



Dr. M. G. R.
EDUCATIONAL AND RESEARCH INSTITUTE
UNIVERSITY
(Declared as Deemed to be University u/s. 3 of UGC Act, 1956)
MADURAVOYAL, CHENNAI – 600 095

FACULTY OF ALLIED HEALTH SCIENCES

**B.Sc. Operation Theatre and Anesthesia
Technology**

Regulation, Curriculum and Syllabus

2017



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Regulations for B.Sc. (Allied Health Science) Courses

Introduction:

B.Sc. (Allied Health Science), a (3-year course work + 1-year internship) program under the **Faculty of Allied Health Sciences**, is aimed at training students who will be able to meticulously assist the doctors for providing quality patient care in selected areas of clinical specialty. This program is a taught course that covers relevant topics and specialized areas of knowledge as opted. The aim of this B.Sc. program is to provide a thorough training to the candidates through formal lectures and/or seminars and practical programs which culminate in a one year internship that finally prepares the student for the rigors of the medical world.

1. Short Title and Commencement:

These Regulations shall be called the “Regulations for B.Sc. (Allied Health Science) Course” of Dr. M.G.R Educational and Research Institute. These regulations shall come into force from the academic year 2017-2018. These regulations are subject to modifications as may be approved by the Academic Council from time to time.

2. Eligibility for Admission:

- a) A candidate desiring to join the (3-year course work + 1-year internship) program, leading to the degree B.Sc. (Allied Health Science) should have passed

the HSC/CBSE/ISC or equivalent examination with one of the following subject combinations:

- i) Physics, Chemistry, Biology
- ii) Physics, Chemistry, Botany and Zoology

b) A candidate shall, at the time of admission submit to the Head of the Institution, a certificate of medical fitness from an authorized Medical Officer certifying that the candidate is physically fit to undergo the academic course and does not suffer from any disability or contagious disease.

3. Age limit for admission

A candidate should have completed the age of 17 years or would complete the age as on 31st December of the year of admission to the B.Sc Allied Health Science Course.

4. Eligibility Certificate

Candidates, who have passed any qualifying examination other than the Higher Secondary Course examination conducted by the Government of Tamil Nadu, shall obtain an Eligibility Certificate from Dr. M.G.R Educational and Research Institute and produce the same at the time of admission.

5. Registration

A candidate admitted to the course shall register his/her name with the University by submitting the application form for registration, duly filled in along with the prescribed fee, through the Head of the Institution within the stipulated date.

6. Duration of the course

The duration of the B.Sc. (Allied Health Science) Degree Course shall be 3-year course work comprising of 6(six) semesters and one year (semesters 7 & 8) of compulsory internship. The candidate is required to pursue the course on a full time basis, and must complete the course within seven years from the date of provisional registration.

7. Commencement of the Course:

The course shall ordinarily commence by the month of August of the academic year.

8. Curriculum:

The Curriculum and syllabus for the course shall be as specified in the annexure to these regulations which are subject to modifications by the standing Academic Board from time to time.

(i) The first three years of the course will be utilized as follows:

- The first two semesters will be spent on Pre and Para clinical subjects including Anatomy, Physiology, Biochemistry, Microbiology, Pathology, Physics , English and Communication skills, Introduction to Computers, and Pharmacology.
- At the beginning of the third semester, students will be assigned to one of the following branches of specialization as per the admission policy, and they will be offered specialized training in that specialty during the third, fourth, fifth and sixth semesters.

(ii) The fourth year of the course shall be compulsory internship in the respective specialty.

9. Medium of Instruction:

English shall be the medium of instruction for all the subjects of study and for the examination.

10. Working Days:

Each semester shall consist of not less than 100 working days and each academic year shall have a total of 200 working days or above in the first to Sixth Semesters. In the Seventh and Eighth semesters, each semester shall have a minimum of 120 working days.

11. Attendance:

The candidate shall have not less than 80 % attendance in Theory and Practical separately. The candidate lacking attendance in a subject shall be denied permission to appear for the University Examination in that subject.

12. Condonation of Lack of Attendance:

The discretionary power of condonation of shortage of attendance to appear for University Examination rests with the University.

Lack of attendance can be condoned up to a maximum of 10% of the minimum attendance required in the following exceptional circumstances:

- (i) Any illness/ accident (for which Medical certificate from a registered medical practitioner must be produced)
- (ii) Any unforeseen tragedy in the family (should produce the letter from the parent/guardian)
- (iii) Participation in NCC/NSS and other co-curricular activities representing the Institution / University. (Certificate from competent authority is required)

For any of the above reasons, request shall be made by the candidate with prescribed fees to the Controller of Examination through proper channel, ten days prior to the commencement of the theory examination.

13. Commencement of the examinations

There shall be two sessions of University examinations in an academic year, viz., February and August.

14. Continuous (Internal) Assessment:

Continuous (Internal) Assessment for Theory shall be the average of the best two out of three.

Continuous (Internal) Assessment for Practical shall be the average of the best two out of three.

15. Semester - End Examination (University/Department):

a. The examination in B.Sc. (Allied Health Science) shall consist of Written Theory examinations and Practical examinations. The Semester - End Examination (University/Department) shall be conducted at the end of each semester.

b. Papers for which Internal Examination is recommended by the Board of Studies and approved by the Academic Council, the date of Semester - End Examinations (Internal examinations) shall be as per the University guidelines.

16. Pattern of Semester - End Examination (University/Department):

EXAMINATION PATTERN-

SEMESTER-I AND SEMESTER-II (FOR ALL SPECIALITIES)

THEORY

MAX.MARKS- 60 Marks

DURATION -2¹/₂ Hours

PART –A (Answer any one from Two)

1. Essay (1x15=15 Marks)

PART-B (Answer all questions)

1. Short Notes (5x5=25 Marks)

PART-C (Answer all questions)

1. Short answers (10x2=20 Marks)

PRACTICAL

Practical (including Orals) 15 Marks

CONTINUOUS (INTERNAL) ASSESSMENT

(i) Theory 20 Marks

(ii) Practical 5 Marks

TOTAL 100 Marks

Question pattern for SEMESTER III – SEMESTER VI

Duration -3hours

Theory Pattern

Max marks:80

Section –A (Answer any TWO from THREE)

1. Essay (2x15=30)

Section-B (Answer any EIGHT from TEN)

1. Short notes (8x5=40)

Section-C

1. Very short notes (5x2=10)

Internal assessment

20 marks

- **Based on CAT Exams**

TOTAL

100 Marks

Question pattern for SEMESTER III – SEMESTER VI

Duration -3hours

Theory Pattern

80 marks

Section –A (Answer any TWO from THREE)

1. Essay (2x15=30)

Section-B (Answer any EIGHT from TEN)

1. Short notes (8x5=40)

Section-C

1. Very short notes (5x2=10)

Internal assessment

20 marks

- Based on CAT Exams

TOTAL

100 Marks

Practicals Pattern

Max marks:80

- | | |
|------------------------------|----------|
| 1. Spotters | 20 marks |
| 2. Viva (Theory &Practicals) | 20 marks |
| 3. Charts/stations | 20 marks |
| 4. Record | 20 marks |

Internal assessment

Max marks:20

- Based on CAT Exams
- Attendance
- Log book

TOTAL

100 Marks

17. Marks Qualifying for a Pass:

For passing the University/End-Semester Examination from Semester I to Semester VI, the candidate shall secure the marks as stated below,

- (i) 40% minimum in the University End-Semester Theory examination
- (ii) 40% minimum in the University End-Semester Practical examination
- (iii) 40% of marks in the subject where internal evaluation alone is conducted
- (iv) 40% of aggregate of theory, practical and internal assessment taken together

18. Classification of successful candidates:

- a) Successful candidates who secure 75% marks and above as a course aggregate in the first appearance taking University theory, practical, and project/dissertation evaluation shall alone be awarded Distinction. This will also apply for award of University rank.
- b) Successful candidates who secure 60% marks and above as a course aggregate in the University theory, practical, project/dissertation evaluation and viva shall be awarded First Class.
- c) All others who secure 40-59% in gross percentage will be classified to have passed in Second Class.

19. Revaluation of answer papers

There shall be revaluation and retotaling of answer papers of failed candidates. Failed candidates are however, permitted to apply to the University within fifteen days of publication of the results for revaluation and retotaling.

20. Carry- over of failed subjects

- 1) A candidate has to pass in theory and practical examinations separately in each of the paper.

- 2) If the candidate fails either in theory or practical examinations, he/she has to reappear for both (theory and practical)
- 3) The student shall start the Internship training (VII & VIII semester) only after he/she clears all the papers from Semester I to Semester VI.

21. Temporary break of study

- a) A candidate is not normally permitted to temporarily break the study.
- b) If a candidate is continuously absent from the institute for four or more weeks,
 - i) Having notified the Dean/Director/Principal within this period, this absence shall be treated as “Temporary Break of Study”.
 - ii) Without notifying the Dean/Director/Principal, his/her name will be removed from the institute rolls.
- c) If a candidate is compelled to temporarily break the study for valid reasons (such as accident or hospitalization due to prolonged ill health), he/she shall apply for condonation of the break to the Dean/Director/Principal through the Head of the Department.
- d) For condonable break of study:
 - i) If the lack of attendance is within condonable limits as per Clause No. 12, the candidate shall be permitted to write the examination for the current semester.
 - ii) If there is non-condonable lack of attendance, the candidate shall rejoin the program at the respective semester as and when it is offered after the break and shall be governed by the rules and regulations in force at the time of rejoining.
- e) The total period for completion of the program reckoned from the commencement of the semester to which the candidate was first admitted shall not exceed the maximum period specified in Clause No.6 irrespective of the period of break of study in order that he/she may be qualified for the award of the degree.

f) In any case, a candidate shall be permitted to temporarily break the study only once during the entire duration of the program. The candidate shall forfeit the registration in case of a second break or in case of a non-condonable break of study.

g) Without prejudice to the above rules, the candidate who has completed the attendance requirement for a semester, but has proceeded on a condonable break of study without appearing for the University Examination, shall be permitted to appear for the examinations without repeating the semester and thereafter continue the subsequent semester.

