



SRI MANAKULA VINAYAGAR
ENGINEERING COLLEGE
(An Autonomous Institution)
Puducherry – 605 107

2nd - Board of Studies Meeting
ALLIED HEALTH SCIENCES

for the Programmes

1. B.Sc., Critical Care Technology
2. B.Sc., Emergency Medicine Technology
3. B.Sc., Operation Theatre & Anaesthesia Technology
4. B.Sc., Renal Dialysis Technology
5. Diploma in Operation Theatre & Anaesthesia Technology

Venue

College Council Hall
Sri Manakula Vinayagar Medical College and Hospital
Kalithirthalkuppam, Puducherry – 605 107

Date & Time

20.03.2021 & 09.00 AM

AGENDA OF THE MEETING

1. To approve the revised curriculum for all the programmes
 - Distribution of Lecture / Practical hours
 - Distribution of marks for CAT & EYE
2. To discuss about the Evaluation Systems
 - Question paper pattern
 - Classification of Degree
3. To approve the criteria for "Pass" in a subject
4. To approve the dates of Model & EYE Examination
5. Any other with the approval of the Chairman of the Programme

MINUTES OF THE MEETING

Dr.R.Gopal, Dean School of AHS, initiated the meeting by a warm welcome and introduced the External Members, the Internal and Co-opted Members and thanked them for accepting the invitation of 2nd BOS meeting. The Chairman proceeded with the presentation to deliberate on agenda items.

| | |
|----------------|--|
| Item 1: | The Meeting Confirmed the Minutes of the First BOS Meeting with following changes: Revised curriculum for all the courses : The Chairman & Members of the BOS of the respective Programmes approved the changes made in the Curriculum including teaching hours and distribution of the Marks for CAT and EYE as enclosed(Annexure -I) The minimum marks for pass in Ancillary Subjects for which only CAT Examination will be held viz English, Computer Science, Environmental Science & Community Medicine, Biostatistics & Ethics, Pharmacology is 50% (Annexure-I) |
| Item 2: | The BOS members have approved the Evaluation Systems and recommended to Academic Council |
| Item 3: | The members have approved the minimum pass percentage as 40% for Theory & Practical separately and the aggregate of both Theory & Practical is 50 %. |
| Item 4: | Dates of Model Examination and EYE Examination The Members have approved the tentative dates of Model and EYE Examination fixed for the Month of July and August 2021 respectively (Annexure - II) |

| | |
|----------------|--|
| Item 5: | The Members have approved the lateral entry of Diploma holders to the Second Year of the B.Sc Programme, subject to fulfillment of the General Rules for Admission |
|----------------|--|

The meeting for 1st, 2nd and 3rd year and syllabi approval was concluded at 1.00 pm with vote of thanks by Dr.R.Gopal, Dean School of AHS Sri Manakula Vinayagar Engineering College.


DEAN - AHS



Sri Manakula Vinayaga Engineering College
(An Autonomous Institution), Puducherry
School of Allied Health science

Minutes of the meeting of Board of Studies

Course: B. Sc. Critical Care Technology Date: 20.03.2021

Time: 9:00 to 10:00am

The Second meeting of the B.O.S was held on 20/03/2021 at the Academic council hall of SMVEC. The meeting was attended by internal members in person and externals in person or by Google meet. The following persons participated in the meeting.

| S.no | Name and designation | Responsibility in BOS | Signature |
|------|--|-----------------------|-----------|
| 1 | Dr. K.N. Viswanathan Professor Department of General Medicine (Sri Manakula Vinayagar Medical college & Hospital) 9840072191 viswanathann@hotmail.com | Chairman | |
| 2 | Dr. Yuvarajan Professor & HOD Department of Pulmology (Sri Manakula Vinayagar Medical college & Hospital) 9751115447 nsivagnaname@yahoo.com | Member | |
| 3 | Dr. Suresh Kumar Professor of Anesthesiology (Sri Manakula Vinayagar Medical college & Hospital) 9884190530 surekumk9292@yahoo.in | Member | |
| 4 | Dr. Ezhilrajan. V Professor of Anaesthesiology Aarupadai Veedu Medical college & Hospital, Puducherry 9843030074 ezhilrajan96@gmail.com | Member (External) | |
| 5 | Dr. Navin Puttum Assistant Professor of Emergency Medicine Aarupadai Veedu Medical college & Hospital, Puducherry 9176183029 navin.puttum@gmail.com | Member (External) | |
| 6 | Dr. M. Sudhakar Professor of Medicine Pondicherry Institute of Medical Sciences, Puducherry 9944667893 drsudhagar7893@gmail.com | University Member | |

Chairman

Director cum Principal
Sri Manakula Vinayagar Engineering College

Dean Academics
Copy



SRI MANAKULA VINAYAGAR ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)
(Accredited by NBA-AICTE, New Delhi & Accredited by NAAC with "A" Grade)
Madagadipet, Puducherry - 605 107



SCHOOL OF ALLIED HEALTH SCIENCES

B.Sc.IN CRITICAL CARE TECHNOLOGY

CURRICULLUM & SYLLABI

(R-2020)

COLLEGE VISION AND MISSION

VISION

To be globally recognized for excellence in quality education, innovation and research for the transformation of lives to serve the society.

MISSION

M1: Quality Education:

To provide comprehensive academic system that amalgamates the cutting edge technologies with best practices.

M2: Research and Innovation:

To foster value based research and innovation in collaboration with industries and institutions globally for creating intellectuals with new avenues.

M3: Employability and Entrepreneurship:

To inculcate the employability and entrepreneurial skills through value and skill based training.

M4: Ethical Values:

To instill deep sense of human values by blending societal righteousness with academic professionalism for the growth of society.

DEPARTMENT OF CRITICAL CARE TECHNOLOGY

VISION AND MISSION

VISION

To be the leading learning institute for Health Sciences and to be a pillar of support and knowledge in India.

MISSION

M1: knowledge sharing:

- Providing health sciences students with the knowledge and skills basic to the practice of their disciplines, instilling them with the fundamental attitudes of professionalism, teaching, compassionate care, for a diverse patient population.

M2: Career Development:

- We make every decision to support the career and personal development of our learners.



