CLINICAL PRACTICE

STUDY HOURS: 114+76 MARKS

PAPER: 4 WEIGHT-AGE 3+2

PART: II THEORY: 100

PRACTICAL: 50

TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce to the student the significance of physical effect and sources of heat absorption of heat in skin and muscles

COURSE CONTENTS:
ACTINOTHERAPY
Definition of action therapy, physical effects of heat, source of heat, absorption of heat in skin and muscle

Infra red rays
General consideration, source of infra red rays physiological effect of infra red rays, therapeutic uses of infra red rays, technique of irradiation, tunnel, bath uses, dangers contra indication and precaution.

Ultraviolet rays
Introduction to ultra violet rays, their penetration in the skin, their physiological effects on the human body therapeutic uses, local effects, local irradiation, special technique, dangers and precaution of ultraviolet rays irradiation to the human body.

Heliotherapy
Definition of heliotherapy, its effects and uses, local technique of heliotherapy, its dangers and precaution

Wax therapy
Technique of application, percentage of different constituents temperature of wax bath.

Laser therapy
Theory and production of laser treatment, physiological effects, therapeutic uses, general rules of application, precaution, contraindication

RECOMMENDED BOOKS
CLAYTON’S electrotherapy and actinotherapy (PAULINEM. SCOTT) 1997 the William Co. Baltimore London
Practical electrotherapy for physiotherapy (Brenda S Savage 1996 Baillieerstindal London Staindal London)
COURSE TITLE: KINEASOLOGY II AND CLINICAL PRACTICE

STUDY HOURS: 114+76

PAPER: 1

PART: III

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30HRS

COURSE OBJECTIVES:
To introduce to the students the significance of the discipline of mechanism of body movement, body muscle contractor, muscle grading, posture, re-adduction of walking, which is applied for rehabilitation

MUSCLES GRADING
Classification of grades
Principles of muscle testing
m.t. of upper and lower limes

Pelvic tilt
Definition of anterior and posterior pelvic tilt
Normal pelvic tilt and its maintenance
Causes of anterior and posterior pelvic tilt
Re-education of pelvic tilt

Posture
Correct and incorrect posture
Postural muscle
Maintenance of posture
Postural training and control
Re-education of muscle

Definition and explanation of flaccid and atonics muscles
Principles of muscle re-education method of re-education, includes through progressive resistance technique and circuit training programme like

1) Fixed time circuit (f.t.circuit)
2) Fixed repetition circuit (f.r.circuit)
3) Beginners circuit with progression by using:
   4) Manual
   5) Sling suspension
   6) Polished surface
   7) Pool therapy

RECOMMENDED BOOKS:
The principle of exercise therapy (Gardiner M.D) 1981 Bill and Hyman London UK
Progressive exercise therapy in rehabilitation and physical education (Colsonj) 19100 JOHN WRIGHT and Sons Ltd. Bristol UK
COURSE TITLE: BIO-MECHANICS-II AND CLINICAL PRACTICE
STUDY HORUS: 114+76
MARKS
PAPER: 1
THEORY: 100
PART: III
PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To introduce to the student the significant of function reeducation, re-education of walking, relaxation, pulley circuit and joint mobility.

COURSE CONTENTS:
Re-Education of Walking
Without aids
With crutches, sticks and braces
Relaxation
Definition
Methods of obtaining relaxation
Effect and uses
Pulley circuits
Pulley and weight circuits
Effects and uses of the above
Technique and application of the above, for the purpose of mobility and muscle strengthening
Functional re-education
Importance of rehabilitation
1. Hold neck movement
2. Rolling
3. Forearm support lying
4. Bridging
5. Sitting
6. Hitching and hiking
7. Technique of transfer of patient
8. Crawling
9. Walking
10. Knee walking
11. Crutch walking
12. Axillary or forearm support
13. Walking with elbow crutch
14. Different methods of walking and 2, point, 3, point and swing through
15. Climbing stairs

Joint mobility
Causes of joint stiffness
Partial or complete stiffness
 Structural changes in joints
 Limitation of range of movements
 Methods of prevention of joint stiffness

Treatment of joint stiffness, either by relaxation training or by exercise

RECOMMENDED BOOKS:
Basic bio-mechanics of the skeletal system (Frankel VH and Norkinm) 1980 LEA and FEBIGER Philadelphia, UK
Physiology of joints vol I, II, III, (Kapandjia) 1990 CHURCHIL Living Stone International
Joint motion method of measuring and recording (Stphonl)
COURSE TITLE: PHYSICS RELATED TO THE PHYSIOTHERAPY AND CLINICAL PRACTICE

STUDY HOURS: 76+38 MARKS
PAPER: 2 THEORY: 100
PART: III PRACTICAL: 50
TIMEZ: 1.30

COURSE OBJECTIVES:

Nature of electricity
Static electricity, current electricity
Electromagnetism, electromagnetic induction
Basic electronics, bio-electronics
Therapeutic modalities, currents for treatment
Fluid mechanics, mechanical forces and biophysics
Electromagnetic radiations, infra red radiations
Ultra-violet radiations, ultra Sound, Cold laser

Demonstration and practical
Electrostatic induction
Capacity of induction
Capacity of condensers
Variable resistance
C-r-circuit
Switch board
Determination of resonance frequency of LCR
Characteristics of NPN transistor
Galvanometer and voltmeter construction
Semiconductor diodes
Modification of ac
Working of transistor
Dynamo-motor working
Determination of specific gravity
Determination of co-efficient of surface tension
Determination of co-efficient of viscosity
Verify inverse square law
Determination of focal length
Verify laws of refraction
Determination of young modules
Prove the law of moment of force
Find co-efficient of friction
Addition of vector by law of parallelogram of force

RECOMMENDED BOOKS:
Claytons electrotherapy and actinotherapy (pmsott) 1994 Churchill living Stone International UK
Preliminary electricity for physiotherapy (bsavage)
1980 preliminary electricity for physiotherapy (bsavage)
COURSE TITLE: HYDROTHERAPY AND CLINICAL PRACTICE

STUDY HOURS: 38+76 MARKS
PAPER: 2 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1.30

COURSE OBJECTIVES:
To introduce to the students the significance of principal method clinical decision making, planning and implementation in some condition

COURSE CONTENTS:
Definition, general consideration of
Physiological principles of treatment
Methods of treatment and their outcome
Planning and implementation of effective treatment
Uses of water is as a medium for movement
Its physiological, therapeutically effect uses contra indication, dangers techniques and clinical decision making.

RECOMMENDED BOOKS:
Neurological physiotherapy- A Problem saving approach (Sugan Edwards) 1995 CHIRCHILL Living Stone International London UK

COURSE TITLE: ELECTROTHERAPY-II AND CLINICAL PRACTICE

STUDY HOURS: 114+38 MARKS
PAPER: 3 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1.30

COURSE OBJECTIVES:
To introduce to the students the significance of the current including low and high frequency

COURSE CONTENTS:
The modified direct current
Modification of current
  a) Interrupted direct current  b) surged direct current, physiological effects, therapeutic uses, techniques and methods of application

Electrical reaction:
Normal and abnormal reactions of muscle and nerve to faradism and interrupted galvanism, changes in electrical, reaction in:
  a) Upper motor neuron lesions  b) lower motor neuron, lesions  c) muscular diseases

Interferential current:

Bio-feedback
Definition of bio-feedback, physiological effects, therapeutic uses indications contra indications and dangers, techniques of application

**Tran’s coetaneous electrical nerve stimulation (tans)**
Definition, pain modulation theory, technique of application, indications contra indications and dangers

**Electro diagnosis:**
Normal and abnormal reactions of muscle and nerve to faradism and interrupted galvanism

**Changes in electrical reaction in:**
- Lesion of the upper motor neuron
- Lesion of the lower motor neuron
- Damage to the muscle itself
- Fault at the neuro muscular junction
- Functional disorders

**Definition of rheobase, chronaxie and accommodation:**

Types of electrical reactions:
- Normal
- Complete denervation
- Partial denervation

Myasthenic, intensity duration curves, theory of intensity duration curve technique and plotting graphs of intensity duration curve technique, advantages, nerve conduction tes, rheqbase, chronoxie and accomodity test: faradics interrupted galvanic test (qualitative and quantitative) nerve conduction velocity test, neurography, repetition, stimulation, emg, spontaneous and recruitment patterns, indication of nerve conduction velocity and electromyography