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FACULTY OF ALLIED HEALTH SCIENCES

SCHEME OF EXAMINATION

SEMESTER – I

TOTAL HOURS : 330

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				Total
		Lecture	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		
				Theory	Practical	Theory	Practical	
1	Anatomy -I	40 hours	20 hours	20	5	60	15	100
2	Physiology -I	40 hours	20 hours	20	5	60	15	100
3	Biochemistry -I	40 hours	20 hours	20	5	60	15	100
4	Microbiology -I	40 hours	20 hours	20	5	60	15	100
5	Pathology -I	40 hours	20 hours	20	5	60	15	100
6	English	30 hours	-	50	15	20	05	50

SEMESTER – II

TOTAL HOURS : 420

S.No.	Paper	Hours / Semester		Evaluation (Marks)				
		Lecture	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		Total
				Theory	Practical	Theory	Practical	
1	Anatomy -II	40 hours	20 hours	20	5	60	15	100
2	Physiology -II	40 hours	20 hours	20	5	60	15	100
3	Biochemistry -II	40 hours	20 hours	20	5	60	15	100
4	Microbiology -II	40 hours	20 hours	20	5	60	15	100
5	Pathology -II	40 hours	20 hours	20	5	60	15	100
6	Pharmacology	40 hours	20 hours	20	5	60	15	100
7	Physics	30 hours	-	50	-	-	-	50
8	Computer Science	30 hours	-	50	-	-	-	50

SEMESTER – III (OT AND ANAESTHESIA TECHNOLOGY)

TOTALHOURS: 420

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				Total
		Theory	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		
				Theory	Practical	Theory	Practical	
1	Anatomy & Physiology related to Anesthesia Technology -Theory(UE)	60 hours	-	20	-	80	-	100
2	Anatomy& Physiology related to Anesthesia Technology Practical (UE)		120 hours	-	20		80	100
3	Applied Pharmacology And Microbiology Theory(UE)	60 hours	-	20	-	80	-	100
4	Applied Pharmacology And Microbiology Practical(UE)		120 hours	-	20	-	80	100
5	Medical Ethics and Bio safety (IE)	30 hours	-	-	-	50	-	50
6	Psychology (IE)	30 hours	-	-	-	50	-	50

SEMESTER – IV (OT AND ANAESTHESIA TECHNOLOGY)

HOURS:420

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				
		Theory	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		Total
				Theory	Practical	Theory	Practical	
1	Principles Of Anesthesia - I Theory(UE)	60 hours	-	20	-	80	-	100
2	Principles Of Anesthesia - I Practical(UE)	-	120 hours	-	20	-	80	100
3	Principles Of Anesthesia - II Theory(UE))	60 hours	-	20	-	80	-	100
4	Principles Of Anesthesia -II Practical(UE)	-	120 hours	-	20	-	80	100
5	Basics and Advanced Life support(IE)	30 hours	-	-	-	50	-	50
6	Sociology(IE)	30 hours	-	-	-	50	-	50

SEMESTER – V (OT AND ANAESTHESIA TECHNOLOGY)

HOURS: 390

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				
		Theory	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		Total
				Theory	Practical	Theory	Practical	
1	Principles Of Sterilization Techniques-Theory(UE)	60 hours	-	20	-	80	-	100
2	Principles Of Sterilization Techniques-Practical(UE)	-	120 hours	-	20	-	80	100
3	Anesthesia Techniques Including Complications-Theory(UE)	60 hours	-	20	-	80	-	100
4	Anesthesia Techniques Including Complications-Practical(UE)	-	120 hours	-	20	-	80	100
5	Community medicine(IE)	30 hours		-	-	50	-	50

SEMESTER – VI (OT AND ANAESTHESIA TECHNOLOGY)

HOURS: 390

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				
		Theory	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		Total
				Theory	Practical	Theory	Practical	
1	Anesthesia for specialties (including critical care assistance and ventilation) paper – I Theory(UE)	60 hours	-	20 hours	-	80	-	100
2	Anesthesia for specialties (including critical care assistance and ventilation) paper – I Practical(UE)	-	120 hours	-	20 hours	-	80	100
3	Anesthesia for specialties (including critical care assistance and ventilation) paper – II Theory(UE)	60 hours	-	20 hours	-	80	-	100
4	Anesthesia for specialties (including critical care assistance and ventilation) paper – II- Practical(UE)	-	120 hours	-	20 hours	-	80	100
5	Healthcare and basic Principles(IE)	30 hours	-	-	-	50	-	50

SEMESTER – VII (OT AND ANAESTHESIA TECHNOLOGY)

Project/Dissertation

S.No.	Paper	Hours/ Semester		Evaluation (Marks)				
		Theory	Practical	Continuous Assessment (Internals)		End Semester examination (University/Department Exams)		Total
				Project	Viva	Project	Viva	
1.	Project/ Dissertation (UE)	-	-	100	-	100	-	200
2.	Statistics and Research Methodology (IE)	30 hours	-	-	-	50	-	50

SEMESTER – VII & VIII(OT AND ANAESTHESIA TECHNOLOGY)

Internship -1 YEAR

SEMESTER - I

S.No	Subject
1.	Anatomy – I(UE)
2.	Physiology –I (UE)
3.	Biochemistry - I(UE)
4	Microbiology - I(UE)
5.	Pathology – I(UE)
6.	English (IE)

SEMESTER - I

ANATOMY – I (UE)

Course description:

- A study of the anatomical structure of the human body.
- Body structure will be studied by organ systems.
- Form-function relationships with emphasis on clinically relevant anatomy.
- The laboratory study will involve observing and learning from human skeletal collections and dissected cadavers and preserved specimens.

Objectives:

- At the end of the course the student should be able to:
- Describe the structure and functions of the organ systems of the human body.
- Describe how the organ systems function and interrelate.
- Learn basic technical terminology and language associated with anatomy.
- Develop a self-identity of what it means to be “human”.

Learning Objectives: Skills

- Identify the anatomical structure in the dissected specimen.
- Learn to correlate anatomical structures with relevant clinical conditions.

CONTENTS

Unit I

Organization of the Human Body

- Introduction to the human body
- Definition and subdivisions of anatomy
- Anatomical position and terminology
- Regions and Systems of the body
- Cavities of the body and their contents
- Levels of organization of the body

Cell

- Definition of a cell, shapes and sizes of cells
- Parts of a cell – cell membranes cytoplasm, subcellular organelles and their main function
- Cell Division – Definition and main events that occur in different stages of mitosis and meiosis.

Tissues

- Tissues of the body
- Definition and types of basic tissues
- Characteristics, functions and locations of different types of tissues

Unit II

Systems of Support and Movement

1. Skeletal system

- Skeleton – Definition, axial and appendicular skeleton with names and number of bones, Types of bones. Parts of bones. Functions of bones. Name location and general features of the bones of the body.
- Joints – Definition and types of joints with examples. Axes and kind of movements possible. Name, location, type, bones forming, movements possible.

2. Muscular system

- Parts of the skeletal muscle. Definition of origin and insertion. Name and location of the skeletal muscles of the body. Origin, insertion, nerve supply and action of large muscles like sternocleidomastoid, pectoralis major, deltoid, Biceps brachii, Triceps brachii, gluteus, gastronemius and diaphragm.

Unit III

Control Systems of the Body

1. Nervous system

- Sub-divisions of the nervous system
- **Spinal cord** – Location, extent, spinal segments, external features and internal structure.
- **Brain** – Sub-divisions, location external features of medulla oblongata, pons, mid-brain, cerebellum and cerebrum. Meninges and spaces around them. Name and location of ventricles of brain and circulation of cerebrospinal fluid. Blood supply of the brain and spinal cord.
- **Cranial nerves** - Name, number, location and general distribution.
- **Spinal nerves** - Typical spinal nerve groups and number of spinal nerves. Name and location of cervical plexus and brachial plexus. Location and general distribution of the branches.
- **Autonomic Nervous system** –definition and functions

2. Sense organs

- Location and features of the nose, tongue, eye, ear and skin

3. Endocrine system

- Names of the endocrine glands. Location and features of pituitary, thyroid, parathyroid, suprarenal, pancreas, ovaries and testes. Names of hormones produced by each gland.

PRACTICAL & VIVA VOCE SYLLABUS

1. Histology – Epithelium

2. Axial & Appendicular Skeleton With Names & Number Of Bones

3. Muscles

- a. Trapezius
- b. Lattisimusdorsi

- c. Biceps
- d. Triceps
- e. Deltoid
- 4. Nervous System**
 - a. Cerebrum
 - b. Cerebellum
 - c. Brain Stem
 - d. Spinal Cord
- 5. Special Senses**
 - a. Tongue
 - b. Ear
 - c. Skin
 - d. Eye ballSS
- 6. Viva Voce**
 - a. Radiology – Xrays
 - b. Osteology
 - c. Charts
 - d. Models
 - e. Gluteus Muscles

Recommended books:

1. Manipal manual of Anatomy for Allied Health Sciences, Sampathmadhyastha
2. B D Chaurasia: General human anatomy

References:

1. B D Chaurasia: Regional Anatomy. Vol I, II,III
2. Richard S. Snell: Clinical Anatomy

PHYSIOLOGY-I

Objectives of the course:

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

Comprehend basic terminologies used in the field of Human Physiology

Define and describe basic Physiological processes governing the normal functioning of the human body.

Apply this knowledge in their Allied Health Science practice.

Contents

Unit 1 Ia. General Physiology

- Concept of Homeostasis
- Cell structure and functions
- Transport across membranes

Ib. Nerve and muscle

- Nerve structure, classification of nerve fibres,
- Muscles- classification , structure ,Neuro-Muscular junction(NMJ).
- Muscle contraction-mechanism,types.

Ic. Blood and body fluids

- Body fluid volumes, compartments, and composition
- Blood composition and functions
- Plasma proteins
- Erythrocytes -Morphology and functions
- Leucocytes-Morphology and functions
- Platelets-Morphology and functions
- Blood groups.

Unit II

IIa. Digestive system

- Salivary glands -Nerve supply , functions of saliva.
- Gastric juice-composition & functions of gastric juice.
- Pancreatic juice-composition , functions and regulation of pancreatic juice.
- Bile- composition , functions of bile and bile salts.
- Succus entericus and small intestinal movements.
- Deglutition, vomiting, functions of large intestine.

IIb. Excretory system

- Structure of Nephron and its blood supply, Juxtaglomerular Apparatus(JGA).
- Formation of urine-Filtration, Reabsorption and secretion.
- Counter-Current mechanism
- Micturition.