DISTRIBUTION OF TEACHING HOURS FOR 1ST YEAR COURSES

| Course | Lecture | Practicals | Total |
|------------------|------------|------------|------------|
| ANATOMY | 60 | 40 | 100 |
| PHYSIOLOGY | 60 | 40 | 100 |
| BIO-CHEMISTRY | 60 | 40 | 100 |
| MICROBIOLOGY | 60 | 40 | 100 |
| PATHOLOGY | 60 | 40 | 100 |
| ENGLISH | 25 | 25 | 50 |
| COMPUTER SCIENCE | 25 | 25 | 50 |
| CLINICAL POSTING | - | 300 | 300 |
| TOTAL | 350 | 550 | 900 |

DISTRIBUTION OF MARKS FOR 1ST YEAR COURSES

| Course Code | Course | Theory | | | | | | | | Practicals | | | | | | Grand Total | |
|--------------|------------------|--------|-----|-------|-----|------|-----|-------|-----|------------|-----|--------|-----|-------|-----|-------------------|-----|
| | | *EYE | | **CAT | | Viva | | Total | | *EYE | | ***CAT | | Total | | Theory+ Practical | |
| | | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min |
| | | | | | | | | | | | | | | | | | |
| U20CTAT11 | ANATOMY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CTAT12 | PHYSIOLOGY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CTAT13 | BIO-CHEMISTRY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CTAT14 | MICROBIOLOGY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CTAT15 | PATHOLOGY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CTAT16 | ENGLISH | - | - | - | - | - | - | - | - | - | - | 50 | 25 | 50 | 25 | 50 | 25 |
| U20CTAT17 | COMPUTER SCIENCE | - | - | - | - | - | - | - | - | - | - | 50 | 25 | 50 | 25 | 50 | 25 |
| TOTAL | | - | - | - | - | - | - | 500 | 200 | - | - | - | - | 400 | 170 | 900 | 450 |

*EYE Examination, **CAT Internal Assessment in Theory (Test 15 marks + Attendance 5 marks)

***CAT Practicals (Test 10 marks + Attendance 5 marks+ record books 5Marks)

Minimum Marks for Pass is (i) 40% in Theory & Practicals separately.

(ii) 50% in aggregate of both Theory & Practicals combined.

Minimum Marks for Pass in Ancillary Subjects is 50%.



DISTRIBUTION OF TEACHING HOURS FOR 2ND YEAR COURSES

| Course | Lecture | Practicals | Total |
|--|------------|-------------|-------------|
| ICU MONITORING (BASIC) | 60 | 60 | 120 |
| BIOMEDICAL ENGINEERING | 30 | 30 | 60 |
| PHARMACOLOGY | 30 | - | 30 |
| ENVIRONMENTAL SCIENCE AND COMMUNITY MEDICINE | 30 | - | 30 |
| CLINICAL POSTING | - | 1200 | 1200 |
| TOTAL | 150 | 1290 | 1440 |

DISTRIBUTION OF MARKS FOR 2ND YEAR COURSES

| Course code | Course | Theory | | | | | | | | Practicals | | | | | | Grand Total | |
|--------------|--|--------|-----|-------|-----|------|-----|-------|-----|------------|-----|--------|-----|-------|-----|-------------------|-----|
| | | *EYE | | **CAT | | Viva | | Total | | *EYE | | ***CAT | | Total | | Theory+ Practical | |
| | | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min |
| U20CCTT21 | ICU MONITORING (BASIC) | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CCTT22 | BIOMEDICAL ENGINEERING | - | - | 50 | 25 | - | - | 50 | 25 | - | - | - | - | - | - | 50 | 25 |
| U20CTAT21 | PHARMACOLOGY | - | - | 50 | 25 | - | - | 50 | 25 | - | - | - | - | - | - | 50 | 25 |
| U20CTAT22 | ENVIRONMENTAL SCIENCE AND COMMUNITY MEDICINE | - | - | 50 | 25 | - | - | 50 | 25 | - | - | - | - | - | - | 50 | 25 |
| TOTAL | | - | - | - | - | - | - | 250 | 115 | - | - | - | - | 60 | 24 | 310 | 155 |

*EYE Examination, **CAT Internal Assessment in Theory (Test 15 marks + Attendance 5 marks)

***CAT Practicals (Test 10 marks + Attendance 5 marks+ record books 5Marks)

Minimum Marks for Pass is (i) 40% in Theory & Practicals separately.

(ii) 50% in aggregate of both Theory & Practicals combined.

Minimum Marks for Pass in Ancillary Subjects is 50%.



DISTRIBUTION OF TEACHING HOURS FOR 3RD YEAR COURSES

| Course | Lecture | Practicals | Total |
|--|------------|-------------|-------------|
| ICU MONITORING-(ADVANCED) AND EQUIPMENT MAINTENANCE | 50 | 100 | 150 |
| ICU THERAPY | 50 | 100 | 150 |
| ICU ADMINISTRATION, LOGISTICS, COMMUNICATIONS AND MANAGEMENT | 30 | - | 30 |
| BIostatISTICS AND ETHICS | 30 | - | 30 |
| CLINICAL POSTING | - | 1200 | 1200 |
| TOTAL | 160 | 1400 | 1560 |

DISTRIBUTION OF MARKS FOR 3RD YEAR COURSES

| Course Code | Course | Theory | | | | | | | | Practicals | | | | | | Grand Total | |
|--------------|--|--------|-----|-------|-----|------|-----|------------|------------|------------|-----|--------|-----|------------|-----------|-------------------|------------|
| | | *EYE | | **CAT | | Viva | | Total | | *EYE | | ***CAT | | Total | | Theory+ Practical | |
| | | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min | Max | Min |
| | | | | | | | | | | | | | | | | | |
| U20CCTT31 | ICU MONITORING (ADVANCED) AND EQUIPMENT MAINTENANCE | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CCTT32 | ICU THERAPY | 60 | 24 | 20 | 8 | 20 | 8 | 100 | 40 | 40 | 16 | 20 | 8 | 60 | 24 | 160 | 80 |
| U20CCTT33 | ICU ADMINISTRATION, LOGISTICS, COMMUNICATIONS AND MANAGEMENT | - | - | 50 | 25 | - | - | 50 | 25 | - | - | - | - | - | - | 50 | 25 |
| U20CTAT31 | BIostatISTICS AND ETHICS | - | - | 50 | 25 | - | - | 50 | 25 | - | - | - | - | - | - | 50 | 25 |
| TOTAL | | - | - | - | - | - | - | 300 | 130 | - | - | - | - | 120 | 48 | 420 | 210 |

*EYE Examination, **CAT Internal Assessment in Theory (Test 15 marks + Attendance 5 marks)

***CAT Practical (Test 10 marks + Attendance 5 marks+ record books 5Marks)

Minimum Marks for Pass is (i) 40% in Theory & Practical separately.