**RECOMMENDED BOOKS:**
Fundamental of Physiotherapy by Parveen Kumar, Parvathiraju, Venkatarsad 1st Edition in 2005 Jypee Brother Medical Publisher (P) Ltd New Delhi
Clayton’s electrotherapy and actinotherapy and (PAULINEM. SCOTT) 1997 the William Co. Baltimore London
Electrotherapy and electro diagnosis (Sidney Licht) 1998 CHURCHILL Living Stone London

**LIST OF ELECTROTHERAPY PARTICLES**

Constant galvanic (direct) current

**(I) safety rules**
- Anodal galvanism
- Dosage-duration of treatments
- Brachial neuralgia
- Tennis elbow
- Facial neuritis / neuralgia
- Frozen shoulder
- Sprained ankle

**(II) Chathodal galvanism**
- Dosage-duration of treatments
- Brachial neuralgia
- O.a.knees
- Tennis elbow
Sprained ankle
Sprained wrists

III) **Galvanic baths (monopolar)**
Brachial neuritis / neuralgia

**Diagnostic value of faradic and interrupted galvanic currents:**
Development of reaction of denervation
Faradic interrupted galvanic test
   A. Qualitative
   B. Quantitative
Strength duration curve test:
   A. Normal curve
   B. Partially innervated curve
   C. Completely denervated curve
   D. Regenerating curve
   E. Degenerating curve

Rheobase and chronaxie test:
The ratio:
   A. Abnormal ratios
   B. Normal ratios
   C. Partial innervations ratios
   D. Complete denervation ratios

**RECOMMENDED BOOKS:**
Clayton’s electrotherapy and action therapy (PAULINEM SCOTT). 1997 the William Co.
Baltimore London
Electrotherapy and Electro diagnosis (Sidney Licht) 1998 CHURCHIL Living Ston London

**COURSE TITLE:** ACTION THERAPY-II AND CLINICAL PRACTICE

**STUDY HOURS:** 114+38  **MARKS**
**PAPER:** 3  **THEORY:** 100
**PART:** III  **PRACTICAL:** 50
**TIME:** 1:30 HRS

**COURSE OBJECTIVES:**
To introduce to the student the significance of high frequency current physical and therapeutic effect, indication and contraindication, precaution.

**COURSE CONTENTS:**
High frequency currents
1. **Short Wave Diathermy**
   1. Introduction
   2. Physiological effects
   3. Its application methods
   4. Indications and contra indication
   5. Therapeutic effects
   6. Precautions
2. **Micro way Diathermy**

1. Introduction
2. Physiological effects
3. Its application methods
4. Indications and contra indication
5. Therapeutic effects
6. Precautions

3. **Ultrasound**

Sound and ultrasound, ultrasonic energy, its transmission and production, therapeutic and physiological effects, uses of ultrasonic energy, methods of application, dosage.

**RECOMMENDED BOOKS:**
Clayton’s electrotherapy and actinotherapy (Paulinem Scott) 1997 the William Co. Baltimore London
Practical electrotherapy for Physiotherapy Brenda Savage 1996 Baillieers Tindal London

**LIST OF PRACTICAL ELECTROTHERAPY**

**Continuous mode:**

1. **Safety rules:**
   - Discs
   - Types
   - Spacing equal unequal
   - Use of equal size
   - Use of unequal size

2. **Placements of discs**
   - Parallel to each other
   - Parallel to body part
   - Distance between two discs

**Flexible electrodes (pads)**

Advantages and disadvantages

Spacing

Use of equal size

Use of unequal size

Arrangement

**Cable (inductothermy)**

1. **Safety rules:**
   - Length of cable (types)
   - Spacing
   - Use of whole cable

**Ultrasound**

**Safety rules:**

The transducer

The medium

Total acoustic energy
Dosage

Sonation over

a) Neck
b) Shoulder
c) Elbow
d) Wrist
e) Fingers
f) Back
g) Hip
h) Knee
i) Ankle
j) Toes
k) Sole of foot
l) Sonophoresis
m) Introduction of ion
n) Sedative
o) Counter-irritation

Infra red radiation

1. Safety rules:
Penetration
Absorption
Inverse square law
Intensity (wattage of emitter)
Distance from body
Use of parallel-meter

Exposure to:
A. Neck
B. Shoulder
C. Elbow
D. Back and whole power limb
E. Back and thigh
F. Hip joint
G. Knee joint
H. Knee joint and lower limb
I. Ankle joint
J. Pelvis

Cable (inductothermy)
A. Neck
B. Neck and shoulder
C. Neck and whole arm
D. One shoulder and whole arm
E. Whole back
F. Lower back and leg
G. Pelvis
H. Both shoulder
I. Whole leg
J. Both knee, one knee, one knee and leg

Combination of cable with disc and flexible electrodes
A. Neck and whole arm
B. Back and whole lower limb
C. Shoulder and whole arm  
D. Shoulder, Elbow, Wrist, Back, Wrist and Hand  
E. Back, Hip, Thigh, Lower leg, Knees  
F. Ankle and foot

**RECOMMENDED BOOKS:**  
Practical electrotherapy for physiotherapy Brenda Savage 1996 Bailliere Tindal London  
Taxbook of electrotherapy by Jagmohan Singh in 2005 by Jaypee Brother Medical Publisher (P) Ltd New Delhi

**COURSE TITLE:** MEDICINE 1 AND CLINICAL PRACTICE

**STUDY HOURS:** 114+76  
**MARKS**  
**PAPER:** 4  
**THEORY:** 100  
**PART:** III  
**PRACTICAL:** 50  
**TIME:** 1.30

**COURSE OBJECTIVE:**  
To introduce to the students the significance of various medical disorder in the field and how to manage these problems

**COURSE CONTENTS:**  
Introduction, etiology and pathogenesis, principal signs and symptoms, diagnostic methodology, outline of medical treatment. The place of physiotherapy, clinical case discussion and demonstration

1. **Diseases of cardiovascular system (brief introduction only)**
   Disturbance of rate and rhythm, myocarditis, pericarditis, endocarditis, chronic valvular disease, myocardial degeneration, the angina syndrome, congenital cardiac failure, hypertension and arteriosclerosis, essential hypertension, thromboangitis, obliterans, vasomotor disorder, raynaud’s disease, acroparasthesia, venous conditions, thromboangitis oblitrance embolish, varicose, veins, diseases of the blood, anemia.

2. **Diseases of gastrointestinal system (brief introduction only)**
   Diseases of liver, spleen, stomach, intestine and colon

3. **Disease of respiratory tract**
   Bronchitis, bronchiectasis, pleurisy, empyema, emphysema, pneumonia, lung abscess, tuberculosis of the lungs, asthma, hayfever.

4. **Diseases of metabolism (brief introduction only)**
   Vitamin deficiency diseases, diabetes mellitus, gout, obesity

5. **Infectious diseases acute and chronic bacterial viral and fungal (brief introduction only)**
   Introduction, global impact, epidemiology, principles and basic mechanisms, metabolic consequences, host defense, interaction between nutrition and infection, diagnosis, antimicrobial, chemotherapy, prevention, bacterial infections, gram positive and negative cocci, gram positive and negative bacilli, actinomycetes, mycobacterial, mycoplasma, sexually transmitted disease, 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, nematode round worm infections, trematode (fluke) infections, cestode (tape worm) infections.

RECOMMENDED BOOKS:
Clinical medicine by (Parveen Kumar MICHEAL CLARK) 1994 ELBS Davidson’s principle and practice of medicine (Edited by CRW Adwardsetal) 1995 ELBS.

COURSE TITLE: SURGERY-I AND CLINICAL PRACTICE RELATED TO PHYSIOTHERAPY

STUDY HOURS: 114 + 76 MARKS
PAPER: 4 THEORY: 100
PART: III PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
Introduction to subject, etiopathogenesis, clinical features, diagnosis, basic principle of management, specific treatment, preoperative preparation, post operative complications and rehabilitation of the patient.