PRACTICAL & VIVA VOCE SYLLABUS

I. Microscope

II. Estimation of Hemoglobin

III. RBC

IV. WBC

V. Spotters

BIOCHEMISTRY-I (UE)

Objectives:

- To have a knowledge about the chemistry and metabolism of various macromolecules- carbohydrate, protein and lipids
- To learn about enzymes, vitamins, minerals and nutrition
- To know the structure and function of Hemoglobins, Nucleic acids.
- To learn about the organ function tests like Liver Function Tests and Renal Function Tests.

CONTENTS

Unit I - CARBOHYDRATES

Carbohydrates:

- Classification of carbohydrates and their biological importance,
- Reducing property of sugars.

Metabolism of Carbohydrates :

- Digestion and Absorption of carbohydrates,
- Steps of Glycolysis and energetics,
- Steps of TCA cycle and energetics,
- Steps of Glycogen synthesis and breakdown,
- Significance of HMP shunt pathway,
- Definition and steps of Gluconeogenesis, Galactose metabolism
- Galactosemia.
- Diabetes mellitus ,

Bioenergetics :

- Importance of ATP, Outline of respiratory chain.

Unit II - LIPIDS

Lipids:

- Classification of lipids,
- Essential fatty acids,
- Functions of cholesterol,
- Triglycerides,
- Phospholipids

Metabolism of Lipids :

- Digestion and Absorption of lipids,
- Fatty acid synthesis & Steps of β oxidation of fatty acids,
- Types and functions of lipoprotein,
- Lipid profile, hyper cholesterolemia

Unit III - VITAMINS

Vitamins:

- Vitamins, its classification
- Vitamin A
- Vitamin D
- Vitamin E & K
- Vitamin B complex
- Vitamin C

Unit IV - ENZYMES

Enzymes:

- Definition,
- Classification,
- Coenzymes,

Factors affecting enzyme activity, Types and examples of enzyme inhibition

PRACTICAL & VIVA VOCE

- 1 Reactions of Glucose
- 2 Reactions of Fructose
- 3 Reactions of Maltose
- 4 Reactions of Lactose
- 5 Tests for Sucrose
- 6 Tests for Starch
- 7 Identification of unknown Carbohydrates
- 8 Spotters

Spotters:

The student must identify the spotter and write some important uses of the spotter.

• **CRYSTALS**

- Maltosazone
- Lactosazone
- Glucosazone/Fructosazone

• **REAGENTS**

- Benedict's reagent
- Barfoeds reagent
- Foulgers reagent
- Seliwanoff reagent
- Fouchets reagent

• **CHEMICALS**

- Sodium Acetate
- Phenylhydrazine
- α Naphthol

• **STRUCTURES.**

- Structure of Cholesterol
- Structure of Glucose
- Structure of Fructose

• **VITAMINS**

- Carrots
- Rickets
- Scurvy
- Egg

MICROBIOLOGY – I (UE)

OBJECTIVE:

At the end of the semester the students should be able to

- Know the concepts of sterilization and disinfection procedures and their applications.
- Understand the basic principles of immunology.
- Understand the basic fundamental aspect of bacteria and study the common disease caused by them.

Contents

Unit I:

General Microbiology-History and Introduction of Microbiology, Microscopy and Morphology of bacterial cell and their function, Growth and nutrition of Bacteria, Sterilization and Disinfection , Culture media, Culture methods and Identification of bacteria.

Unit II:

Immunology-Basic concept about Infection (Source, Portal of entry and Spread), Immunity, Antigen, Antibody, Antigen-Antibody reaction, Hypersensitivity.

Unit III

Systemic bacteriology- Disease caused and lab diagnosis of medically important bacteria (Staphylococcus, Streptococcus, Neisseria, Echerichia coli, Salmonella, Shigella, Vibrio, Mycobacteria, Spirochetes)

PRACTICAL & VIVA VOCE

1. Gram staining

2. Spotters:

- Disposable syringe
- Sterile cotton swab
- Bacteriological loop
- Sterile tube
- McIntosh fildes Jar
- Autoclave
- Nutrient Agar plate
- Mac Conkey agar plate
- Mac conkey with LF
- Mac conkey with NLF
- Blood agar plate
- L J Media
- RCM
- BHI broth
- Antibiotic susceptibility test
- Gram Positive Cocci in Clusters

- Gram negative bacilli
- AFB
- VDRL Slide
- Microtitre plate

PATHOLOGY-I (UE)

1.Introduction to cell

- Normal Cell Structure Function

2.Cell injury and Adaptation

- Types of cell injury
- Adaptation
- Necrosis
- Apoptosis
- Pathological calcification

3.Inflammation and Repair

- Acute Inflammation
- Chronic Inflammation
- Wound Healing and Repair

4.Infectious Disease

- TB
- Leprosy

5.Hemodynamic Disorder

- Edema
- Thrombosis and Embolism
- Shock

6.Neoplasia

- Classification
- Nomenclature
- Characteristics of Benign & Malignant neoplasm
- Pathogenesis of cancer
- Spread of Cancer

7.Genetic Disorders

- Down syndrome
- Klinefelter Syndrome
- Turner Syndrome

8.Radiation

- Biological Effect of Radiation

PRACTICAL & VIVA VOCE

- **DIFFERENTIAL COUNT**

- Spotter

- **GROSS (SPOTTER)**

- Fatty liver
- Lipoma
- Dry gangrene foot
- Wet gangrene bowel
- CVC Spleen
- Hydatid cyst
- TB – Lung

- **INSTRUMENTS**

- Westergrens ESR tube
- Sahlihemocytometer
- Neubaur's chamber
- Bone Marrow Needle

SEMESTER-II

S.No:	Subject
1.	Anatomy – II
2.	Physiology –II
3.	Biochemistry – II
4	Microbiology – II
5.	Pathology – II
6.	Pharmacology
7.	Physics
8.	Computer science

SEMESTER II

ANATOMY – II (UE)

Objectives:

- At the end of the course the student should be able to:
- Describe the structure and functions of the organ systems of the human body.
- Describe how the organ systems function and interrelate.
- Learn basic technical terminology and language associated with anatomy.
- Develop a self-identity of what it means to be “human”.

Unit I

Maintenance of the Human Body

1. Cardio-vascular system

- Types and general structure of blood vessels. Structure and types of arteries and veins. Structure of capillaries. Shape, size, location, coverings, external and internal features of heart. Structure of heart wall, conducting system of the heart.
- Blood supply of the heart. The systemic arteries and veins. Name, location, branches and main-distribution of principal arteries and veins.

2. Lymphatic system

- Lymph, lymphatic vessels, name, location and features of the lymphatic organs.

3. Respiratory system

- Names of organs of respiration, Location and features of nose, pharynx, larynx, trachea, bronchi, lungs and pleura.

Unit II

4. Digestive system

- Names of organs of digestion. Parts of alimentary canal and accessory organs. Location and features of mouth, pharynx, esophagus, stomach, small and large intestines. Location and features of salivary glands, pancreas, liver and gall bladder.

5. Urinary system

- Names of urinary organs, location and features of kidney, ureter, urinary bladder and urethra.

Unit III

6. Reproductive system

- Names of male and female organs of reproduction. Location and features of scrotum, testis, epididymis, vas deferens, seminal vesicle, ejaculatory duct, prostate gland, penis and spermatic cord. Location and features of uterus and its supports, uterine tube, ovary vagina vulva and breast.

Anatomical Regions

- Simple ideas about scalp, triangles of neck, axilla, cubital fossa, mediastinum, inguinal canal, femoral triangle, popliteal fossa.

PRACTICAL & VIVA VOCE SYLLABUS

- **Endocrine System**

- Pituitary gland
- Pineal body
- Thyroid & parathyroid gland
- Adrenal
- Pancreas
- Gonads – Ovary & Testis

- **Cardio-Vascular System**

- Heart

- **Lymphatic system**

- Spleen

- **Respiratory System**

- Lungs
- Larynx
- Trachea

- **Digestive System**

- Salivary glands
- Esophagus
- Pharynx
- Stomach
- Liver, Gall bladder
- Duodenum
- Small intestine
- Large intestine

- **Urinary system**

- Kidneys
- Ureter
- Urinary bladder

- **Reproductive System**

- Saggital section – Male & Female pelvis
- Uterus & ligaments
- Ovary
- Prostate
- Seminal vesicals
- Vas deferens
- Testis

- **Viva Voce**

- Radiology – Xrays
- Osteology
- Charts
- Models

Recommended books:

1. Manipal manual of Anatomy for Allied Health Sciences, Sampathmadhyastha.
2. B D Chaurasia: General human anatomy.

References:

1. B D Chaurasia: Regional Anatomy. Vol I, II,III.
2. Richard S. Snell: Clinical Anatomy.

PHYSIOLOGY-II (UE)

Unit III Cardiovascular System

- Cardiac muscle, action potential and conducting system of the heart.
- Cardiac cycle.
- ECG, heart sounds, Heart Rate.
- Cardiac output-Definition ,factors regulating cardiac output and measurement of cardiac output.
- Blood pressure-Definition, measurement, factors maintaining BP.
- Regional circulation-Coronary and cerebral.

Unit -IV Nervous system

- Structure & Properties of Neuron.

- Nerve- Classification,injury.
- Types and properties of Receptors
- Synapse and synaptic transmission.
- Reflex and its properties.
- Spinal cord-Ascending & Descending tracts.
- Thalamus , Basal ganglia , Cerebellum, Cerebral cortex, Hypothalamus &Cerebrospinal fluid.
- Autonomic nervous system.
- Ascending and desending tracts.

Unit -V Respiratory system

- Structure of upper and lower respiratory tract. Muscles of respiration and Mechanism of respiration.
- Lung volumes and capacities-definition,normal values,intrapulmonary and intra pleural pressures,surfactant.
- Oxygen transport,carbon-dioxide transport.
- Neural and chemical regulation of respiration.
- Hypoxia ,cyanosis,Artificial Respiration.

Unit – VI Special sense and skin

- Vision,
- Audition,
- Olfaction,
- Gustation.

Unit – VII Reproductive system

- Male reproductive organs-Spermatogenesis and testosterone actions.
- Female reproductive organs.
- Contraception Methods.

Unit – VIII Endocrine system

- Hypothalamus hypophyseal inter relationship.
- Anterior pituitary hormones and their functions.
- Posterior pituitary hormones and their actions.
- Thyroid hormones, biosynthesis and functions.
- Parathyroid hormones ,functions.
- Insulin, glucagons, actions and Diabetes mellitus.
- Adrenal cortex hormones and their functions.
- Adrenal medullary hormones and their actions.