(ii) 50% in aggregate of both Theory & Practical combined.

Minimum Marks for Pass in Ancillary Subjects is 50%.

I-YEAR SYLLABUS

| | | | | |
|------------------|----------------|-----------|-----------|------------|
| U20CTAT11 | ANATOMY | L | P | Hrs |
| | | 60 | 40 | 100 |

HUMAN BODY AS A WHOLE

1. Anatomical position
2. Fundamental planes of the body
3. Anatomical terms (superior, inferior, medial, lateral, proximal and distal)
4. Organization of human body
5. Parts of microscope and its functions
6. Epithelium
 - Types
 - functional importance with examples

LOCOMOTOR SYSTEM

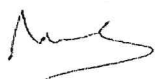
Skeletal system

1. Bone composition
2. Long bone
 - Parts
 - blood supply with clinical implication
3. Identify major bones of the body and their parts
4. Classification of synovial joints with associated movements
5. Articular surface of key joints in human body
6. Parts of a muscle and its arrangement
7. Classification of muscles with functional importance
8. Muscles of upper limb, lower limb and head and neck with actions

NERVOUS SYSTEM

Classification and components of nervous system

1. Spinal cord
 - Coverings
 - Extent
 - Organization of grey matter and white matter with clinical implication
2. Brainstem
 - Parts
 - Location of cranial nerve nucleus with functions
3. Cerebellum
 - Location
 - Parts
 - Functional subdivisions
 - blood supply and functions



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4. Cerebrum
 - Surfaces
 - important sulci and gyro and functional correlation
5. Thalamus
 - location and functional correlation
 - Striatum, hippocampus and Amygdala – their location and function.
6. Cranial nerves
 - Names
 - location of nucleus with clinical correlation

CIRCULATORY SYSTEM

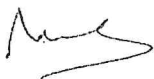
1. General plan of circulatory system
2. Difference between systemic and portal circulation
3. Microanatomy of artery and vein
4. Thoracic cavity
 - Bony cage
 - muscles – intercostal muscles, diaphragm
5. Mediastinum – sub-divisions, contents
6. Heart
 - Coverings
 - External features
 - Chambers
 - Blood supply
 - Nerve supply.
7. Major vessels of the heart
8. Veins of upper limb and lower limb - varicose veins and their importance
9. Lymphatic system – components, microanatomy of lymphoid organs (lymph node, tonsil, thymus, spleen)

RESPIRATORY SYSTEM

1. Nasal cavity, Para-nasal air sinuses, nasal septum, lateral wall of nose – location and functions
2. Pharynx – subdivision and structures present
3. Larynx – cartilages, muscles and nerve supply
4. Trachea and bronchial tree – extent, broncho-pulmonary segments and their clinical importance
5. Pleura – types, reflections, recesses and its clinical importance
6. Lung – location, relations, lobes, fissures, surfaces.

DIGESTIVE SYSTEM

1. Abdomen
 - Quadrants
 - Musculature of wall
 - Formation in guinal canal
 - Rectus sheath and their importance



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2. Components of digestive system.
3. Mouth - Tongue, palate – Structure of tongue
4. Salivary glands – parotid, sub-mandibular – Brief anatomy and structure
5. Stomach
 - Position
 - Parts
 - Blood supply
 - Nerve supply
 - Lymphatic drainage
 - Relations & structure
6. Small intestine –subdivisions
7. Large intestine in general - sub-divisions, microscopic structure. Specific -caecum and appendix
8. Accessory organs of digestive system
 - Liver
 - Pancreas
 - Extra hepatic biliary apparatus -Gross features, relations, blood supply

EXCRETORY AND REPRODUCTIVE SYSTEMS

1. Kidney
 - Location
 - Parts
 - Relations and blood supply
2. Ureter & urinary bladder
 - Location
 - Parts
 - Relations and blood supply
3. Male reproductive system
 - Testis
 - Spermatic cord and its coverings
4. Female reproductive system
 - Ovary
 - Uterus – parts and supports
5. Accessory organs of reproduction
 - Prostate gland
 - Mammary gland

ENDOCRINE SYSTEM

1. List the endocrine glands and their location
2. Thyroid and parathyroid glands
 - Location
 - Relations
 - Blood supply
 - Functions & clinical importance
3. Pituitary gland
 - Location



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- Parts
 - Relations
 - Blood supply
 - Functions & clinical importance
4. Supra renal gland
- Location
 - Parts
 - Relations
 - Blood supply
 - Functions & clinical importance

REFERENCE BOOKS:

1. Basics in human anatomy for B.Sc. Paramedical courses, second edition – Priya Ranganath and Leelavathy
2. Anatomy & Physiology in health & illness, 11 edition - Ross & Wilson
3. Vishram Singh, "Clinical and Surgical Anatomy", Elsevier Health Sciences, 2nd Edition, 2019.
4. Sampath Madhyastha, "Manipal Manual of Anatomy For Allied Health Sciences", CBS Publishers & Distributors, 3rd Edition, 2020.
5. Richard Drake A. Wayne Vogl Adam Mitchell, "Gray's Anatomy for Students – Companion Work Book", Churchill Livingstone Publications, 4th Edition, 2019.
6. A K Detta, "Principles Of General Anatomy", Current Books International , 8th Edition, 2018.
7. Nafis Ahmad Faruqi, "Human Osteology", CBS Publishers & Distributors, 3rd Edition, 2018.
8. Inderbir Singh, "Human Histology", Jaypee Publications, 9th Edition, 2019.