COURSE CONTENTS:
1. General surgery (brief introduction only)
   Wound, ulcer, boil, abscess, carbuncle, varicose veins hemorrhage, shock hernia and hydrocele, varicocele
2. Thoracic surgery (Brief introduction only)
   Surgical aspects and treatment of pneumothorax hemopneumothorax, lung cancer, bronchoma, lung abscess, emyphathoracis, lobectomy, segmenectomy, pneumonectomy, thoracotomy, thoracoplasty, emergency management of chest injuries, various chest and sterna injuries.
3. Orthopedics surgery
   a. 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)
   b. Regional fracture and dislocation
      All appendicular bone fracture, including femur, tibia, fibula, humerus, radius, ulna, hand and foot injuries, clavicle, axial bone fractures including pelvis and spine fractures, mandible, maxilla.
   c. Dislocations of all appendicular and axial joints sprains
      Dislocation acute and old unreduced, sprains, subluxations
   d. Children fractures
      Introduction, specific features of child bone, principles of management.

RECOMMENDED BOOKS:
Cash’s textbook of orthopedics and rheumatology (Maryam Tidswell) 1992 MOSBEY
Sabiston essential of surgery (Edited by David C Sabiston) 1994 WBSAUENDERS Company UK
COURSE TITLE: PHYSIOTHERAPY TREATMENT-1 AND CLINICAL PRACTICE

STUDY HOURS: 152 + 76
PAPER: 1
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce to the students the significance of principle of treatment, method of treatment and their out come, clinical decision making planning and implementation of effective treatment.

COURSE CONTENTS:
1. Introduction and general consideration
   Principles of treatment, methods of treatment & their outcome, clinical decision making, planning & implementation of effective treatment.
2. Psychosocial aspect of rehabilitation:
   Introduction, psychological impact of disablement on the patient, psychological factors in physical disability, adjustment to disablement.
a. Orthopedic disorders:
   1. Fractures:
      General consideration, principles of treatment, fractures of the upper extremities, splinting and supports, clavicle, radius, ulna humerus, bones of the wrist and hand, complications of all above fractures, fractures of the lower extremity, splinting and support, femur-patella, tibia, fibula, bones of the foot, re-education in walking pelvic, spine, ribs, sternum and skull, complications of all above fracture.
   2. Joint and muscle disorders
      Disorders of upper extremity, disorders of lower extremity, sacroiliac strain sprained ankle, rupture of muscles.
3. Clinical example
   Putting evaluations and technique into practice
b. Neurological dysfunction
   General consideration, principles and methods of treatment and outcome classification
   1. Lesions of the brain and spinal cord
      Hemiplegia, cerebral palsy, primary spastic paraplegia, secondary spastic paraplegia and quadriplegia, Parkinson’s disease, coma
2. Head injury
   Edimiology of traumatic head injury, population of head injured clients, cost mechanism of unjury, types of head injury, immediate clinical aspect, diagnostic monitoring procedures and medical management, sequelae and complication, prognostic indication, conceptual frame work for physical therapy treatment, function induced plasticity, recovery after assessment, general consideration.
3. Clinical example
   Putting evaluation and techniques into practice.
   c. Neurological dysfunction
      General consideration, principles and methods of treatment and outcome, classification.
      1. Lesions of the brain and spinal cord
         Hemiplegia, cerebral palsy, primary spastic paraplegia, secondary spastic paraplegia and quadriplegia, parkinson’s disease, coma.
2. Clinical example
Puting evaluation and techniques into practice

d. Pain management:
1. Pain theories, pathways modulation, pain perception pain from CNS periphery, evaluation, history character, intensity of pain, management of pain using different modalities, cognitive behaviors methods.

2. Clinical example
Putting evaluation and technique into practice.

RECOMMENDED BOOKS:
Tiday’s physiotherapy by Stuert Portor 13th Edition Re-printed in 2006 Published by Elsevier, A division of read Elsevier India.
Tiday’s message and remedial exercise (J.O Wale) 1987 to P Published LTD, UK
Orthopedic clinical practice and rehabilitation (John B Redfors John V Bagmagran) 1995
Churchill Living Stone International London

COURSE TITLE: PHYSIOTHERAPY TREATMENT-II AND CLINICAL PRACTICE

STUDY HOURS: 152 + 76
PAPER: 1
PART: IV

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce to the students the significance of principle of treatment, method of treatment and their outcome, clinical decision making planning and implementation of effective treatment in details.

COURSE CONTENTS:
a. Orthopedic
Derormities of upper and lower extremities congenital and acquired such as springel’s shouder, club hand, congenital absence of bones dupuytrens contracture, congenital dislocation of hip, coxa-vara, coxa valga, genu-varum, genu-valgum, bow legs, flat feet, pes-plano-valgus, hammer toe, derormities of the spine, posture, postural derormities, fotticollis, pott’s disease, amputation, gait, evaluation, assessment and training.
b. General surgery (brief introduction)
Abdominal and pelvic conditions, incisions, appendicitis, gall-bladder surgery, chronic gastritics, dilated stomach, colitis inguinal hernia, laparotomy.
c. Cardiopulmonary dysfunction (Brief introduction)
Health risk appraisal, coronary artery disease and medical management, acute pulmonary Management, respiratory care devices, pulmonary pathology and medical management, evaluation and management of high risk infant, cardio-pulmonary complications in aids patient cardiovascular responses to exercise in children, adapting physiotherapy intervention to the elderly
d. Cardiac rehabilitation
Health risk appraisal cardiac rehabilitation during the acute phase, rehabilitation of post surgical cardiac patient, community based cardiac rehabilitation components of fitness
evaluation, exercise testing and interpretation of E.C.G’s cardiac rehabilitation stages, exercise prescription, physiological response to Exercise plus training mature Versus immature.

e. Chest physiotherapy
Cardio-pulmonary assessment procedures, introduction, general guidelines, indication and contraindication, postural drainage, techniques, positions and adjuncts, indications and contra-indications, active cycle breathing techniques (ACBT) mobilizing the critically ill patient, acute care setting, management of Ventilator dependent patient, respiratory therapy modalities, mechanics of acute respiratory failure oxygen systems, chest X-ray, interpretation, pediatric cardio-pulmonary management.

f. Burn
Classification, acute care management, grafts and surgeries in burns, splints and supports.

g. Constitutional diseases:
Acute and sub-acute rheumatism, chronic rheumatism of joints, fibrositis, panniculitis, rickets, gout, osteomalacia, diabetes mellitus, obesity.

h. Neurology
1. Diseases of sensory tracts
Tabbies dorsalis, syringomyelia, paralysis agitans, encephalitis lethargic, cerebral ataxia, disseminated sclerosis, combined sclerosis, friedreics disease, transverse myelitis, chorea

2. Peripheral nerve injuries
Ulnar nerve, radial nerve, musculo-cutaneous nerve, median nerve, Erb’s palsy, clump’s palsy, femoral nerve, lateral popliteal nerve, facial nerve, neuritis, neuralgia, sciatica, torticollis.

x. mechanical aids for function
use of braces, splints and walking aids, selection criteria for prescription, upper limb prostheses & orthoses, lower limb prostheses, spinal supports, static & dynamic splints, training & care of prostheses & orthoses.

SPORTS INJURIES
Sports physiology, assessment of sports injures, psychology of the sportsman, general survey of sports injuries, treatment & management of sports injures, prevention, general risk factors & modalities, surgery in sports injures & management, fitness training & fitness testing.

RECOMMENDED BOOKS:
Tiday’s message and remedial exercise (J.O Wale) 1987 10P Publishing LTD. UK
Orthopedic Physical assistant by David J. Magee 1997 W.B Sounders Company UK
COURSE TITLE: SURGERY II RELATED TO PHYSIOTHERAPY & CLINICAL PRACTICE

STUDY HOURS: 114 + 76 MARKS
PAPER: 2 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVES:
To introduce to the students the significance of various surgical condition and how to manage these problem introduction to subject, etiopathogenesis, clinical features, diagnosis, basic principle of management, specific treatment, preoperative preparation, postoperative complications.

COURSE CONTENTS:
1. Surgery of body system.

1. General orthopaedics conditions
   a. Congenital deformities and deficiencies
      Various types of congenital deformities, Etiopathogenesis, clinical presentation, diagnostic techniques, principle of management, basics of specific treatment, rehabilitation.