PRACTICAL & VIVA VOCE SYLLABUS

1. WBC.
2. Blood pressure.
3. Bleeding time
4. Clotting time.
5. Charts and spotters.

BIOCHEMISTRY – II (UE)

Objectives:

- To have a knowledge about the chemistry and metabolism of various macromolecules- carbohydrate, protein and lipids
- To learn about enzymes, vitamins, minerals and nutrition
- To know the structure and function of Hemoglobins, Nucleic acids.
- To learn about the organ function tests like Liver Function Tests and Renal Function Tests.

Unit I - PROTEINS

Proteins :

- Classification of amino acids,
- Structure of proteins,
- Plasma proteins,
- Immunoglobulins.

Metabolism of Proteins :

- Digestion and absorption of proteins,
- Transamination,
- Deamination,
- Steps of urea cycle,
- Phenylketonuria,
- Alkaptonuria,
- Transmethylation,
- Products derived from Glycine and tyrosine

Unit II -- NUCLEIC ACIDS

Nucleic acids:

- Structure & Function of DNA,
- Structure, Its types & Functions of RNA
- Nucleic Acid Metabolism

Unit III - HAEMOGLOBIN

Haemoglobin:

- Structure & Function of Haemoglobin
- Haemoglobin Metabolism

Unit IV-- MINERALS

Minerals:

- Macro & Minor Minerals & Metabolism

Unit V -- NUTRITION

Nutrition:

- BMR, SDA & Glycemic Index
- Dietary Fibers & Balanced Diet
- Protein Energy Malnutrition

Unit VI -- ORGAN FUNCTION TEST

- RFT

Unit XI - ACID BASE BALANCE

Acid Base Balance:

- pH Homeostasis
- Buffers
- Buffers
- Acidosis
- Alkalosis

PRACTICAL & VIVA VOCE

- Non- Protein Nitrogenous Substances
- Analysis Constituents of normal urine
- Analysis Constituents of abnormal urine
- Identification of abnormal constituents in urine

- Estimation of Glucose in blood
- Estimation of Urea in blood.

Spotters

Spotters: The student must identify the spotter and write some important uses of the spotter.

1. Urinometer
2. Lactometer
3. Centrifuge
4. Spectroscope
5. Colorimeter
6. pH meter
7. Ryles's Tube
8. Chromatography apparatus
9. Electrophoresis apparatus
10. Micropipette
11. Fluorosis
12. Inborn Errors of Metabolism
13. Protein Energy Malnutrition
14. Benzidine powder
15. Sulphur powder
16. Fouchet's Reagent
17. Structure of t RNA
18. Egg White
19. Jaundice
20. Gout
- 21.

MICROBIOLOGY – II (UE)

OBJECTIVE:

At the end of the semester the students should be able to

- Know the concepts of sterilization and disinfection procedures and their applications.
- Understand the basic principles of immunology.
- Understand the basic fundamental aspect of bacteria and study the common disease caused by them.

Unit- I

Virology: Introduction to virology, List of medically important viruses and diseases (AIDS, Hepatitis, Rabies, Polio) and Lab diagnosis of viral infections

Unit - II

Mycology: Introduction to Mycology, List of medically important fungi and diseases (Candidiasis, Cryptococcosis, Dermatophytes, Aspergillosis and Mucor mycosis) and Lab diagnosis of fungal infections.

Unit - III

Parasitology: Introduction to Parasitology, List of medically important parasites and diseases (E.histolytica, Plasmodium, W.bancrofti, Ascaris,Ancylostoma) and Lab diagnosis of parasitic infections

Unit - IV

Applied Microbiology-Collection and transport of clinical specimen, Sexually transmitted disease, Hospital acquired infection, Urinary tract infection, Skin and Soft tissue infection, Anaerobic infection, Respiratory tract infection and Bloodstream infection, Immunoprophylaxis, Biomedical Waste Management and standard precautions.

PRACTICAL & VIVA VOCE

I.SPOTTERS

1. Ascarislumbricoides
2. Taenia
3. Gram stained smears showing Candida
4. Universal container
5. Vaccine-OPV
6. BCG
7. Hepatitis
8. DPT
9. TT
10. MMR
11. Virology –Embryonated egg
12. Tissue culture
13. Rhabdovirus
14. Polio virus
15. HIV

II. Clinical case discussion with charts

1. Skin and soft tissue infections
2. Ring worm/ Tinea infections
3. Food poisoning
4. Gastroenteritis

RECOMMENDED BOOK:

1. Dr.C.P.Baveja- Microbiology in Nutshell (Arya Publications).

REFERENCE BOOKS:

1. Ananthanaryanan and Paniker's - Textbook of Microbiology.
2. Dr.C.P.Baveja – Textbook of Microbiology.

PRACTICAL BOOK:

1. Patwardhan,Bhat,SatishPatwardhan – Handbook of Practical examination in Microbiology.

PATHOLOGY- II (UE)

1. CVS

- Atherosclerosis
- Ischemic heart disease
- Congenital heart disease
- Valvular heart disease

2. RESPIRATORY SYSTEM

- Bronchial Asthma
- Emphysema
- Bronchiectasis

3. GIT

- Gastric ulcer
- Tumors of GIT

4. HEPATOBILIARY

- Hepatitis
- Liver Abscess
- Cirrhosis
- Cholecystitis

5. KIDNEY AND URINARY TRACT

- Renal stones
- UTI and Pyelonephritis
- Renal cell carcinoma(RCC)

-Renal Failure

6. REPRODUCTIVE SYSTEM

-Diseases of testis, uterus, cervix and ovary

7. CNS

-Infections

8. BONES and JOINTS

-Septic Arthritis

-Osteomyelitis

-Rheumatoid Arthritis

9. ANEMIA

10. AUTOIMMUNE DISEASES

PRACTICAL & VIVA VOCE

INSTRUMENT TEST

- RBC Pipette
- WBC Pipette
- Sahli's Pipette
- Wintrobe's PCV tube
- Hb Estimation
- Blood grouping

SPECIMEN

- Chronic Pyelonephritis
- RCC
- SCC – Foot
- Leiomyoma – Fibroid uterus
- Gall stones
- Appendicitis
- Liver abscess

PHARMACOLOGY (UE)

COURSE OBJECTIVES:

To understand the terminologies and basic principles of pharmacokinetic and pharmacodynamic involved in the use of drugs.

To understand the pharmacological action and mechanism of action of common drugs used for different disease conditions.

To know the therapeutic uses and adverse effects of common drugs used for different disease conditions

Introduction

General pharmacological principles-Definition-Routes of drug administration-Pharmacokinetics-

Unit I:

- Pharmacodynamics-Adverse drug effects
- Drugs acting on Autonomic Nervous System, Peripheral Nervous System and Drugs acting on Central Nervous system

Unit II

- General considerations-Cholinergic system & drugs-Anticholinergic drugs-Adrenergic drugs-antiadrenergic drugs-Drugs acting on autonomic ganglia.

Unit III:

- Skeletal muscle relaxants-Local anaesthetics,General anaesthetics-Ethyl & Methyl alcohol-Sedatives-Hypnotics-Antiepileptics-Antiparkinsonian drugs-Drugs used in mental illness-Opioid analgesics and Non opioid Analgesics-Nonsteroidal Antiinflammatory drugs

Unit IV

- Cardiovascular drugs , Drugs affecting Blood & Blood formation and Drugs on Respiratory system
- Cardiac glycosides,Antiarrhythmic drugs, Antianginal drugs,Antihypertensives and Diuretics,Haematinics,Erythropoietin,,Drugs affecting-coagulation,Fibrinolytic and Antiplatelet drugs,Treatment of cough and antiasthmatic drugs.

Unit V

- Antimicrobial drugs
- General consideration-Antibiotics-Antibacterial agents-Antitubercular drugs-Antifungal-Antileprotic-Antiviral-Antimalarial-Antiamoebic-Antiprotozoal drugs-Cancer Chemotherapy,Antiseptic-Disinfectant-others.

Unit VI

- Hormones & related Drugs, Drugs used in Gastrointestinal diseases & Miscellaneous drugs
- Corticosteroids,Antithyroid drugs and Drugs for Diabetes Mellitus, Treatment of Vomiting,Constipation,Diarrhoea and Treatment of peptic ulcer
- Vitamins, Vaccines, Sera and chelating agents.

Recommended books:

Prep Manual for Undergraduates in Pharmacology by Tara V Shanbag, 2nd edition

Pharmacology for Dental and Allied Health Sciences by Padmaja Udaykumar, 3rd edition

Reference books:

Essentials of Medical Pharmacology by KD Tripathi, 7th edition

Basic and Clinical Pharmacology by Bertram G Katzung, 12th edition

PRACTICAL & VIVA VOCE

Learning Objective

This module is intended to discuss the various modalities of drug delivery and instruments relevant to it.

Instruments

Needles

Intravenous

Intrathecal

Spinal

Intra arterial

Students Discussion

Syringes: Tuberculin

Insulin

I.V cannula

Scalp. Vein set

Students Discussion

Enema can

Inhalers

Spacers

Nebulizers

Students Discussion

Tablets – Enteric coated, Sustained release, Sub-lingual

Students Discussion

Capsules, Spansules, Pessary, Suppository

Students Discussion

Topical Preparation, Ointment, Lotion, Powder,
Drops – eye / ear

Charts: Mechanism of action of drugs, adverse effects, toxicology

Spotters: drugs

Text books suggested for reading:

- Text book of pharmacology for Dental & Allied Health Science 2nd edition Padmaja Udaykumar
- Pharmacology for dental students Tara V shanbhag, Smita Shenoy, Veena Nayak
- Principles of pharmacology 2nd edition H.L.Sharma & KK Sharma

PHYSICS

Unit 1: Basic concepts

Basic Units, Heat, Acoustics etc. Basic concepts of power, work, force, energy Einstein's formula Electronics, Electricity & Magnetism, electromagnetic waves Units and measurements temperature and heat SI units of above parameters Atomic structure Nucleus Atomic Number, Mass Number electron orbit and energy levels Periodic table Isotopes Isobars Ionization and excitation Radioactivity, Natural and artificial radioactivity alpha decay beta decay.