ANATOMY LAB

PRACTICALS - 40 hrs

1. Identification of the parts of the microscope.
2. Identification of the epithelium in a given histological slide.
3. Demonstrate the parts of the long bone.
4. Identification of the bones and joint of the body with the articular surfaces (skeleton or X-rays)
5. Identification of the important muscles in upper limb, lower limb and head and neck.
6. Identification of the parts of the brain (cerebrum, cerebellum, brainstem, spinal cord)
7. Identification of the cardiac chambers in a specimen.
8. Identification of the major vessels of heart – aorta and pulmonary trunk.
9. Identification of the cardiac field in chest X-ray.
10. Identification of the nasal cavity, naso pharynx, trachea, lung and pleura in a given specimen.
11. Identification of the lung shadow, costophrenic angle in a chest X-ray.
12. Identification of the stomach, pancreas, liver, small intestine and large intestine specimens.
13. Identification of the stomach, intestinal shadows in plain or contrast abdomen X – ray.
14. Identification of the kidney, Ureter and urinary bladder in specimen.
15. Identification of the renal pelvis, Ureter and urinary bladder in intravenous pyelogram
16. Identification of the thyroid gland in cadaveric specimen



U20CTAT12

PHYSIOLOGY

| L | P | Hrs |
|----|----|-----|
| 60 | 40 | 100 |

THE CELL

- Cell Structure and functions of the various organelles.
- Endocytosis and Exocytosis
- Acid base balance and disturbances of acid base balances (Alkalosis, Acidosis)

CARDIO VASCULAR SYSTEM

- Physiology of the heart
- Heart sounds
- Cardiac cycle
- Cardiac output.
- Auscultatory areas.
- Arterial Pressures,
- Blood Pressure
- Hypertension
- Electro cardiogram(ECG)

BLOOD:

- Composition of Blood, functions of the blood and plasma proteins, classification and protein.
- Pathological and Physiological variation of the RBC.
- Function of Hemoglobin
- Erythrocyte Sedimentation Rate (ESR).
- Detailed description about WBC •Total count (TC), Differential count (DC) and functions.
- Platelets–formation

RESPIRATORY SYSTEM:

- Respiratory movements.
- Definitions and Normal values of Lung volumes and Lung capacities.

EXCRETORY SYSTEM

- Normal Urinary output
- Micturition
- Renal function tests, renal disorders.

REPRODUCTIVE SYSTEM

- Formation of semen and spermatogenesis.
- Brief account of Menstrual Cycle ,oogenesis



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CENTRAL NERVOUS SYSTEM

- Functions of CSF
- Reflexes.
- Sympathetic and parasympathetic outflow Impulse conduction
- Structure of neuron
- Degeneration and regeneration of nerve fibers Cerebral blood flow

ENDOCRINE SYSTEM

- Functions
- Pituitary
- Thyroid
- Parathyroid
- Adrenal
- Pancreatic Hormones

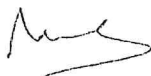
DIGESTIVE SYSTEM

- Physiological Anatomy of the GIT.
- Food Digestion in the mouth, stomach ,intestine
- Absorption of foods
- Role of bile indigestion.

SPECIAL SENSES

REFERENCE BOOKS:

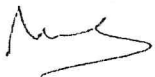
1. Raj Kapoor," Physiology Practical Manual for Allied Health Sciences", CBS Publishers and Distributors Pvt Ltd, 3RD Edition.
2. Marya, "Medical Physiology", CBS Publishers and Distributors Pvt Ltd, 4th Edition.
3. CL Ghai, "Text Book of Practical Physiology", Jaypee Brothers Medical Publishers, 9th Edition.
4. Vidya Rattan, "Hand Book of Human Physiology", Jaypee Brothers, 7th Edition.
5. Robin R. Preston & Thad Wilson, " Lippincotts Illustrated Reviews in Physiology", Lippincott Williams and Wilkins, 2nd Edition.



PHYSIOLOGY LAB

PRACTICAL – 40 hrs

1. Microscope
2. Estimation Hemoglobin
3. Blood grouping
4. BT and CT
5. RBC count
6. WBC count
7. PCV
8. ESR
9. Osmotic fragility
10. DLC
11. Measurement of Pulse,HR,RR, Temperature,SPo₂
12. Measurement of Blood pressure and auscultate Heart sounds
13. Spotters



U20CTAT13

BIOCHEMISTRY

| L | P | Hrs |
|----|----|-----|
| 60 | 40 | 100 |

CELL AND CELL ORGANELLES

Structure and functions of Cell organelle, membrane structure and transporters

CARBOHYDRATES

Classification, properties and functions of carbohydrates, Glycolysis, Diabetes Mellitus

LIPIDS

Classification and functions of lipids, Normal value and functions of Lipoproteins, ketone bodies and ketosis, pathogenesis of Atherosclerosis, cardiac biomarkers

PROTEINS

Classification of Amino acids, Classification and properties of proteins, Normal value of plasma proteins and their functions.

ENZYMES

Classification, co-enzymes, Iso-enzymes, enzyme measurement units, enzyme profile in different disorders

VITAMINS

Functions and deficiency manifestations of fat soluble vitamins, Co-enzyme form, functions and deficiency manifestations of water soluble vitamins.

MINERALS

Functions and disorders related to minerals like calcium, iron, copper, zinc, iodine, sodium, potassium and chloride.

NUTRITION

Calorific value of foods, Basal Metabolic Rate, Protein Energy Malnutrition.