   Regions to be covered.
   A. Hip: congenital dislocation, coxavalga, coxavara, proximal femoral deficiencies.
   B. Knee: dislocation, genu valga, vara.
   C. Ankle & foot: talipes equinovarus, intoeing, flatfoot, hallux varus/valgus.
   D. Spine: scoliosis, kypho scoliosis, torticollis, springle shoulder spina bifida.

b. Congenital fragility of bones and pseudoarthritis
   A. Osteogenesis imperfects
   B. Osteoporosis
   C. Pseudoarthrosis, fibula, tibia, clavicle, radius, ulna.

c. Bone and joint infections
   Osteomyelitis acute, chronic tuberculosis, septic arthritis, typhoid arthritis Tuberculosis arthritis.

d. Rheumatic disorders (orthopaedic management)
   Soft tissue rheumatism, articular rheumatism, rheumatoid arthritis, rheumatic arthritis, osteo arthritis, variants of rheumatoid arthritis, juvenile cortical arthritis, ankylosing spondylitis, low back pain.

    Neck pain

e. Orthopedic neurology
   Erb’s palsy, wrist drop, foot drop, post polio deformities, cerebral palsy their presentation, complication, principles of surgical management, post surgical rehabilitation.

f. Bone tumours
   Calcification, etiopathogenesis, clinical & radiological presentation, ischaemis disorders of bone

g. Arthroplasty and arthrodesis general principles and rehabilitation

h. Peripheral vascular injuries and tendoninjuries and hand injuries
i. Sports injuries
j. Amputation
   General principle
   Level of Amputation & orthotics
iii. Plastic surgery
Spinal injuries, spinal cord injuries, disc problems, head injuries spondylithesis, brain tumours, spinal tumours
iv. Plastic surgery
Basic principles of plastic surgery and reconstruction, burns and its management, reconstruction surgery hair, lip, cleft palate, syndactily, polydetilily.

RECOMMENDED BOOKS:
BAILY & loves and hest practice of surgery (Charlos R Mann) 1995ELBS
Appley’s system of orthopedics and fracture (aegrahm apley and Lovis Solomon) 1993 ELBS

COURSE TITLE: MANIPULATEVE THERAPY-II AND CLINICAL PRACTICE

STUDY HOURS: 114 +38
PAPER: 3
PART: IV
MARKS
THEORY: 100
PRACTICAL:50
TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce the students the significance of different kind of massage techniques (soft tissues techniques) & his application

COURSE CONTENTS:
Message theory
Introduction and general consideration
History of massage
The physiotherapist-qualities, and etiquette
Hands for message
General care in treatment
Lubricants
Definitions of massage
   A. By Dr. Jensin
   B. By Dr. Krusen
   The Hoffa technique
      1. Effleurage
      Patrissage
      2. Friction
      3. Tapotement
   A. Clapping
   B. Beating’
   C. Cupping &
   D. Hacking
Definition, technique, effects uses, indication and contra indications of the above manipulations
Practical by Hoffa technique
Arm massage
Leg massage
Back massage
Aboomental massage
Chest massage
Modified technique of massage in pathological conditions

RECOMMENDED BOOKS:
Tiday’s massage and Remedial Exercises by J.O Wale, 1987 10P Published by LTD, UK
The principle of exercise therapy (M. Dena Gardener) 1981 Bill and Hyman London UK

COURSE TITLE: MANIPULATIVE THERAPY-III AND CLINICAL PRACTICE

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

COURSE OBJECTIVES:
To introduce the students the significance of different kind exercises and its applications to the patients.

COURSE CONTENTS:
Mobilization of joints
Various methods including manipulations with and without anesthesia, active methods
Neuro muscular facilitation

Definition:
A. Integrity of the motor unit
B. Excitability of motor unit, the excitability of anterior horn cell, the factors which influence the Anterior horn cell, the conductivity of impulses influences the anterior horn cell diseases, effects and drawbacks of this technique and its uses hold relax technique push and pull technique and its uses

RECOMMENDED BOOKS:
Exercise TIDYS Massage and Remedial Exercises by J.O Wale 1987 10P Published by Ltd. UK
The Principle of Exercise Therapy (M Dena Gardner) 1981 Bill and Hyman London UK

COURSE TITLE: MEDICINE II AND CLINICAL PRACTICE RELATED TO PHYSIOTHERAPY

STUDY HOURS: 114 + 76
PAPER: 4
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

COURSE OBJECTIVES:
To introduce to the student the significance of various medical order in the field and how to manage these problems
COURSE CONTENT:
Introduction Etiology and Pathogenesis principal signs and symptoms diagnostic methodology outline of medical treatment. The place of physiotherapy, clinical case discussion and demonstration

b. diseases of the nervous system (Neurology)
upper motorneurone lesions lower motor neurone lesions extrapyramidal system, cerebellum and sensory system: hemiplegia, 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, Friedrich’s ataxia, parkinsonism

c. Pediatrics
General principles and specific aspects of pediatric disease
e. Psychiatry (brief introduction)
General aspect, personalities its growth and development, relationship between illness and personality, psychological consideration management and treatment of handicap.

RECOMMENDED BOOKS:
Clinical Medicine- a Text Book for Medical Doctors (Parveen Kumar, Micheal Clark) 1994 ELBS
Davidson’s Principles and Practice of Medicines Edited by CRW Adwardsetal 1995 ELBS.
Courses of B.Sc (Hons) Paramedical Sciences in Pathology
COURSES OF B.Sc (HONS) IN PATHOLOGY TECHNOLOGY (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>Hematology &amp; Clinical Practice I</td>
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<td>Virology &amp; Clinical Practice</td>
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<td>Transfusion Medicine &amp; Clinical Practice</td>
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<td>14.</td>
<td>Compatibility tests &amp; Screening</td>
<td>76+76</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:
Manual of Laboratory medicines AFIP, third Edition, 2005 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
PAPER: 3
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
LEUKEMIAS:
Definition, Classification of Leukemias: types & detailed description.
Myelodysplastic syndromes
Myesoproliferative 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 leading 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:

COURSE TITLE: CHEMICAL PATHOLOGY & CLINICAL PRACTICE II

STUDY HOURS: 228 + 114
PAPER: 4
PART: II
MARKS
THEORY: 100
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 2\textsuperscript{nd} Edition by Prof. Dr. Abdus Salam Khan Gandapur 2003. Tahir Instruments Ltd Singapura Lahore-Pakistan
Medical Microbiology and Immunology 6\textsuperscript{th} 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: 03HRS

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:
Bacteriology:
General Principles of Bacteriology
Nature of microorganism: structure, genetics and metabolism
Basic features of bacteria
The transmission of bacterial diseases: carriers, 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, Reagents 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
PAPER: 2
PART: III

MARKS
THEORY: 100
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
Common ingredients of culture media. Preparation of media
Types of media: Simple media. Enriched media. Selective media
Differential media
Biochemical tests for bacterial indentification
Catalase test. Coagulase 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:
Armed Forces Institute of Pathology, Rawalpindi, Pakistan
COURSE TITLE: VIROLOGY & CLINICAL PRACTICE

STUDY HOURS: 76 + 38
PAPER: 4
PART: III
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 1.30 HRS

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
COURSE TITLE:  PARASITOLOGY & MYCOLOGY

STUDY HOURS:  228 + 38  MARKS
PAPER:  4  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
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
PAPER: 1
PART: IV

MARKS
THEORY: 100
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

MARKS
THEORY: 100
PRACTICAL: 50
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: significance, 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  MARKS
PAPER: 4  THEORY: 100
PART: IV  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
**COURSE TITLE:** COMPATIBILITY TESTS & SCREENING

<table>
<thead>
<tr>
<th>STUDY HOURS:</th>
<th>76 + 76</th>
<th>MARKS</th>
</tr>
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<tbody>
<tr>
<td>PAPER:</td>
<td>4</td>
<td>THEORY: 100</td>
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<td>PART:</td>
<td>IV</td>
<td>PRACTICAL: 50</td>
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<td></td>
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<td>TIME: 1.30HRS</td>
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</tbody>
</table>