Unit 2: Electromagnetic induction

Electric charges electric induction electric potential capacitance and capacitors. Electrical energy and power unit of current resistance and Ohm's law circuit laws heating effect of current sources of electrical energy E.M.F. Magnetism, Magnetic effect of an electric current application of magnetic field. Electromagnetic induction, laws of mutual induction and self-induction. Alternating current transformers theory and losses practical aspects reactance –resonance impedance and power factors.

Unit 3: Laser

Nature of light-Reflection-Refraction-Total internal reflection- Optical fibers- Applications in Medicine - Laser-Principles-Action-Types of laser, Basic principles of laser in Medical application - Argon-Iron laser photo coagulator-Photo thermal-Photochemical application -Applications of laser in Medicine- Laser hazards and safety measures.

Unit 4: Radiation Physics

Introduction to nuclear physics and radioactivity, Radioactive radiations - X-ray, production of x-ray, Properties of x-ray radiations - Biological effects of radiation, Radiation damage in matter, Radiation protection principles, radiation detection and measurement - Ultrasound and generation of ultrasound.

Unit 5: Introduction to Imaging Technique

Principles of Microscope: Simple microscope and compound microscope - Radiography: Making an X-ray image –Fluoroscopy-. CT Scans, MRI - Ultrasonography: Ultrasound picture of Body-A-Scan-B-Scan-M-Scan-Ultrasound diathermy-Phonocardiography - Radio isotopes: Uses of radio isotopes -^{99m}Tc Generator- Scintillation detectors - Application of scintillation detectors - Gamma Camera - Positron Camera.

Unit 6: Semiconductor devices

Principles of diodes and Transistors – Integrated circuits – Amplifiers – Basic configuration and types – differential and operational amplifiers– Waveform generators – Timer – A/D and D/A converters – Active filters – Transducers – Basic configuration and types.

Unit 7: Biopotential Recording Systems

Introduction to bioelectric potential – Electrodes and surfaces – Biopotential amplifier – Frequency ranges of various Biopotential signals – Working principles of bio potential recording systems – Electrocardiography – Electroencephalography – Electromyography.

Computer Science

1. History of computers,

- Definition of computers,

- Input devices,
- Output devices,
- Storage devices,
- Types of memory,
- And units of measurement,
- Range of computers,
- Generations of computers,
- Characteristics of computers

2. System:

- Hardware,
- Software,
- system definition,
- Fundamentals of Networking,
- Internet,
- Performing searches and working with search engines,
- types of software and its applications

3. Office application suite –

- Word processor,
- spreadsheet,
- presentations,
- other utility tools,
- Fundamentals of Linux / Windows operating system, functions, interfaces, basic commands, working with the shell and other standard utilities.

4. Language

- Comparison chart of conventional language,
- programming languages,
- generations of programming languages,
- Compilers and interpreters,
- Universal programming constructs based on SDLC,
- Variable, constant, identifiers, functions, procedures, if while, do – while,
- For and other Structures.

5. Programming in C language,

- Data types, identifiers, functions and its types, arrays, union, structures and pointers
- Introduction to object oriented programming with C++: classes, objects, inheritance
- Polymorphism and encapsulation. Introduction to databases, and query languages,
- Introduction to Bioinformatics

Practicals:

1. Various browsers, search engines, email
2. Text document with images with multiple formatting options using a specified office package
3. Spreadsheet using a specified office package
4. Presentation on a specified topic using the specified locations
5. Shell programming-parameters
6. Shell program- regular expressions
7. C program- functions
8. C program – file handling
9. C program demonstrating the usage of user defined variables
10. Databases
11. Applications in Optometry

Semester-III

S.No:	Subject
1.	Anatomy & Physiology Theory(UE)
2	Anatomy & Physiology Practical (UE)
3	Applied Pharmacology And Microbiology Theory(UE)
4	Applied Pharmacology And Microbiology Practical(UE)
5	Medical Ethics and Biosafety (IE)
6	Psychology (IE)

SEMESTER-III

ANATOMY & PHYSIOLOGY RELATED TO ANAESTHESIA TECHNOLOGY- THEORY (UE)

OBJECTIVE

- Expected to have basic knowledge on human anatomy and physiology
- To develop in depth knowledge on anatomy of various organs and structures
- To develop exhaustive ideology of various functions of various structures.

UNIT – I

Respiratory System- Structure and function of the respiratory tract in relation to anaesthesia -Nose, Pharynx, Larynx, Trachea & Bronchial tree – vessels, nerve supply, respiratory tract. Respiratory Physiology-Respiratory muscles – diaphragm, intercostals, Lung volumes-dead space, vital capacity, FRC .Oxygen: properties, storage, supply, hypoxia

UNIT II

Cardiovascular System - Anatomy – Chambers of the heart, circulation, ECG, Blood Pressure. How to measure? Hypotension & Hypertension

UNIT – III

Fluids And Electrolytes/ Blood Transfusion-Body Fluids – Composition, I.V Fluids – composition & administration, I.V Cannulation, Blood grouping, Cross matching, Transfusion indications, hazards.

UNIT – IV

Nervous System- Parts of Central & Peripheral Nervous System, Cerebro spinal fluid

UNIT – V

Reproductive System: Physiological changes in pregnancy and labour

Reference:

Text Books: 1. Human Anatomy ,B.D.Chaurasia, Vol 1, 2, 3, Sixth edition, CBS Publishers & Distributors, 2013 2.

Textbook of physiology : A.K.Jain, Fifth edition, Avichal Publishing Company , 2014

Specific Learning Outcome (SLO):

- Will be able to explain anatomy of various organs with better knowledge on terminologies.
- Will be able to explain to physiological processes with understanding.
- Will be able to provide better support during surgery.

ANATOMY & PHYSIOLOGY RELATED TO ANAESTHESIA TECHNOLOGY- PRACTICAL (UE)

OBJECTIVE

- Expected to have basic knowledge on human anatomy and physiology
- To develop in depth knowledge on anatomy of various organs and structures
- To develop exhaustive ideology of various functions of various structures.

PRACTICALS/ DEMONSTRATIONS

1. Model of respiratory tract
2. Spotters –pictures in anatomy and physiology of various systems
3. How to measure blood pressure
4. How to set up things for IV cannulation

Specific Learning Outcome (SLO):

- Will be able to explain anatomy of various organs with better knowledge on terminologies.
- Will be able to explain to physiological processes with understanding.
- Will be gaining hand on training in setting up things for IV cannulation.

APPLIED PHARMACOLOGY AND MICROBIOLOGY REALTED TO ANAESTHESIA TECHNOLOGY-THEORY (UE)

Objectives:

- Expected to have basic knowledge on anatomy, physiology and pharmacology.
- To develop knowledge on various drugs and their mechanism of actions.
- To impart knowledge on the adverse effects on various drugs.

APPLIED PHARMACOLOGY

UNIT-I

- **ANTISIALAGOGUES**
Atropine, Glycopyrrolate
- **SEDATIVES I ANXIOLYTICS**
Diazepam, Midazolam, Phenergan, Lorazepam, Chlorpromazine, Trichlopho
- **NARCOTICS**
Morphine, Pethidine, Fentanyl, Pentazozine
- **ANTIEMETICS**
Metaoclopramide, Ondansetron, Dexamethasone
- **ANTACIDS**
Na citrate, Gelusil, Mucaine gel.

UNIT-II

- **H2 BLOCKERS**
Cimetidine, Ranitidine, Famotidine
- **INDUCTION AGENT**
Thiopentone, Diazepam, Midazolam, Ketamine, Propofol, Etomidate.
- **MUSCLE RELAXANTS**
Depolarising - Suxamethonium,
Non depolarising - Pancuronium, Vecuronium, Atracurium, rocuranium
- **INHALATIONAL GASES**
Gases - O₂, N₂O, Air
Agents - Ether-, Halothane, Isoflurane, Sevoflurane, Desflurane
- **REVERSAL AGENTS**
Neostigmine, Glycopyrrolate, Atropine,
Nalorphine, Naloxone, Flumazenil (Diazepam)
- **LOCAL ANAESTHETICS**

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

UNIT-III

• EMERGENCY DRUGS

- Adrenaline : Mode or administration, dilution, dosage,
- Effects, Isoprenaline
- Atropine, bicarbonate, calcium, ephedrine, xylocard,
- Ionotropes : dopamine, dobutamine, amidaron
- Aminophylline, hydrocortisone, antihistaminics, potassium.
- Cardiovascular drugs
- Antihypertensives
- Antiarrhythmics
- Beta - Blockers
- Ca - Channel blockers.
- Vasodilators - nitroglycerin & sodium nitroprusside
- Respiratory system - Bronchodilators, respiratory stimulants Broncholytic agents
- Renal system - Diuretics, furosemide, mannitol
- Obstetrics - oxytocin, methergin
- Miscellaneous - Antibiotics NSAIDS Anticoagulants and Insulin

APPLIED MICROBIOLOGY

UNIT-IV

- Sterilization & decontamination-I Dry
- Filtration
- Wound Infection & Urinary Tract Infections
- Blood stream Infections
- Respiratory tract Infection
- S.Typhi, Salmonella Paratyphi 'A', Salmonella Typhimurium
- Catheter, IV associated Infections
- Hospital acquired infections & prevention of hospital acquired infections
- Hepatitis C, HBV, HIV
- Hyper sensitivity reaction – Type I, II, III, IV

Text Books:

1. Pharmacology for Dental and Allied Health Sciences, Padmaja Udaykumar, Third Edition, Jaypee Brothers Medical Publishers, 2013

Reference Books:

1. Essentials of medical pharmacology, Tripathi, 7th edition, Jaypee Brothers Medical Publishers, 2013

Specific Learning Outcome (SLO):

- Gain knowledge on the mechanism of actions of various drugs along with their adverse effects.
- Able to identify the drug to be used in emergency situations during a surgical procedure.
- Gain knowledge on various NSAIDs and anticoagulants.

APPLIED PHARMACOLOGY AND MICROBIOLOGY REALTED TO
ANAESTHESIA TECHNOLOGY-PRACTICAL (UE)

Objectives:

- Expected to have basic knowledge on anatomy, physiology and pharmacology.
- To develop knowledge on various drugs and their mechanism of actions.
- To impart knowledge on the adverse effects on various drugs.