ORGAN FUNCTION TEST

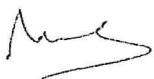
Liver function Test, Renal Function Test, Thyroid Function Test

ACID BASE BALANCE AND IMBALANCE

pH, Henderson- Hasselbalch equation, buffers, Disorders of Acid base imbalance

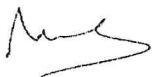
SAMPLE COLLECTION AND TRANSPORT

Types of samples, Anticoagulants, Phlebotomy, Sample Transport



REFERENCE BOOKS:

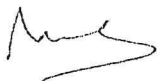
1. Allan Gaw, "Clinical Biochemistry – An Illustrated Colour Text", Churchill Livingstone, 3rd edition
2. Nanda Maheshwari, "Clinical Biochemistry", Jaypee brothers medical publishers, 2nd edition
3. Victor Rodwell, "Harper's Illustrated Biochemistry", McGraw-Hill Education, 31st edition
4. DmVasudevan, "Text Book of Biochemistry", Jaypee Brothers Medical Publishers, 9th edition
5. Harold Varley, "Practical Clinical Biochemistry", CBS, 6th edition



BIOCHEMISTRY LAB

PRACTICALS – 40 hrs

1. Common Laboratory equipments and glasswares
2. Good Laboratory practices and biomedical waste management.
3. General and colour reactions of carbohydrates.
4. General reactions of proteins .Colour reactions of amino acids.
5. Point of care testing
6. Normal and abnormal constituents of urine analysis



| | | | | |
|-----------|--------------|----|----|-----|
| U20CTAT14 | MICROBIOLOGY | L | P | Hrs |
| | | 60 | 40 | 100 |

GENERAL BACTERIOLOGY

- **History of Microbiology:** Theory of biogenesis and a biogenesis pioneers in Microbiology (Robert Koch, Louis Pasteur, Joseph lister, Paul enrich, and Koch Postulates.
- **Morphology of bacteria:** Classification based on shape, Anatomy of the bacterial cell, defective forms of bacteria, Bacterial appendages, Bacterial Spore
- **Physiology of bacteria:** Autotrophs, Heterotrophs, Bacterial growth and replication, Bacterial Growth curve, Bacterial count, Bacterial nutrition, Factors affecting the growth.
- **Sterilization & Disinfection:** Introduction, Physical methods, Chemical methods, methods of sterilization and disinfection of medical and laboratory equipments, Disinfection of clinical samples and environmental surfaces in laboratory and hospitals, Testing fordis infectant.
- **Culture media:** Introduction, basal media, synthetic media, special media with emphasis on their uses.
- **Culture methods:** Aerobic and Anaerobic culture methods.

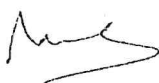
IMMUNOLOGY

- Infection - types, Route, source of infections, vector, factors affecting virulence, Exotoxins endotoxins
- Antigen – types factors affecting antigenicity
- Antibodies (Immunoglobulin's)- general properties, IGg, IGA, IGM,IGE,IGD
- Immunity- Innate immunity, Factor affecting & mechanisms of innate immunity Acquired immunity, active & passive
- Ag – Ab reactions – general properties, slide & tube agglutination, precipitation (slide flocculation) prozone phenomno, coombs test, immune fluorecence assay, Elisa (direct &Indtect) , Immuno chromatography , Applications of Antigen antibodies reactions
- Immune system - cells of lymphoreticular system- lymphocytes, phagocytes structure and functions
- Immune response – humoral& cell mediated immune response, monoclonal antibodies factor affecting anti bodies, adjuvants ,immuno suppressive agents, interleukins , immunological tolerance
- Hypersensitivity- Types- immediate &delayed , Type I, IV Hypersensitivity

SYSTEMIC BACTERIOLOGY

Bacterial infections – morphology, pathology, clinical feature, lab diagnosis, treatment prevention including immune prophylaxis of the following pathogens. No description of culture characters and biochemical reactions

- Staphylococcus
- Streptococcus
- Enterococcus
- Pneumococcus
- C.diphtheriae
- Clostridium tetani
- Clostridium perfringens
- Mycobacterium tuberculosis
- Mycobacterium leprae



Curriculum and Syllabi R-2020

- E.coli
- Klebsiella Pneumoniae
- Salmonella typhi
- Pseudomonas aeruginosa
- Treponema pallidum
- Vibrio cholera

VIROLOGY

- Introduction and General properties of viruses morphology and general characters susceptibility to physical chemical agents , viral hemagglutinations , cultivations of viruses , cytopathic effects
- Morphology, pathology, clinical feature, lab diagnosis, treatment prevention including immune prophylaxis of the following pathogens:
 - Herpes simplex
 - Varicella zoster
 - Dengue
 - Rabies
 - Hepatitis A,B,C
 - H.I.V
 - Influenza virus
 - Corona virus
 - Measles , mumps & rubella

MYCOLOGY

Introduction – Morphology, General characteristics, classifications, outline of lab diagnosis, Morphology Pathology, clinical feature, lab diagnosis, treatment prevention of the following pathogens

- Candida
- Cryptococcus
- Aspergillus spp

PARASITOLOGY

Introduction, General Characteristics, Classifications, Brief description of Morphology, Pathogenesis, Lab diagnosis, Prevention of the following Parasites:

- E.Histolytica
- Giardia
- Malarial Parasite
- Roundworm
- Hookworm

APPLIED MICROBIOLOGY

- BMWM
- Immunization
- H.A.I & H.I.C
- Standard Precaution



REFERENCE BOOKS:

1. Richard A Harvey, "Lippincotts Illustrated Reviews In Microbiology", Lippincotts Williams & Wilkins, 3rd Edition.
2. Thao Doan, "Lippincotts Illustrated Reviews Immunology", Lippincotts Williams & Wilkins, 2nd Edition.
3. Apurba Sastry, "Textbook Of Essentials Of Practical Microbiology", Jaypee Brothers,
4. 1st Edition.
5. Baveja, "Textbook Of Practical Microbiology, Arya Publications", 4th Edition.
6. JayaramPanikar, " Textbook Of Microbiology", Orient Black swan Pvt Limited, 9th Edition.
7. Baveja, "Textbook Of Microbiology", Arya Publications, 6th Edition.
8. Baveja, "Textbook Of Parasitology" , Arya Publications, 4th Edition