**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) Paramedical 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>1.</td>
<td>Anatomy related to Anesthesia</td>
<td>190+114</td>
<td>1</td>
<td>II</td>
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<tr>
<td>2.</td>
<td>Physiology related to anesthesia</td>
<td>190+114</td>
<td>2</td>
<td>II</td>
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<tr>
<td>3.</td>
<td>Zones of interest to anesthesia, instruments and clinical practice in general surgery, urology and ENT</td>
<td>228+114</td>
<td>2</td>
<td>II</td>
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<tr>
<td>4.</td>
<td>Anaesthesia equipment and Clinical practice in Orthopedic, Eye and Gynae OT</td>
<td>228+114</td>
<td>4</td>
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<tr>
<td>5.</td>
<td>Pharmacology related to anesthesia and clinical practice</td>
<td>114+190</td>
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<td>6.</td>
<td>Pre-up and post-up management and clinical practice</td>
<td>114+190</td>
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<tr>
<td>7.</td>
<td>Pre-operative medications, assessments and clinical practice in casualty</td>
<td>152+190</td>
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<td>8.</td>
<td>Different types of anesthesia and clinical practice in pre-up and recovery room</td>
<td>152+190</td>
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<td>9.</td>
<td>Anaesthesia and Co-existing diseases I and clinical practice</td>
<td>228+152</td>
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<td>10.</td>
<td>Anaesthesia and Co-existing diseases II and clinical Practice</td>
<td>152+190</td>
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<td>11.</td>
<td>Specialized practice in anesthesia in different OT’s I</td>
<td>152+152</td>
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<td>12.</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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| 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 ANESTHESIA

STUDY HOURS: 190 + 14

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
PART: 11
THEORY: 100
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. Myocardial 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 Philadelphia PA
Essentials of medical physiology Volume 1-2 Mustafa Ahmad in 2005 published by MERIT Multan
COURSE TITLE: ZONES OF INTEREST TO ANESTHESIA, EQUIPMENT AND CLINICAL PRACTICE IN SURGERY UROLOGY AND ENT OT

STUDY HOURS: 228+114  MARKS
PAPER: 3  THEORY: 100
PART II  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
- Intercostal Spac
- Antecubital Fossa
- Thoracic Inlet

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

RECOMMENDED BOOK:

Clinical anatomy by Snell 7th edition 2000 by Churchill living stones
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

COURSE TITLE: ANESTHESIA EQUIPMENT AND CLINICAL PRACTICAL IN ORTHOPEDIC, EYE AND GYNAE OT

STUDY HOURS: 228+114  MARKS
PAPERS: 4  THEORY: 100
PART: II  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  THEORY: 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 an 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
   Morpaine, pethidine
   Fentanyl
   Remifentanil
   Pentazocine
   Buprenorphine
   Nalbuphine
   Naloxone
   Tramadol
2. Non-narcotic analgesics
   Non-steroidal anti-inflammatory drugs(NSAIDS)
   Physiological actions
   Unwanted actions
   Drugs:
Diclofanic
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
     Infurance, servofurnace
     Nitrous oxide
   Intravenous anesthetic
     Tiopental sodium
     Propofol, etomidate
     Katamine
   Muscle relaxants

1. Knowledge about the muscle relaxant use in anesthesia
   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 CARDIO THORACIC

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  
PAPERS: 4  
PART: III  
MARKS  
THEORY: 100  
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:
Helpatic failure
Chronic renal failure
Obstetrical anaesthesia
Anaesthesia for ENT
Anaesthesia for Eye
Anaesthesia for neurosurgery
Anaesthesia for cardiothorasic surgery
RECOMMENDED BOOKS:
Clinical anesthesiology by Morgon publisher McGraw 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
PAPERS: 3
PART: IV

MARKS
THEORY: 100
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 McGraw 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
PAPERS: 4
PART: IV

MARKS
THEORY: 100
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 Morgon publisher McGraw 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>
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<td>1.</td>
<td>Medicine-I &amp; Clinical Practice in Medical OPD and ward</td>
<td>228+114</td>
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<td>7.</td>
<td>Surgery I 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 MARKS
PAPER: 1 THEORY: 100
PART: II PRACTICAL: 50
TIME: 3HRS

COURSE OBJECTIVES:
To introduce to the student the significance 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, Measles, Rubella, hoping cough, 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, Michelelark in 1994 by ELBS
Principal and practice of Medicine by CRW Adwardsetal in 1995 by ELBS

COURSE TITLE: MEDICINE-II & CLINICAL PARACTICE

STUDY HOURS: 228+76 MARKS
PAPER: 2 THEORY: 100
PART: II 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 pocks, mums
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, antimicrobacterial, chemotherapy, prevention, bacterial infections: gram positive and negative cocci, gram positive and negative bacilli, actinomycetes, mycobacterial, mycoplasma, sexually transmitted disease, 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: nematode 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 hypertension, thromboangitis obliterans, vasomotor disorders, raynald’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, temperature chart, special investigation chart, provisional, differential 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
PAPER:  4
PART:  II

MARKS
THEORY:  100
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
PAPER: 1
PART: III

MARKS
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

COURUSE 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 Rheumatoid Arthritis, Osteo, Arthritis SLE Sigh and symptoms of renal disease, Clinical assessment of hyponotrimia Hpernetrimia, Metabolic acidosis, Respiratory acidosis/alkalosis, Hyperkalmia, hypocalcemia, hperphosphatemia, Oedema and clininal 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, ureter 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

RECOMMENDEED: BOOKS:
Clinical Medicine by Parveen Kumar, Michaeclark in 1994 by ELBS
Principal and practice of Medicine by CRW Aewardsetal 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
PAPER: 2
PART: III

MARKS
THEORY: 100
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 causality and referral to consult ward/ unit
Patient management and record in causality
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 ElBS

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 spondylisthesis, 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 hambilin 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  MARKS
PAPER: 4  THEORY: 100
PART: III  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 gynae 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 Meningitis (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 Gynaeocolgy

COURSE TITLE: SURGERY II AND CLINICAL PRACTICE

STUDY HOURS: 152+152  MARKS
PAPER: 1  THEORY: 100
PART: IV  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 keratitis
Eye problems Uvites, Extra ocular foreign bodies, injuries to eye
Inflammation of Eye hids 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

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

**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 Rhinities, 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

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**STUDY HOURS:** 152+152  
**PAPER:** 3  
**PART:** IV  
**MARKS:**  
**THEORY:** 100  
**PRACTICAL:** 50  
**TIME:** 3 HRS
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 operaive 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 IV AND CLINICAL PRACTICE

STUDY HOURS: 228+114 MARKS
PAPER: 4 THOERY: 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) Paramedical Sciences In Radiology
### COURSES OF B.SC (HONS) IN RADIOLOGY (ELECTIVE)

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<th>Course Title</th>
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<td>1.</td>
<td>Radiological physics I and clinical practice</td>
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<td>Radiological procedures I and clinical practice</td>
<td>190+152</td>
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<td>3.</td>
<td>Radiological anatomy I and clinical practice</td>
<td>190+152</td>
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<td>4.</td>
<td>Radiological positioning and clinical practice</td>
<td>190+152</td>
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<td>5.</td>
<td>Radiological physics II and clinical practice</td>
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<td>Radiological anatomy II, conventional radiography and clinical practice</td>
<td>228+152</td>
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<td>Radiographic positioning II and clinical practice</td>
<td>152+114</td>
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<td>Radiological physics and clinical practice</td>
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<td>Radiological procedures, conventional radiography and clinical practice</td>
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<td>Radiographic positioning, conventional radiography and clinical practice</td>
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<td>Radiological Crosssectional Anatomy and clinical Practice</td>
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<td>Radiological Pathology and clinical</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
COURSE TITLE: PRADIOLOGICAL PHYSICS I AND CLINICAL PRACTICE

STUDY HOURS: 152+114
PAPER: I
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
- Lionizing 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
- high voltage section
x-ray production:
- electron 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
PAPER: 3
PART: II
MARKS
THEORY: 100
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
- Maintenence of department
- Maintenence 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:
Clark positioning Radiography by R-a Swallow, E Naylor, EJ Roebock, As Whiteley 11th edition in1999 by Heine menu.
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
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 ossoues venography

Peripheral venography:

Pelvis venography
Intra ossoues venography

Lymph glands & lymphatics:

Limbs venography
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
Angiocardiology