PRACTICALS/ DEMONSTRATIONS

- Spotters
- Charts
- Anesthetic induction agents
- Inhalation agents

Specific Learning Outcome (SLO):

- Gain knowledge on the mechanism of actions of various drugs along with their adverse effects.
- Able to identify the drug to be used in emergency situations during a surgical procedure.
- Gain knowledge on various NSAIDs and anticoagulants.

PSYCHOLOGY

UNIT 1: Basic Concepts of Psychology

Definition of Psychology, Origin of Psychology - Philosophical roots of psychology, Schools of Psychology –Structuralism – Gestalt – Functionalism – Behaviorism - Psychoanalysis – Humanistic. Fields of Psychology - Work of a psychologist – Applications of psychology.

UNIT 2: Learning principles and methods

Definition of learning, Factors In The Process of Learning Classical conditioning - Operant Conditioning – The principle of reinforcement and Punishment. Theory of learning. Cognitive learning- Latent learning, Insight learning, and Imitation.

UNIT 3: Motivation, Emotion, Memory and forgetting

Motivation - Definition of motivation – Theories of motivation - Physiological basis of motivation – Motivational factors in aggression – Self-actualization motivation. Emotion – Emotional expression – Theories of emotions. Kinds of remembering – Retrieval processes – The nature of forgetting – Two process theories of memory – Improving memory –Language and thought – Symbols and concepts – Structure – Forms of thought - Thinking and reasoning – Concept formation.

UNIT 4: Development, Sensory Processes and Perception.

Erikson's stages of psychosocial development Lawrence Kohlberg's stages of moral development Freud's Stages of Psychosexual Development Physiological basis of behavior – The brain and nervous system –The sensory process , Some general characteristic of senses – Five senses ,Perception: Organization – The role of learning in perception – Perception and attention – Perceptual process.

UNIT 5: Intelligence & Personality

Theories of intelligence – Measuring Intelligence – Kinds of intelligence tests – Ability – Formation of aptitude and attitude – Aptitude tests –Creativity and its tests. Personality – Definition of Personality – Theories of Personality – Assessment of Personality. Social Factors Influencing Personality.

UNIT 6: Social Psychology

Definition, Nature, Subject Matter and Scope Of Social Psychology-Applications and Importance of Social Psychology, Groups: Definition and Type- Primary And Secondary Groups Social Interaction, Social and

Inter-Personal Relations. Inter-personal attraction – Love and Companionship. Prosocial-behavior. Modes of empathy: self – other differentiation and development of empathy. Social influence: attitude and conformity. Definition - Characteristics and Classification of Crowd. Leadership: Definition and characteristics, Defense Mechanisms, frustration and conflict, sources of frustration and conflict, types of conflicts. Aggression and Types of aggression.

UNIT 7: Health Psychology

Definition of Health Psychology -Relating Health Psychology to other fields Clinical Health Psychology, Public Health Psychology, Community Health Psychology, Critical Health Psychology

Abnormal Psychology: Concepts of normality and abnormality, causation of mental illness, neuroses, psychoses, psychosomatic disorders, measures to promote mental health.

Stress - Definitions- Models of Stress – Theories of Stress - Stress reactions – Coping and Stress Management techniques, Pain and its management - Psychological reactions of a patient to loss – Stages of Acceptance by Kubler-Ross.

REFERENCES:

1. Clifford T. Morgan, Richard a. King, John R. Weis and John Schopler,“**Introduction to Psychology**” – **7th Edition**. Tata McGraw Hill Book Co. New Delhi, 1993.
2. Baron, R. A., & Byrne, D (2006), “**Social psychology**”, New Delhi: Prentice hall of India private limited.
- 3.Elliot Aronson, Timothy D. Wilson, Robin M. Akert, Samuel R. Sommers, “**Social psychology**” **9th edition** published by Pearson education, Inc.,2006
4. Shelley E. Taylor. “**Health Psychology**” **Third Edition**. McGraw Hill International Editions, 1995.
5. Swaminathan, V.D, Latha Sathish, “**Psychology for Effective Living**”, Department of Psychology, University of Madras.
6. Coleman, James. 1980. “**Abnormal Psychology and modern life**”. New Delhi: Tata McGraw Hill Ltd

MEDICAL ETHICS

1. Definition & key terms – ethics Vs law
2. Define Negligence, Malpractice & Liability
3. Influence of Ethics on general practice
4. Professional codes of Ethics
5. Describe primary & Secondary Ethical principles
6. Describe the Moral basis of Informed consent & advance directives
7. Euthanasia and physician – assisted suicide
8. Physicians, patients and other: autonomy, Truth Telling & Confidentiality
9. Reproductive control: Assisted reproduction and Ethics
10. Workers compensation
11. Ethical issues in applied medicine
12. Fertility & Birth control
13. Genetic testing genetic screening.
14. Research Ethics

Semester-IV

S.No:	Subject
1.	Principles of anaesthesia – I Theory (UE)
2	Principles of anaesthesia - I Practical(UE)
3	Principles of anaesthesia – II Theory (UE)
4	Principles of anaesthesia - II Practical (UE)
5	Basics and advanced life support (IE)
6	Medical Sociology (IE)

SEMESTER-IV

PRINCIPLES OF ANAESTHESIA-I THEORY (UE)

Objective:

- Expected to have basic knowledge on basic medical sciences
- To develop ideology of various Equipment used in anesthesia technology.
- To develop knowledge on the principles involved in OT and OT techniques.

UNIT-I

MEDICAL GAS SUPPLY

- Compressed gas cylinders
- Colour coding
- Cylinder valves; pin index.
- Gas piping system
- Recommendations for piping system
- Alarms & safety devices.

UNIT-II

ANAESTHESIA MACHINE

- Hanger and yoke system
- Cylinder pressure gauge
- Pressure regulator
- Flow meter assembly
- Vapourizers - types, hazards, maintenance, filling and draining, etc

BREATHING SYSTEM

- General considerations: humidity & heat
- Common components - connectors, adaptors, reservoir bags
- Pulse oximetry
- EtCO₂ & Capnography
- Methods of humidification.
- Classification of breathing system Mapleson system – a, b, c, d, e, f, Jackson Rees system, Bain circuit
- Non rebreathing valves - ambu valves
- The circle system Components Soda lime, indicators

UNIT-III

FACE MASKS & AIRWAY LARYNGOSCOPES

- Types, sizes
- Endotracheal tubes - Types, sizes.
- Cuff system
- Fixing, removing and inflating cuff, checking tube position complications.
- Bougie
- LMA

UNIT-IV

- Anesthesia Ventilators and Working Principles.

UNIT-V

MONITORING

- ECG
- SpO₂
- Temperature
- IBP
- CVP
- PA Pressure
- LA Pressure
- Bio Medical engineering of Trouble sorting Management, care of cleaning

Text Books:

1. The Anesthesia Technician and Technologist's Manual, Glenn Woodworth, Jeffrey R. Kirsch, Shannon Sayers-Rana, 1st edition, Lippincott Williams & Wilkins, 2012

Reference Books:

Anesthesia Equipment, Principles and Applications (Expert Consult: Online and Print),2: Anesthesia Equipment Clinical Key 2012

Specific Learning Outcome (SLO):

- Gain knowledge on various codes and safety devices.
- Learn the importance of endotracheal tubes and laryngoscopes in anesthesia.
- Learn about the machines and gain knowledge on OT and OT techniques.

PRINCIPLES OF ANAESTHESIA-I PRACTICAL (UE)

Objectives:

- Expected to have basic knowledge on basic medical sciences
- To develop in depth knowledge on concepts of pathological conditions.
- To develop exhaustive ideology of techniques in regional and general anesthesia

PRACTICALS/ DEMONSTRATION:

1. Cylinders,
2. Suction apparatus,
3. Endotracheal tubes,
4. Laryngoscopes,
5. LMA,
6. Oropharyngeal airway, Nasopharyngeal airway
7. Anesthesia machine- description, parts, safety features

Specific Learning Outcome (SLO):

- Gain knowledge on various codes and safety devices.
- Learn the importance of endotracheal tubes and laryngoscopes in anesthesia.
- Learn about the machines and gain knowledge on OT and OT techniques

PRINCIPLES OF ANAESTHESIA- II THEORY (UE)

Objective:

- Expected to have basic knowledge on basic medical sciences
- To develop in depth knowledge on concepts of pathological conditions.
- To develop exhaustive ideology of techniques in regional and general anesthesia

BASIC ANAESTHETIC TECHNIQUES INTRODUCTION TO ANAESTHESIA

- General Anesthesia * Regional Anesthesia * Local Anesthesia* Intravenous Anesthesia
- Minimum standard of anesthesia
- Who should give anesthesia?

PRE-OP PREPARATION:

- Pre anesthetic assessment~ History – , past history - disease / Surgery / and personal history - Smoking / alcohol
- General physical assessment, systemic examination – CVS, RS, CNS

INVESTIGATIONS

- Routine - Urine
 - Hematological - their significance
 - E.C.G.
 - Chest X – ray
 - Echocardiography
 - Angiography
 - Liver function test
 - Renal function test
 - Others
- Case acceptance: ASA grading - I, II, III, IV. V

PRE - ANAESTHETIC ORDERS:

- Patient - Informed consent

- Npo guidelines
- Premedication - advantages, drugs used
- Special instructions - if any
- Machine - Checking the machine O₂, N₂O, suction apparatus Laryngoscopes, et tubes, airways
 - Things for IV accessibility
 - Other monitoring systems
- Drugs - Emergency drugs

Anaesthetic drugs

INTRAOPERATIVE MANAGEMENT

- Confirm the identification of the patient
- Monitoring - minimum
- Noninvasive & Invasive monitoring
- Induction - drugs used
- Endotracheal intubation
- Maintenance of anaesthesia
- Positioning of the patient
- Blood / fluid & electrolyte balance
- Reversal from anaesthesia - drugs used
- Transferring the patient
- Recovery room – set up and things needed

POST OPERATIVE COMPLICATIONS & MANAGEMENT

- Recovery and Delayed recovery
- Hypoxia and Oxygen Therapy
- PONV

Text Books:

1. The Anesthesia Technician and Technologist's Manual, Glenn Woodworth, Jeffrey R. Kirsch, Shannon Sayers-Rana, 1st edition, Lippincott Williams & Wilkins, 2012

Reference Books:

Anesthesia Equipment, Principles and Applications (Expert Consult: Online and Print), 2: Anesthesia Equipment ClinicalKey 2012

Specific Learning Outcome (SLO):

- Gain knowledge on history of anesthesia, pre and post - operative assessment.
- Learn the investigations and pre-anesthetic orders required for patient to be anesthetized.
- Gain knowledge on the management of complications and anesthetic considerations.