MICROBIOLOGY LAB

PRACTICALS – 40 hrs

1. Microscope – compound ,DGM, Florescence Microscope
2. Morphology of bacteria
3. Motility – hanging Drop & WET MOUNT
4. Sterilization &Disinfection - Demonstration of equipments and methods
 - Hot air oven, autoclave, ETO, heap filter, syringe filter physical & biological indicators of sterility
 - Packing of glassware and instruments for sterilizations
 - Visit to CSSD
5. Demonstration and use of Centrifuge, & distillation still
6. Preparation of smear from specimen and simple staining
7. Grams stain
8. Culture media
9. Slide and tube agglutination
10. Immuno chromatography
11. Study of bacteria pathogens
 - Staphylococcus
 - Streptococcus
 - Pneumococcus
 - C.diphtheriae
 - Clostridium tetani
 - Clostridium perfringens
 - Mycobacterium tuberculosis
 - Mycobacterium leprae
12. Serological test (ASO, CRP, RAF, Widal, VDRL, HIV, HBV ,Dengue)
13. Study of fungal pathogens
 - Candida
 - Dermatophytes
14. BMWM
15. PPE
16. Standard precautions
17. Examination of stools for parasites
 - E. histolytica
 - G.lamblia
 - Roundworm
 - Hook worm
 - Strongyloides



| | | | | |
|------------------|------------------|-----------|-----------|------------|
| U20CTAT15 | PATHOLOGY | L | P | Hrs |
| | | 60 | 40 | 100 |

Introduction to Pathological Terms, techniques
Cellular adaptations
Inflammation (Acute & Chronic) Transudate & Exudate
Wound healing and repair.

HEMODYNAMICS

- Oedema
- Thrombus
- Emboli
- Shock

IMMUNOLOGY

- Hypersensitivity reactions
- HIV
- Transplant rejection
- SLE

NEOPLASIA

- Benign and malignant tumors
- In situ growth
- Familial cancers
- Metastasis

GENETICS

- Chromosome aberrations
- congenital & developmental anomalies

ENVIRONMENTAL

- Radiation injury
- Nutritional deficiencies

INFECTIONS

- Leprosy
- Syphilis
- Tuberculosis
- Malaria
- Filaria



Curriculum and Syllabi R-2020

Anaemia and lab investigations
Blood grouping & cross matching
WBC disorders – Leukemias

BLEEDING AND PLATELET DISORDERS

- BT (bleeding time)
- CT (clotting time)
- PT (prothrombin time)
- APTT (activated partial thromboplastin time)

RESPIRATORY SYSTEM

- Asthma
- COPD
- Pneumonia & Lung tumours
- pneumoconiosis

CVS (CARDIO VASCULAR SYSTEM)

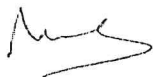
- Atherosclerosis
- Aneurysms
- Hypertension
- Myocardial Infarction
- Rheumatic heart disease
- Infective endocarditis

GIT (gastro intestinal tract)

- Peptic ulcer
- Carcinoma Stomach
- Amoebiasis
- Typhoid
- TB Intestine
- Carcinoma Intestine

HEPATOBIILIARY

- Liver abscess
- Hepatitis
- Cirrhosis
- Chole Cystitis
- Tumours of liver & gall bladder



Curriculum and Syllabi R-2020

RENAL

- Nephrotic syndrome
- Nephritic syndrome
- Renal calculi
- Renal failure
- RCC (renal cell carcinoma)
- CPN (chronic poly nephritis)

BREAST

- Benign lesions of breast
- Carcinoma breast

FGT

- Carcinoma cervix and endometrium
- Ovarian tumours
- PCOD (polycystic ovarian disease)
- Leiomyoma

CNS (central nervous system)

- Hydrocephalus
- Meningitis
- Encephalitis
- Cerebro vascular Disease

ENDOCRINE

- Diabetes
- Thyroid disorders

EYE

- Infections
- Tumors
- Metabolic diseases

BONE

- Osteomyelitis
- Arthritis
- Osteoporosis
- Bone tumours



REFERENCE BOOKS:

1. Nayak Ramadas, "Textbook Of Pathology For Allied Health Sciences" ,Jaypee Brothers 1st Edition.
2. Nanda Maheshwari, "Clinical Pathology/Hematology and Blood Banking"
(For DMLT Students), Jaypee Brothers, 3rd Edition.
3. Nayak Ramadas, "Histopathology Techniques & Its Management", Jaypee Brothers, 1st Edition.
4. Ramnik Sood, "Concise Book of Medical Laboratory Technology Methods and Interpretations", Jaypee Brothers, 2nd Edition.
5. Dacie&Lewis, "Practical Hematology", Elsevier Health – Uk, 11thEdition.
6. Lippincotts Illustrated Reviews in Pathology.



PATHOLOGY LAB

PRACTICALS – 40 hrs

1. Urine Examination
2. Hemoglobin Estimation
3. Blood Grouping
4. Peripheral Blood Smear staining
5. Differential count
6. Gross Pathology
7. Microscopic Slides
8. Instruments



U20CTAT16

ENGLISH

| L | P | Hrs |
|----|----|-----|
| 25 | 25 | 50 |

COMMUNICATION

- Communication at the workplace
- Human needs and communication "Mind mapping" Information communication

COMPREHENSION PASSAGE

- Reading purposefully
- Understanding what is read
- Drawing conclusion
- Finding and analysis

EXPLAINING

- How to explain clearly
- Explaining procedures
- Giving directions

WRITING BUSINESS LETTERS

- How to construct correctly Formal language, Address, Salutation
- Body and Conclusion

REPORT WRITING

- Reporting an accident
- Reporting what happened at a session
- Reporting what happened at a meeting

PRACTICAL

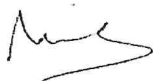
- The clinical experience in the wards and bedside nursing will provide opportunity for students to fulfill the objectives of learning language
- Assignment on writing and conversation through participation in discussion debates seminars and symposia. The students will gain further skills in task oriented communication.



Curriculum and Syllabi R-2020

REFERENCE BOOKS:

1. Selva Rose. 1997, Career English for Nurses. Published by: Orient Blackswan Ltd
2. Oxford advanced Learners Dictionary, 1996
3. Quirk Randolph and Greenbaum Sidney, 1987. A University Grammar of English, Hong Kong: Longman group (FE) Ltd/Pearson.
4. Thomson A.J. and Maituiet A.V. 1987, A Practical English Grammar, Delhi: Oxford University Press.
5. Gimson A.C. 1989, An Introduction to pronunciation of English. Hodder Arnold; 4th Revised edition (1 May 1989).
6. O'Connor J.D, 1986. Better English pronunciation. Cambridge: University Press
7. By water F.V.A. 1982, Proficiency Course in English. London: 1- lodder and Stronglton.
8. Roget S.P. 1960, Thesaurus of English Words & Phrases, London: Lowe & Brydone Ltd. 1960.