RECOMMENDED BOOKS:
by Bailliere tindall London
A guide

COURSE TITLE: RADIOLOGICAL ANATOMY II, CONVENTIONAL RADIOGRAPHY AND CLINICAL PRACTICE

STUDY HOURS: 228+152
PAPER: 3
PART: III
MARKS
THEORY: 100
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
Lymphography
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
Maintenence 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
PAPER: 4
PART: III
MARKS
THEORY: 100
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
- Lumber 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
PAPER: 1
PART: IV
MARKS
THEORY: 100
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 RADIOGRAPHY 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:
- Dacrocystography

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 meatography
- Cisternography

Arthrography:
- General points
- Double contrast knee arthrography
- Hip arthrography
- Double conterast shoulder arthrogramaphy
- 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 MARKS
PAPER: 3 THEORY: 100
PART: IV 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 on 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 MARKS
PAPER: 4 THEORY: 100
PART: IV PRACTICAL: 50
TIME: 1:30 HRS

COURSE OBJECTIVES:
To study coronal, Saggittal 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: 4 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 Deantal
### 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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<tr>
<td>3.</td>
<td>Clinical practice in dental OPD and ward</td>
<td>228+190</td>
<td>3</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>
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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>Dental radiology and clinical practice</td>
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<td>Orthodontic II 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 \(= 153 / 4968\)
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
PAPER: 2
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

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
PAPER: 3
PART: II

MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
We introduce 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 sc rubbing
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 PRACTICE

STUDY HOURS: 114+114 MARKS
PAPER: I THEORY: 100
PART: III 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 ulcer 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 HOURS: 190+114 MARKS
PAPER: 2 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 stomalitis
10. Acute non-specific gingivitis, periodontal abscesses, stomatitis
11. Aphthous ulceration, candidiasis cold sores oral keratosis, oral tumour

RECOMMENDED BOOKS:
Lippincot’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: 3 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 HOURS: 114+114  MARKS
PAPER: 3  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, endodontic 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, endodontic 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: 4  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 prevention
   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 inhibitors
   d. Diet control, toothpaste, natural hygiene
   e. Fluorides, fluoridation, prophylactic, odontotomy

8. Dental health education
   a. Meaning of health, positive health, dental health, dental education
   b. Objective and prerequisites, responsibility for dental education
   c. Chairside 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 hygiene CV Mosby Co

COURSE TITLE:-community dentistry and clinical practice

STUDY HOURS: 76+38
PAPER: COMMUNITY DENTISTRY AND CLINICAL PRACTICE
PART: III

THEORY: 100
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
PAPER: I
PART: IV

THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

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 filing
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
PAPER: 2
PART: IV
MARKS
THEORY: 100
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
PAPER: 2
PART: IV

MARKS
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:

COURSE TITLE: DENTAL SURGERY AND CLINICAL PRACTICE

STUDY HOURS: 114 + 114
PAPER: 3
PART: IV

MARKS
THEORY: 100
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:** 4 **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. Cephalomorphics
7. Techniques
8. Hazards
9. Benefits
10. Developing
11. Dangerous and precautions
12. Practical work based on above

**RECOMMENDED BOOKS:**
Dental radiology by Joen kennoucci Hairing in 1996 WB saunder
COURSE TITLE: ORTHODONTIC II AND CLINICAL PRACTICE

STUDY HOURS: 114+114 MARKS
PAPER: 4 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>
<th>S.No</th>
<th>Course title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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<tbody>
<tr>
<td>1.</td>
<td>Anatomy, physiology I</td>
<td>190+152</td>
<td>1</td>
<td>II</td>
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<tr>
<td>2.</td>
<td>Pathology I, Surgical procedure and clinical practice</td>
<td>190+114</td>
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<td>II</td>
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<tr>
<td>3.</td>
<td>Clinical Practice I</td>
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<td>II</td>
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<tr>
<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>III</td>
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<td>6.</td>
<td>Pathology II and surgical procedure</td>
<td>190+152</td>
<td>2</td>
<td>III</td>
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<tr>
<td>7.</td>
<td>Emergency an post op complication and management and clinical practice</td>
<td>190+114</td>
<td>3</td>
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<tr>
<td>8.</td>
<td>OT, Sterilization and positioning and clinical practice</td>
<td>114+76</td>
<td>4</td>
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<tr>
<td>9.</td>
<td>Pharmacology and clinical practice</td>
<td>76+76</td>
<td>4</td>
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<td>10.</td>
<td>Anatomy and physiology III</td>
<td>228+114</td>
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<tr>
<td>11.</td>
<td>Pathology III &amp; Surgical procedure and clinical practice</td>
<td>152+76</td>
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<tr>
<td>12.</td>
<td>Surgical incision &amp; introduction to anesthesia and clinical practice</td>
<td>114+114</td>
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<tr>
<td>13.</td>
<td>Pathology IV &amp; Surgical procedure and clinical practice</td>
<td>114+76</td>
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<tr>
<td>14.</td>
<td>Intensive care &amp; management of OT and clinical practice</td>
<td>152+152</td>
<td>4</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 IV 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 AND PHYSIOLOGY –I

STUDY HOURS: 190+152 

PAPER: I 

PART: II 

MARKS 

THEORY: 100 

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 

PAPER: 2 

PART: II 

MARKS 

THEORY: 100 

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 
Cholecysttitis 
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
PAPER: 3
PART: II

MARKS
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 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

REFEREAL 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:
Moronye.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 Roger War Vick Peter L. Williams in 1973 large group LTD
Medical Physiology by Guyton in 1991 published by W.B. Saunders Company

COURSE TITLE: PATHOLOGY-II AND SURGICAL PROCEDURES AND CLINICAL PRACTICE

STUDY HOURS: 190+152  MARKS
PAPER: II  THEROERY: 100
PART: III  PRACTICAL: 50

TIME: 3 HRS

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

COURSE TITLE: EMERGENCY AND POST OP COMPLICATIONS AND MANAGEMENT AND CLINICAL PRACTICE

STUDY HOURS: 190+114  MARKS
PAPER: 3  THEROERY: 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: 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:
Text Book of Surgery (4th edition) (Indian Association of Surgeons) by Dr. Ahmad Haji.
Rabindra B.Shrivastave, Publishers: TATA. MC GRALI HILL, Publishing Company Ltd (New Delhi)

COURSE TITLE: OPERATIONTHEATRE, 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 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

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</table>

**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

<table>
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<th>TIME:</th>
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<tbody>
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</table>

**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 Roger Ear Vick Peter L Williams in 1973 large group LTD
Medical Physiology by Guyton in 1991 published by W.B Saundar 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 gynaec disorders, his pathology, procedures and clinical practice

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

RECOMMENDED BOOKS:
Outline of Orthopedic by John Crawfurd Adam & David Hamblin in 1990 by EI.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 congenitall defects, suctioning of me conium.

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
PAPER: 4
PART: IV

MARKS
THEORY: 100
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

CORUSE CONTENTS:
Otitis
Tumors
Cholesteatoma
Otoscleroses
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: 4
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) Paramedical Sciences In Neuro-Physiology
### COURSE OF B.SC (HONS) NEUROPHYSIOLOGY (ELECTIVE)

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<th>Course Title</th>
<th>Study hrs</th>
<th>Paper</th>
<th>Part</th>
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<td>1.</td>
<td>Neuro-anatomy –I</td>
<td>152</td>
<td>1</td>
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<td>2.</td>
<td>Ward, patient management and clinical practice</td>
<td>114</td>
<td>1</td>
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<td>3.</td>
<td>Neuro physiology I</td>
<td>152</td>
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<td>II</td>
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<td>4.</td>
<td>Patient management in OPD, ward and clinical practice</td>
<td>114</td>
<td>2</td>
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<td>Neuroanatomy II and clinical practice in OPD</td>
<td>76+76</td>
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<td>Clinical practice in OPD</td>
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<td>Neurophysiology II</td>
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<td>8.</td>
<td>Pharmacology related to neurophysiology and clinical practice</td>
<td>114+114</td>
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<td>9.</td>
<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>
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<td>Normal EEG Features II and clinical practice</td>
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<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</td>
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<td>Instrumentation and technique III and clinical practice on EMG</td>
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<td>Instrumentation and technique IV and clinical practice on EEG</td>
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<td>EEG in different disease states II and clinical practice on EEG and EMG</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
- 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: NEURO-ANATOMY – I

STUDY HOURS: 152
PAPER: I
PART: II
MARKS
THEORY: 100
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 them 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