PRINCIPLES OF ANAESTHESIA- II PRACTICAL (UE)

Objective:

- Expected to have basic knowledge on basic medical Sciences
- To develop knowledge on the principles of sterilization.
- To impart the techniques involved in sterilization in relation to anesthesia

PRACTICALS/ DEMONSTRATIONS

Checking the machine

O₂, N₂O, suction apparatus

Laryngoscopes, Endotracheal tubes, airways

- Things for IV accessibility
- Other monitoring systems

Case acceptance: ASA grading - I, II, III, IV, V

Specific Learning Outcome (SLO):

- Learn the preparation of OT based on the type of patients and methods of sterilization.

- Gain knowledge on various positions insurgery.
- Gain knowledge on disinfectants and their importance.

BASIC AND ADVANCED LIFE SUPPORT

1. BLS
2. TRIAGE
3. Primary Survey
4. Secondary Survey
5. Airway & Ventilatory management
6. Shock
7. Central & peripheral venous access
8. Thoracic trauma – Tension pneumothorax
9. Other thoracic injuries
10. Abdominal trauma – Blunt injuries
11. Abdominal trauma – Penetrating injuries
12. Spine and spinal cord trauma
13. Head trauma
14. Musculoskeletal trauma
15. Electrical injuries
16. Thermal burns
17. Cold injury
18. Pediatric trauma
19. Trauma in pregnant women
20. Workshop BLS
21. Workshop cervical spine immobilization
22. Imaging studies in trauma
23. The universal algorithm for adult ECC
24. Ventricular fibrillation/Pulseless ventricular tachycardia algorithm
25. Pulseless electrical activity (PEA) / asystole algorithm
26. Bradycardia treatment algorithm
27. Tachycardia Treatment algorithm
28. Hypotension / Shock
29. Acute myocardial infarction
30. Pediatrics Advanced life support
31. Defibrillation
32. Drugs used in ACLS
33. Emergency cardiac pacing
34. AED
35. Techniques for oxygenation and ventilation

MEDICAL SOCIOLOGY

Unit 1: NATURE AND SCOPE OF SOCIOLOGY

- Definition, Historical background, subject matter of sociology, Nature and scope, Importance, Sociology of India, Relationship of sociology with other social sciences

Unit 2: FUNDAMENTAL CONCEPTS OF SOCIOLOGY

- Society and Individual, Community, Social structure and functions of Institutions, Association, Organization, Social system, social order, Social control, social groups, Social Process, Social change,

Unit 3: CLASSICAL THINKERS AND THEIR CONTRIBUTIONS

- Auguste Comte, Emile Durkheim, Karl Marx, Max Weber, Herbert Spencer

Unit 4: SOCIOLOGY OF INDIA

- Characteristics of Indian society, Racial linguistic, Religious and demographic, Hindu social organization-ashramas, varnas, dharma and karma, purushartha, Caste system, Problems of SC&ST, Sanskritisation, Westernization and Modernization,

Unit 5: ANTHROPOLOGY AND CULTURAL ANTHROPOLOGY

- Definition of anthropology, Subfield of anthropology, Cultural Anthropology yesterday and today, Anthropological Perspectives, Early Anthropologist
- Environment and culture, Kinship, Clan Ethno methodology, Gender, Subsistence and Exchange, Social Organization and evolution of political system

Reference:

1. Bottomore.T.B., Sociology: A guide to problems and Literature,1971,Random House
2. Gisbert P. Fundamentals of sociology,3rd Edition,2004,Orient Longman publications
3. Neil J.Smelser,Handbook of sociology,1988.sage publication
4. Johnson R.M,Systematic Introduction to Sociology,1960,Allied Publishers
5. Cultural Anthropology,Barbara D.Miller,2006 Pearson/Allyn and Bacon Co

6. C.N.ShankarRao., Introduction to Sociology, 2008, S.CHAND & Company Publications.

7.C.N.ShankarRao., Sociology of India, S.CHAND & Company Publications.

Semester- V

S.No:	Subject
1.	Principles of sterilization techniques- Theory (UE)
2	Principles of sterilization techniques- Practical (UE)
3	Anaesthesia techniques including complications- Theory (UE)
4	Anaesthesia techniques including complications - Practical (UE)
5	Community medicine (IE)

SEMESTER-V

PRINCIPLES OF STERILIZATION TECHNIQUES-THEORY (UE)

Objectives:

- Expected to have basic knowledge on basic medical Sciences
- To develop knowledge on the principles of sterilization.
- To impart the techniques involved in sterilization in relation to anesthesia

UNIT – I

Layout of OT and Lighting of OT

UNIT II

Cleanliness and sterilization of OT and Anesthesia- Carbolization, fumigation, principles of sterilization – autoclaving, pressure sterilization, boiling, dry heat, gas chemical sterilization, gamma rays sterilization

UNIT – III

OT preparation- Preparation of spinal /epidural/nerve block tray. Preparation of patients for various types of anesthesia including laying out of trolleys, preparation of Boyle's apparatus for administration of anesthesia, precaution to reduce antistatic friction hazards, preparation of sterile field, special precautions in handling patients with sepsis, blood borne infections – Hepatitis B, HCV, HIV, etc, Cleaning and Disinfection of articles and OT various positions during surgeries - lithotomy/kidney/beach chair/lateral/prone

UNIT – IV

Electrical and fire hazards- Prevention of physical, electrical, chemical injuries and hazards to patients
OT pollution and scavenging

UNIT – V

Care and Maintenance of Operation records of OT- Maintenance of septic OT, Use and maintenance of defibrillator, cautery, OT light, suction, emergency light etc., Admission and transfer procedures

Text Books:

1. Principles and Methods of Sterilization in Health Sciences, John J. Perkins, 2nd edition, Charles C Thomas Pub Limited, 1983

Reference Books:

Fundamentals of Surgical Practice, Aljafri A. Majid, Andrew N. Kingsnorth, 1st edition, Cambridge University Press, 1998

Specific Learning Outcome (SLO):

- Gain knowledge on the design of operation theatres.
- Learn the preparation of OT based of the type of patients and methods of sterilization.
- Gain knowledge on the care and maintenance of operation records in OT.

PRINCIPLES OF STERILIZATION TECHNIQUES-PRACTICAL (UE)

Objectives:

- Expected to have basic knowledge on basic medical Sciences
- To develop knowledge on the principles of sterilization. in relation to anesthesia
- To impart the techniques involved in sterilization.

PRACTICALS/ DEMONSTRATIONS

1. Disinfectants
2. Methods of sterilization
3. Various positions in surgery

Specific Learning Outcome (SLO):.

- Learn the preparation of OT based of the type of patients and methods of sterilization.
- Gain knowledge on various positions in surgery.
- Gain knowledge on disinfectants and their importance

ANESTHESIA TECHNIQUES INCLUDING COMPLICATIONS – THEORY (UE)

Objective:

- Expected to have basic knowledge on anatomy, physiology, pathology and pharmacology.
- To develop in depth knowledge on anesthesia techniques for various procedures.
- To develop exhaustive ideology of the complications associated with various anesthesia techniques.

UNIT – 1

- To setup the required equipments for general anaesthesia, spinal, epidural, nerve block .

UNIT II

- Monitoring during anesthesia and complications.

UNIT – III

- Monitoring and diagnostic procedures in ICU, Central venous access, ECG monitoring, Invasive hemodynamic monitoring

UNIT – IV

- General care of patient in ICU-Eye, GI tract, Bladder, skin, Case of mechanically ventilated patient, Tracheotomy, humidification, Vascular lines – arterial, venous line, Radiography, Physiotherapy – chest physiotherapy

UNIT – V

- **Regional anesthesia**-Introduction, Indication, Contraindication, Check list, Procedure, Complications, Management, Spinal, Epidural, Nerve Block 15.

Text Books:

1. **Regional Anesthesia And Pain Management:** Current Perspectives, Dureja, 3rd edition, Elsevier India, 2007

Reference Books

1. Clinical Anesthesia, Paul G. Barash, 6th edition, Lippincott Williams & Wilkins, 2009

Specific Learning Outcome (SLO):

- Gain knowledge on the setup of required Equipment for anesthesia.
- Gain knowledge on monitoring and diagnostic procedures for anesthesia.
- Learn the general idea on the care of patients for various procedures.

ANASTHESIA TECHNIQUES INCLUDING COMPLICATIONS – PRACTICAL (UE)

Objective:

- Expected to have basic knowledge on anatomy, physiology, pathology and pharmacology.
- To develop in depth knowledge on anesthesia techniques for various procedures.
- To develop exhaustive ideology of the complications associated with various anesthesia techniques.

PRACTICALS/ DEMONSTRATIONS

1. How to assist anesthetists?
2. Monitoring during anesthesia and post-operative period
3. General care of patient in ICU
4. How to assist anesthetist for central venous cannulation

Specific Learning Outcome (SLO):

- Gain knowledge on the setup of required Equipment for anesthesia.
- Gain knowledge on monitoring and diagnostic procedures for anesthesia.
- Learn the general idea on the care of patients for various procedures.