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|------------------|-------------------------|-----------|-----------|------------|
| U20CTAT17 | COMPUTER SCIENCE | L | P | Hrs |
| | | 25 | 25 | 50 |

TYPING TEXT IN MS WORD

- Inserting tables in a document.
- Formatting the text–using different font sizes, bold, italics
- Bullets and numbering
- Pictures, file insertion
- Aligning the text and justifies
- Choosing paper size
- Adjusting margins
- Header and footer, Inserting page No's in a document Printing a file with options
- Using spell check and grammar

CREATING TABLE IN MS EXCEL

- Cell editing–Using formulas and functions Manipulating data with excel
- Using sort function to sort numbers and alphabets
- Drawing graphs and charts using data in Excel–Auto formatting–Inserting data from other work sheets.

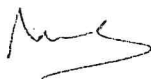
PREPARING NEW SLIDES USING MS POWERPOINT

- Inserting slides – Slide transition and animation – Using templates
- Different text and font sizes – Slides with sounds – Inserting clipart, pictures, tables and graphs– Presentation using wizards

INTRODUCTION TO INTERNET

Using search engine –Google search–Exploring the next using Internet Explorer and Navigator – Uploading and Download of files and images – Email ID creation

- Sending messages – Attaching files in E-mail ID
- Typing a text and aligning the text with different formats using MS-Word
- Inserting a table with proper alignment and using MS-Word
- Create email merge document using MS-word to prepare greetings for 10 friends
- Preparing a Slides how with transition, animation and sound effect using MS-PowerPoint
- Customizing the slides how and inserting pictures and tables in the slides using MS- PowerPoint
- Creating a work sheet using MS-Excel with data and use of functions
- Using MS-Excel prepare a worksheet with text, date time and data
- Preparing a chart and pie diagrams using MS-Excel
- Using Internet for searching, uploading files, downloading files and creating E-mail ID



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REFERENCE BOOKS:

1. Fundamentals of computers- V. Rajaraman-2004
2. Absolute beginners guide to computer basics-Michael Miller. Que Publisher, September 1, 2009.
3. Networking concepts and technology – by Deepak Kalkadia, Francesco DiMambro, Prentice hall publisher, May 25, 2007
4. Operation system concepts (8th edition) by Abraham Silberschatz, Peter Baer Galvin, Greg Gangne, Wiley Publisher, Feb 13, 2009.
5. Microsoft office 2013 for Dummies – by Wallace Wang, July 31, 2013.



II-YEAR SYLLABUS

U20CCTT21

ICU MONITORING (BASIC)

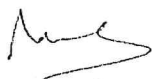
| L | P | Hrs |
|----|----|-----|
| 60 | 60 | 120 |

GENERAL MONITORING:

- Temperature monitoring
 - Principles of temperature monitoring
 - Hypothermia and hyperthermia
- Pulse
- Positioning of patient
- Monitoring for pressure sores Respiratory System
- Airway monitoring- Intubation
 - Securing ET tube
 - Cuff pressure
- Monitoring Gas Exchange
- Oxygenation
 - ABG
 - Pulse Oximetry
 - Oxygen delivery and consumption
- Ventilation
 - ABG
 - Capnography
- Calculations
 - Oxygen consumption
 - Alveolar gas equations
 - Dead space
- Monitoring muscle strength, work of breathing
- PFT - Recognize the methods & significance of measuring the following lung volume and flow in the ICU.
 - Tidal volume
 - Vital capacity
 - Peak flow rate
 - Negative inspiratory pressure

CARDIOVASCULAR SYSTEM:

- ECG
- NIBP
- Invasive arterial blood pressure- Cardiac Input Monitoring
- CVP monitoring
- Zeroing, calibration, trouble shooting of pressure transducers.



Curriculum and Syllabi R-2020

NERVOUS SYSTEM:

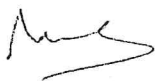
- Neurological history and examination, pupils, Muscle strength
- Glasgow Coma Scale
- ICP Monitoring
- BIS Monitoring Abdomen / Renal
- Intra-abdominal pressure monitoring
- Monitoring renal function
 - Clinical – Urine output
 - Laboratory- creatinine, creatinine clearance

PRACTICALS

- Assignments
- Clinical audit to be started in 2nd year and completed by 3rd year
Observation of equipment handling & maintenances

REFERENCE BOOKS:

1. Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller, Craig L Scalan (Mosby)
2. The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
3. Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
4. Respiratory Physiology – The Essentials I John B West (Williams & Wilkins)
5. Ventilation / Blood Flow & Gas Exchange – John B West (Blackwell Scientific Publications)
6. Techniques in Bedside haemodynamic Monitoring – Elaine Kiess Daily & Johnspeer Schroeder (Mosby)
7. All you really need to know to interpret arterial blood gases – Lawrence Martin (Lea & Febiger)
8. Mechanical Ventilation – Susan P Pilbeam & J M Cairo (Elsevier)
9. Critical Care Secrets: Parsons, Wiener – Kronish, Jaypee Brothers
10. Washington Manual of Critical Care



U20CCTT22

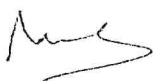
BIOMEDICAL ENGINEERING

| L | P | Hrs |
|----|----|-----|
| 30 | 30 | 60 |

- ECG
- DC defibrillator
- Intravenous pumps
- Laryngoscopes , AMBU bag, suction machine
- SPO2 monitoring, temperature monitoring – NIBP,IBP
- Ventilator – intensive care,portable
- Manual resuscitator
- Radiology equipment & radiation hazards
- Suction machine
- Nebulizer
- Medical gases
- Ambulance & its power supply
- Dialysis machine
- Infant warmer &incubator

REFERENCE BOOKS:

1. Mechanical ventilation clinical application by Vijay Desh Pande
2. Biomedical Signal Processing –Reddy D.C.published by TATA McGraw Hill
3. Biomedical Instrument & Measurements – Cromwell,Leslie,published by Prentice hall,New Jersey
4. Handbook of Biomedical Instrumentation –Khandpur R.S,published by TATA McGraw Hill



| | | | | |
|------------------|---------------------|-----------|----------|------------|
| U20CTAT21 | PHARMACOLOGY | L | P | Hrs |
| | | 30 | - | 30 |

INTRODUCTION

Routes of administration, Pharmacokinetics, Pharmacodynamics, Drugs acting on Autonomic nervous system.