TITLE: WARD, PATIENT MANAGEMENT AND CLINICAL PRACTICE

STUDY HOURS: 114
PAPER: I
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:
Anatomyy 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: 2
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:
Anatomyy 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 HOURS: 114
PAPER: 2
PART: II

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 HOURS: 152
PAPER: 3
PART: II

MARKS
THEORY: 100
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 hypo thalamus 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
PAPER: 3
PART: II

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 HOURSE: 152
PAPER: 4
PART: II

MARKS
THEORY: 100
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:
Crani 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: 4
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
PAPER: 1
PART: III
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 CONTENT:
Electronics:
Ac & dc 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 ration, 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 HOURSE: 38+76
PAPER: 1
PART: III

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 I AND CLINICAL PRACTICE ON EEG

STUDY HOURSE: 228+114
PAPER: 2
PART: III
MARKS
THEORY: 100
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 HOURSE: 228+114
PAPER: 2
PART: III
MARKS
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 HOURSE: 190+114 MARKS
PAPER: 2 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 placeemnt 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 artifiacts & methods of elimination
Activation procedure;
Hyperventilation
Photic stimulation
Sleep deprivation
Drug induce sleep
Saving of recording
Factual report writing
Recording praticve 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 HOUR: 228+190
PAPER: 1
PART: IV

MARKS
THEORY: 100
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, Maintenance 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 Maurice Victor & 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 HOUR: 114+114
PAPER: 2
PART: IV

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:
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

STUDY HOURSE: 152+114
PAPER: 3
PART: IV
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 2\textsuperscript{nd} edition printed by Butter Warth group London.

COURSE TITLE: EEG IN DIFFERENT DISEASE STATES II AND CLINICAL PRACTICE ON EEG AND EMG

STUDY HOURSE: 190+190 MARKS
PAPER: 4 THEOREY: 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) Pramedic Sciences
In Pulmonology
### COURSES OF B.SC (HONS) IN PULMONOLOGY

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<th>S.No</th>
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<td>Pulmonology procedure and 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, Maintenance 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: 1,2
PART: II

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 Snieil 7th edition in 2000 by Churchill living stone
Snieil Neuro Anatomy 2nd edition in 1987 by little brown and company Boston Toronto

COURSE TITLE: PHYSIOLOGY II RELATED TO PULMONOLOGY

STUDY HOURS: 228
PAPER: 3
100
PART: II
PRACTICAL: 50

MARKS
THEORY: 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  
**MARKS**

**PAPER:** 4  
**THEORY:** 100

**PART:** II  
**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  
**COURSE CONTENTS:**
- Record keeping
- Proper labeling and arrangement of the Lab reports and X-ray
- Intake output charts
- History of patient
- Preparation of patient for procedure
- Investigation
- Preparation of patient for discharge

**PAPER:** 3,4  
**PART:** II

**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: PHARMACOLOGY I AND CLINICAL PRACTICAL

STUDY HOUSE: 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
   - Cephlosporin
   - New respiratory quinolones

COURSE TITLE: PATHOLOGY I AND CLINICAL PRACTICAL

STUDY HOUSE: 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 HOURSE: 228
PAPER: 1,2
PART: III

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, Maintenance 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
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 HOURSE: 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:
Antihypertensive, Bronchodilators, Aerosols/ Nebulizers, Steroids, ATT, Local anaesthesia and general anaesthesia
COURSE TITLE: PATHOLOGY II AND CLINICAL PRACTICAL

STUDY HOURSE: 114+114 MARKS
PAPER: 4 THEORY: 100
PART: III 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 HOURSE: 228 MARKS
PAPER: 3, 4 THEORY: 100
PART: III PRACTICAL: 50
TIME: 3 HRS

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 HOURSE: 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 HOURSE: 114+114  MARKS
PAPER: 1  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, Maintenance 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
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 HOURSE: 114+76  MARKS
PAPER: 3  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:
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. Pneumococeal Pneumonia
   iii. Legionella Pneumonia
   iv. Nosocomial Pneumonia
   v. Aspiration Pneumonia
9. Lung Abscess
10. Tuberculosis
### COURSE TITLE: MEDICINE III AND CLINICAL PRACTICAL

**STUDY HOUR:SE:** 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 HOUR:** 228  
**PAPER:** 3.4  
**PART:** IV

**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, provisional 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 dangerous respiratory medicine 5th edition 2005 by Blahwel science
Course of B.Sc (Hons) Pramedical Sciences In Dialysis
### COURSES OF B.SC (HONS) IN DIALYSIS (ELECTIVE)

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<td>Clinical aspect of urology patients and clinical practice</td>
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<td>Renal pathology and clinical practice</td>
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<td>Renal disease, pharmacology and clinical practice</td>
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COURSE TITLE: ANATOMY AND PHYSIOLOGY RELATED TO UROLOGY

STUDY HOURS: 228
PAPER: 1
PART: II

MARKS
THEORY: 100
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 2
PAPER: 100 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 admission, wound care addressing, care of nasogastric tube, catheter and drain tube.

History of the patient, ward investigation, tetnisis 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 MARKS
PAPER: 3 THEORY: 100
PART: II 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 anesthesia
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
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 HOURSE: 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 jpractice in Urology OPD and ward.

COURSE CONTENTS:
Infection
Pyelonephritis, Cystitis, Prostatitis
Epididymoorchitis, Tuberculosis
Stone
Renal stone, Ureteric stone
Vesical stone, Urethral stone
Obstructive disease
Puj obstruction, Vuj obstruction
Due to stone, Bph
Traumatic disease
Renal injuries, Ureteric injuries
Bladder injuries, Urethral 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 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
Moroneyeys surgery by Malcomr colmer, 1986 by EL.BS
Spiral of Uroogy

COURSE TITLE: ANATOMY AND PHYSIOLOGY RELATED TO NEPHROLOGY

STUDY HOURSE: 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 developemnnts
General feature and its relation to different body organ
Surface anatomy of the kidney
Brief anatomy uretar, bladder and urethra
Breif 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, 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
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 HOURSE: 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
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 clarak in 1989
Know you kidney by wook

COURSE TITLE: RENAL DISEASE, PHARMACOLOGY AND CLINICAL PRACTICE

STUDY HOURSE: 228+190 MARKS
PAPER: 3 THEORY: 100
PART: III 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, preganacy 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
Paracology 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 HOURSE: 228+190
PAPER: 4
PART: III
MARKS
THEORY: 100
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
Hypekalimia/hypokalimia
Hypercalcemia/hypocalcimia
Hyperphospatemia
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 patholensis
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
Parmacology 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 HOURSE:** 114+114
**PAPER:** 1
**PART:** IV
**MARKS**
THEORY: 100
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 orf 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 clark 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

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| 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 clark in 1989
Know you kidney by wook
COURSE TITLE: TREATMENT OF ADVANCED RENAL DISEASE LIFE SUPPORT PROCEDURE AND SPECIALIZED DIALYSIS CLINICAL PRACTICE

STUDY HOURSE: 30414+114
PAPER: 3
PART: IV
MARKS
THEORY: 100
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
Hypopertimia/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 HOURSE: 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) Paramedical sciences
In Gastro-Enterology
### COURSES OF B.SC (HONS) IN GASTROENTEROLOGY (ELECTIVE)

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<td>12.</td>
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<td>13.</td>
<td>ERCP procedure and clinical practice</td>
<td>76+228</td>
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<td>14.</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: 1+2

PART: II

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
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<thead>
<tr>
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<td>Endoscopes of different types and accessories endoscopy unit/function.</td>
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<td>PRACTICE</td>
<td>Holding and endoscopes fiberoptic versus video imaging</td>
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<td>Introduction of anatomy of GIT in detail</td>
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<td>PHYSIOLOGY II OF GIT</td>
<td>Introduce students with in detail regarding physiology of GIT:</td>
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<td>Mechanism of enzyme production, function of liver, mechanism of bile</td>
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<td></td>
<td>production, process of digestion, control of intestinal, Gastric</td>
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<td></td>
<td>secretion, etc. sphinteric function of GIT</td>
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</table>

**COURSE TITLE: GASTRO PROCEDURE AND CLINICAL PRACTICE**

**STUDY HOURS:** 114+114  
**PAPER:** 1+2  
**PART:** II  

**COURSE OBJECTIVE:**  
To give knowledge about practical training

**COURSE CONTENTS:**  
Endoscopes of different types and accessories endoscopy unit/function. Holding and endoscopes fiberoptic versus video imaging

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**COURSE TITLE: ANATOMY II OF GIT**

**STUDY HOURS:** 228+114  
**PAPER:** 3  
**PART:** II  

**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)

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<tr>
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<th>MARKS</th>
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**COURSE TITLE: PHYSIOLOGY II OF GIT**

**STUDY HOURS:** 190+114  
**PAPER:** 4  
**PART:** II  

**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:** 3+4  
**Part:** II

### Course Objective:
To introduce to the student of the significance of gastroenterology procedures and clinical practice.