ENVIRONMENTAL SCIENCE AND COMMUNITY MEDICINE

- **Natural Resources:** Introduction, Multi-disciplinary nature of environmental studies, Earth Resources and Man, Renewable And Non-Renewable Resources, Water Resources, Mineral Resources: Food Resources: Effects of modern agriculture, Fertilizer/ pesticide problems, Water logging, and salinity, Energy Resources.
- **Ecosystems:** Concept of an Ecosystem, Structure And Functions of an Ecosystem, Producers, Consumers and Decomposers, Cycles in The Ecosystem
- **Biodiversity:** Introduction, Definition: Genetic, Species, Ecosystem Diversity, India as a Mega Diversity Nation, Hotspots of Biodiversity Threats to Biodiversity. Poaching of Wildlife, Man-Wildlife Conflicts, Endangered and Endemic
- **Pollution:** Definition, Causes, Effects and Control Measures of Air Pollution, Water Pollution, Marine Pollution, Noise Pollution, Thermal Pollution, Nuclear hazards, Solid Waste Management role of Individuals in Pollution Prevention.
- **Social Issues Human, Population and Environment:** From Unsustainable To Sustainable Development, Urban Problems Related To Energy, Water Conservation, Rain Water Harvesting, global warming, acid rain, ozone layer depletion, nuclear accidents and nuclear holocaust.
- **Concept of health & disease:** Concept of health, Definition of health, Philosophy of health- Dimension of health - Concept of well being, Spectrum of health, Responsibility of health - Determinates of health & Indicators of health - Concepts of disease & Concepts of cessation –Natural history of Disease- Iceberg Phenomenon, Concept of control- Concept of Prevention- Modes of Intervention, Changing pattern of disease.
- **Epidemiology:** Definition & Explanation, Aims, Epidemiologic approach, Basic measurement in epidemiology & tools of measurement – of Mortality , Epidemiologic methods – Descriptive epidemiology – Analytical epidemiology -Cohort study – Experimental epidemiology – RCT- Association & Causation Uses of epidemiology (Criteria for judging causality) – Infection disease epidemiology Definitions Dynamic of disease transmission & Mode of Transmission – Disinfection – Definitions Types Agents used Recommended disinfection procedures – Investigation of an epidemic.
- **Environmental & health:** Definition & Components (environment sanitation environmental sanitation) Water: Safe & Whole some water Requirements Uses source of water supply (sanitary well) – Purification (1).Large scale purification, (2). Small scale purification – Water quality – Special treatment of water Air: Composition the air of occupied room discomfort. Air pollution & its effects. Prevention & Control of air pollution Ventilation: Definition Standards of ventilation Types of Ventilation. Light, Noise & Radiation, Meteorological environment, Housing, Disposal of waste Excreta disposal

Semester- VI

S.No:	Subject
1.	Anaesthesia for specialties (including critical care assistance and ventilation) paper – I- Theory (UE)
2	Anaesthesia for specialties (including critical care assistance and ventilation) paper – I- Practical (UE)
3	Anaesthesia for specialties (including critical care assistance and ventilation) paper – II- theory (UE)
4	Anaesthesia for specialties (including critical care assistance and ventilation) paper – II-practical(UE)
5	Healthcare and basic Principles

SEMESTER-VI

ANAESTHESIA FOR SPECIALTIES (INCLUDING CRITICAL CARE ASSISTANCE AND VENTILATION) PAPER – I THEORY (UE)

Objectives:

- Expected to have basic knowledge on anesthesia techniques and principles
- To develop knowledge on anaesthetic techniques for cardiac and Neuroanesthesia.
- To develop knowledge on anaesthesia for shock and trauma.

UNIT – 1

Cardiac anesthesia –PART 1 NYHA classification, Arrhythmias, Angina, Dyspnoea,- Premedication, Setting up of monitoring system, Monitoring – invasive and non-invasive,

UNIT II

Cardiac anesthesia –PART 2 Getting ready for the case, Induction of cardiac patient, precautions to be taken, Transferring the patient to ICU, Care to be taken, ICU management

UNIT – III

Neuro Anesthesia- Glasgow coma scale, Signs of raised ICT, Premedication, Check list, Induction of a patient Positioning in neuro surgery, I.C.P monitoring , Air embolism, Transferring to I.C.U / ward

UNIT – IV

Anaesthesia for Trauma & Shock Resuscitation, Pre-op investigation/assessment, Circulatory management, Management of anaesthesia, Rapid sequence induction, other problems.

UNIT – V

CPR- BLS, ACLS

Text Books:

1. Nurse Anesthesia, John J. Nagelhout, Karen L. Plaus, 5th edition, Elsevier Health Sciences, 2014

Reference Books:

1. Basics of Anesthesia, Ronald D. Miller, Manuel Pardo, 6th edition, Elsevier Health Sciences, 2011

Specific Learning Outcome (SLO):

- Gain knowledge on cardiac anesthesia including monitoring setup and management.
- Learn the signs of raised ICT and induction of patient and positioning for neuro Anesthesia.
- Gain knowledge on anesthetic management and rapid sequence induction for trauma and Shock.

ANAESTHESIA FOR SPECIALTIES (INCLUDING CRITICAL CARE ASSISTANCE AND VENTILATION) PAPER – I PRACTICAL (UE)

Objectives:

- Expected to have basic knowledge on anaesthesia techniques and principles.
- To develop knowledge on anaesthetic techniques for cardiac and Neuroanaesthesia.
- To develop knowledge on anaesthesia for shock and trauma.

PRACTICALS/ DEMONSTRATIONS

1. Spotters –basic anaesthetic considerations in cardiac and neurosurgery
2. Charts- BLS chain of survival
3. Demonstration- transferring of post-operative patient to ICU

Specific Learning Outcome (SLO):

- Gain knowledge on cardiac anaesthesia including monitoring setup and management.
- Learn the signs of raised ICP and induction of patient and positioning for neuro-anaesthesia.
- Gain knowledge on BLS chain of survival.

ANASTHESIA FOR SPECIALTIES (INCLUDING CRITICAL CARE ASSISTANCE AND VENTILATION) PAPER – II THEORY (UE)

Objectives:

- Expected to have basic knowledge on anaesthesia techniques and principles.
- To develop knowledge on anaesthetic techniques for obstetric and pediatric anaesthesia.
- To develop knowledge on anaesthesia outside the O.R.

UNIT-I

Obstetric Anaesthesia (Part 1)- Differences between a pregnant and a normal lady, Risks for anaesthesia, Precautions to be taken, Check list, Regional vs general anaesthesia, Induction / maintenance

UNIT-II

Obstetric Anaesthesia (Part 2)- Resuscitation of the new born, APGAR score, Reversal and extubation, Emergencies – Manual removal of placenta, A.P.H,- P.P.H., Ruptured uterus, Ectopic pregnancy, Labour, Epidural analgesia

UNIT-III

Paediatric Anaesthesia - Theatre setting, Check list, Premedication, Induction, Intubations-securing the ETT, Monitoring, Reversal & extubation – problems, Transferring / IC management, Pain management.

UNIT-IV

Day Care Anaesthesia - Special features, Set up, Advantages, Disadvantages, Complications, Future

UNIT-V

Anaesthesia Outside the O.R.- Situations, Cath lab, Radiology and Imaging Science
Technology natural calamities, E.C.T, Features, Shortcomings, Complications

Text Books:

1. Nurse Anesthesia, John J. Nagelhout, Karen L. Plaus, 5th edition, Elsevier Health Sciences, 2014

Reference Books:

1. Basics of Anesthesia, Ronald D. Miller, Manuel Pardo, 6th edition, Elsevier Health Sciences, 2011

Specific Learning Outcome (SLO):

- Gain knowledge on obstetric anesthesia including precautions, induction, reversal and emergencies.
- Learn the theatre setting, monitoring and pain management for pediatric anesthesia.
- Gain knowledge on situations, natural calamities and complications of anesthesia outside the O.R.

ANASTHESIA FOR SPECIALTIES (INCLUDING CRITICAL CARE ASSISTANCE AND VENTILATION) PAPER – II PRACTICAL (UE)

Objectives:

- Expected to have basic knowledge on anaesthesia techniques and principles.
- To develop knowledge on anaesthetic techniques for obstetric and pediatric anaesthesia.
- To develop knowledge on anaesthesia outside the O.R.

PRACTICALS/DEMONSTRATIONS

- 1) Spotters –common obstetric emergencies
- 2) Charts- situations requiring anaesthesia outside operation theatre
- 3) Demonstration-how is pediatric anaesthesia different from adult.

Specific Learning Outcome (SLO):

- Gain knowledge on obstetric anaesthesia including precautions, induction, reversal and emergencies.
- Learn the theatre setting, monitoring and pain management for pediatric anaesthesia.
- Gain knowledge on situations, natural calamities and complications of anaesthesia outside the O.R.

HEALTH AND BASIC PRINCIPLES

1. Concept of Health Care and Health Policy

- Health in Medical Care
- Indigenous systems of Health Care & their relevance
- Framework for Health Policy Development

2. Health Organization

- Historical development of Health Care System in the third world & India
- Organization & Structure of Health Administration in India
- Type of Health Organization including International Organizations
- Private & Voluntary Health care provider
- Distribution of Health Care Services
- Health Care System in Public Sector Organization
- Health systems of Various Countries

3. Health Policy and National Health Programme

- National Health Policy
- Drug Policy
- National Health Programs (Malaria, T.B., Blindness, AIDS etc.)
- Evaluation of Health Programs (Developing indicators for evaluation)
- Medical Education & Health Manpower Development

4. Health Economics

Fundamentals of Economics

- Scope & Coverage
- Demand for Health Services
- Health as an Investment
- Population, health of Economic Development

5. Methods & Techniques of Economic Evaluation of Health Program

- Cost Benefit & Cost Effective Methods

6. Household & Health

Health Expenditure & Outcome

- Rationale for Government action
- Household capacity, income and schooling

7. Economics of Health

- Population based health services
- Economics of Communicable and Non Communicable diseases

8. Health Insurance

BIOSTATISTICS AND RESEARCH METHODOLOGY

- 1. What is statistics** – Importance of statistics in behavioural sciences – Descriptive statistics and inferential statistics – Usefulness of quantification in behavioural sciences.
- 2. Measurements** – Scales of measurements – Nominal, Ordinal, Interval and Ratio scales.
- 3. Data collection** – Classification of data – Class intervals – Continuous and discrete measurements – Drawing frequency polygon – types of frequency polygon – Histogram.
- 4. Cumulative frequency curve** – Ogives – Drawing inference from graph.
- 5. Measures of central tendency** – Need – types: Mean, Median, Mode – Working out these measures with illustrations.
- 6. Measures of variability** – Need – Types: Range, Quartile deviation, Average deviation, Standard deviation, Variance – Interpretation.
- 7. Normal distribution** – General properties of normal distribution – Theory of probability – Illustration of normal distribution – area under the normal probability curve.
- 8. Variants from the normal distribution** – skewness – Quantitative measurement of skewness – kurtosis – measurement of kurtosis – factors contributing for non-normal distribution.
- 9. Correlation** – historical contribution – meaning of correlation – types: Product, moment, content correlation, variation of product, movement correlation, rank correlation, Regression analysis.
- 10. Tests of significance** – need for – significance of the mean – sampling error – significance of differences between means – interpretation of probability levels – small samples – large samples.

Semester VII

S.No:	Subject
1.	Project/ Dissertation
2	Statistics and research methodology