### Course Contents:
- Endoscopes of different types and accessories endoscopy unit/function. Holding and endoscopes fiberoptic versus video imaging.
- Injection sclerotherapy needles, esophageal bands, stricture dilatation assistance, polypectomy assistance and snare handling, collection of biopsy specimen, loading esophageal bands.
- 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 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  
**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  
**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  MARKS
PAPER: 3  THEORY: 100
PART: III  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, divertica, vascular disorders, inflammatory
diseases, infectous 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, carcinomna 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  MARKS
PAPER: 4  THEORY: 100
PART: III  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 antemitic (domperidone, metaclopamide, sedative diazepam,
medazolam) infections control during GIT endoscopy, routine endoscope cleaning, sterilization
end 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  
**PAPER:** 1  
**PART:** IV  
**MARKS**

**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  
**PAPER:** 1  
**PART:** IV  
**MARKS**

**COURSE OBJECTIVE:**
Recognition of lower GIT and pathology practically

**COURSE CONTENTS:**
Indications and contraindication of sigomoidoscopy, 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.
COURSE TITLE: ERCP PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 228+76
PAPER: 2
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
To know about the procedure endoscopic retrograde colangiopancreatiogra phy 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, ballons, 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: 3
PART: IV
MARKS
THEORY: 100
PRACTICAL: 50
TIME: 3 HRS

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

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**MARKS**

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**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

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**COURSE TITLE:** ERCP-II PROCEDURE AND CLINICAL PRACTICE

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<td>TIME:</td>
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**COURSE OBJECTIVE:**
- To know about the procedure endoscopic retrograde colangiopancreatografiy and to provide detail knowledge about the accessories used in Gastroenterology.

**COURSE CONTENTS:**
- Contrast agents used, concentration of contrast. Therapeutic accessories Anatomy/identification of papilla, biliary 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
Course of B.sc (Hons) Paramedical Sciences In Mother and Child Health
### COURSES OF B.SC (HONS) MCH TECHNOLOGY (ELECTIVE)

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<td>5.</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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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: I
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 pelvise
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: I
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:
Rashid A. Latif 6th edition gynecology

COURSE TITLE: FOETUS ANATOMY AND DEVELOPMENT

STUDY HOURS: 114
PAPER: 2
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 a 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: | 2 |
| 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 pediatric diseases 8th Edition

**COURSE TITLE:** CLINICAL PRACTICE I IN GYNAE OPD

| STUDY HOURS: | 76 |
| PAPER: | 1, 2 |
| PART: | II |

**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 treatemnt, admission
COURSE TITLE: APPLIED ANATOMY AND CLINICAL PRACTICE

STUDY HOURS: 114
PAPER: 3
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: 3
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: 4
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
Introductory Nutrition + Diet Therapy by M.M.E in 1984 by J.B
Lippincort Philadelphia London

COURSE TITLE: PREGNANCY AND CLINICAL PRACTICE

STUDY HOURS: 114 MARKS
PAPER: 4 THEORY: 100
PART: II 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 MARKS
PAPER: 4 THEORY: 100
PART: II PRACTICAL: 50
TIME: 1.00 HRS

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

COURSE CONTENTS:
1. Growth Development
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: 3,4
PART: II

COURSE OBJECTIVE:
To introduce 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 behaviors 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: 1
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 Gina/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 MARKS
PAPER: 2 THEORY: 100
PART: III 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 children, 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 (refferel book)

COURSE TITLE: CHILD AND MATERNAL RIGHTS AND CLINICAL PRACTICE

STUDY HOURS: 152 MARKS
PAPER: 2 THEORY: 100
PART: III 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: 1,2
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: 3
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
PAPER: 3
PART: III
MARKS
THEORY: 100
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
PAPER: 4
PART: III
MARKS
THEORY: 100
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 HIGIENE, SANITATION AND CLEAN WATER SUPPLY AND CLINICAL PRACTICE

**STUDY HOURS:** 152
**PAPER:** 4
**PART:** III

**MARKS**
**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

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

**STUDY HOURS:** 228
**PAPER:** 3,4
**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
PAPER: 1
PART: IV

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

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COURSE TITLE: IMMUNISATION AND CLINICAL PRACTICE

STUDY HOURS: 114
PAPER: 1
PART: IV

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 immunization in 1989 who dester Ltd.
COURSE TITLE: ASPEPSIS, MINOR SURGICAL PROCEDURE AND CLINICAL PRACTICE

STUDY HOURS: 228
PAPER: 2
PART: IV

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
PAPER: 2
PART: IV

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
PAPER: 2
PART: IV

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
PAPER: 3
PART: IV

MARKS
THEORY: 100
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: 3  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: 4  THEORY: 100
PART: IV  PRACTICAL: 50
TIME: 3 HRS

COURSE OBJECTIVE:
Introduction of MCH Services to the Students

COURSES CONTENTS:
1. MCH Services in Community
2. MCH Centre 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
PAPER: 3,4
PART: IV

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

COURSE CONTENTS:
1. Gynaec Ward
2. O.T Obst: and Gynaec Labour room
Course of B.Sc (Hons) Pramedical Sciences In Cardiology
### COURSE OF B.SC (HONS) IN CARDIOLGY (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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<tbody>
<tr>
<td>1.</td>
<td>Anatomy I and clinical practice on ECG</td>
<td>152+76</td>
<td>1</td>
<td>II</td>
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<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>
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<td>II</td>
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<tr>
<td>4.</td>
<td>Physiology 2 and clinical practice in ICU</td>
<td>228+228</td>
<td>4</td>
<td>II</td>
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<tr>
<td>5.</td>
<td>Pathology I and clinical practice in ICU</td>
<td>228+114</td>
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<td>III</td>
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<td>6.</td>
<td>Pharmacology I and clinical practice in Cardiology</td>
<td>190+114</td>
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<td>7.</td>
<td>Clinical practice in CCU</td>
<td>228</td>
<td>1+2</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>
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<td>III</td>
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<td>9.</td>
<td>Pharmacology 2 and clinical practice</td>
<td>152+228</td>
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<td>10.</td>
<td>Pathology 3 and clinical practice</td>
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<td>11.</td>
<td>Pharmacology 3 and clinical</td>
<td>228+152</td>
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<tr>
<td>12.</td>
<td>Cardiac cath lab-I and clinical practice</td>
<td>114+152</td>
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<td>IV</td>
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<tr>
<td>13.</td>
<td>Cardiac cat 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  
Vacations for each examination = 4 weeks  
Vacations 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 THEORY: 100
PART: II 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. Cardiac 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 Williams 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 Cardae Tendenae.
3. Physiology of Right Hearth.
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
PAPER: I
PART: III

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. Ischaemia
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
PAPER: 2
PART: III

COURSE 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
PAPER: 3
PART: III
MARKS
THEORY: 100
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:
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: 11 THEORY: 100
PART: I 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 THEOREY: 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. 
7. Transthorasic and trans esophageal eacho
8. Operating echo machine

RECOMMENDED BOOKS:
Bruanwald by Uqene branwaled in 2005 by Elsevier Sawders
COURSE TITLE: PHARMACOLOGY III AND CLINICAL PRACTICE

STUDY HOURS: 228+152  MARKS
PAPER: 2 THEOREY: 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 cardiogist
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 HORUS: 114+152  MARKS
PAPER: 3 THEOREY: 100
PART: IV 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, Angioloography

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

MARKS
PAPER: 4
PART: IV

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 congential 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
Brauanwald by Uqene branwaled in 2005 by Elsevier Sawders