Parasympathetic agents and blocking agents. Sympathetic agents and blocking agents Autocoids and respiratory system

- Non-steroidal anti-inflammatory drugs.
- Drugs for cough and bronchial asthma
- Respiratory stimulants and antihistamines Drugs acting on CNS
- Sedatives and hypnotics and alcohol
- General anaesthetics
- Anti-epileptics and Opioids

DRUGS ACTING ON PNS

- Smooth muscle relaxants
- Local anaesthetics Drugs acting on CVS
- Drugs for congestive cardiac failure
- Anti-hypertensive drugs
- Anti-arrhythmic drugs
- Anti-anginal drugs and diuretics
- Drugs used in treatment of shock Drugs acting on blood
- Anti-thrombotic drugs
- Anti-coagulants
- Fibrinolytic drugs
- Lipid lowering drugs
- Antimicrobial drugs Drugs acting on GIT

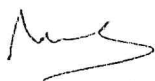
DRUGS USED FOR ENDOCRINE DISORDERS

- Insulin, oral hypoglycemic drugs Corticosteroids
- Thyroxine and anti-thyroid drugs

General concepts and resistance. Antibacterial drugs Antiviral drugs Anti-fungal drugs .Antiseptics and disinfectants Management of poisoned patients

REFERENCE BOOKS:

1. Lippincott's Illustrated Review's in Pharmacology -Seventh edition
2. Medical Pharmacology by Padmaja Uday Kumar- Seventh edition
3. Pharmacology for medical graduates by Tara Shanbhag – Fourth edition



| | L | P | Hrs |
|---|-----------|----------|-----------|
| U20CTAT22 | | | |
| ENVIRONMENTAL SCIENCE & COMMUNITY MEDICINE | 30 | - | 30 |

ENVIRONMENTAL SCIENCE (15 hrs)

1. Introduction to environment
2. Sources, health hazards and control of environmental pollution
3. Water
4. The concept of safe and wholesome water
5. The requirements of sanitary sources of water
6. Understanding the methods of purifications of water on small scale and large scale various biological standards, including WHO guidelines for third world countries
7. Concept and methods for assessing quality of water.
8. Domestic refuse, sullage, human excreta and sewage their effects on environment and health, methods and issue related to their disposal.
9. Awareness of standards of housing and the effect of poor housing on health.
10. Role of arthropods in the causation of diseases, mode of transmission of arthropods borne diseases, methods of control

REFERENCE BOOKS:

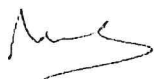
1. Text book of Environmental studies for Under Graduate courses by Erach Barucha

COMMUNITY MEDICINE (15 hrs)

1. Epidemiology and Epidemiological Methods AIM / Approach /Rates/
2. Mortality / Morbidity and Disease transmission
3. Epidemiology of Communicable diseases
4. Epidemiology of Non-communicable diseases
5. Bio-medical waste Management
6. Disaster Management
7. Information, Communication and Health Education.
8. Screening for disease
9. History of Public Health
10. Organization of Health services
11. Health Care Delivery system

REFERENCE BOOKS:

1. Park's text book of Preventive and social Medicine – 23rd Edition(2015)
2. Community Medicine with recent advances by A.H. SuryaKantha
3. Short text book of preventive and social medicine by G.N.Prabhakar
4. Text book of community medicine – By Sunderlal.



III-YEAR SYLLABUS

| | | | | |
|-----------|--|---------|----------|------------|
| U20CCTT31 | ICU MONITORING (ADVANCED) & EQUIPMENT MAINTENANCE | L 50 | P 100 | Hrs 150 |
|-----------|--|---------|----------|------------|

RESPIRATORY SYSTEM

Monitoring lung and chest wall mechanics

- Compliance
- Resistance
- Pressures
- Auto PEEP volumes

Monitoring muscle strength, work of breathing, Maximum inspiratory and expiratory pressures

Monitoring patient ventilator system, Graphics monitoring

Bedside PFT

CARDIOVASCULAR SYSTEM

- Assessment of Preload responsiveness static and dynamic parameters
- Basic Echocardiography in ICU/ Ultrasound in Critical Care
- Defibrillator and Cardio version
- PICCO
- Monitoring tissue perfusion
- Pulmonary artery catheters
- Temporary pacemaker

CENTRAL NERVOUS SYSTEM

- Monitoring brain stem function
- Sedation and analgesia scoring

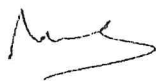
NUTRITIONAL MONITORING

- Functional nutritional assessment (history and physical examination)
- Metabolic assessment
- Estimating nutritional requirements

CARE & MAINTENANCE IF ICU EQUIPMENT & TROUBLESHOOTING

(Includes quality checks and calibrations of all the equipment)

- Mechanical Ventilators & Non-invasive ventilators
- Pumps: Infusion, syringe
- Monitors: Stand-alone & multi-parameter, Cardiac Output monitors.
- ECG machine
- ABG machine
- Defibrillator
- Ultrasound machine
- Bronchoscope



Curriculum and Syllabi R-2020

PRACTICALS

- Log book and project completion for internal assessment
- Should know the workings of all ICU equipment
- Should know care and maintenance of all ICU equipment
- Should be able to monitor ventilator parameters
- Should be able to assess fluid responsiveness in a patient

REFERENCE BOOKS:

1. Egan's Fundamentals of Respiratory Care – Robert L. Wilkins, James K Stoller
2. The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
3. Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
4. Respiratory Physiology – The Essentials I John B West (Williams & Wilkins)
5. Ventilation / Blood Flow & Gas Exchange – John B West (Blackwell Scientific Publications)
6. All you really need to know to interpret arterial blood gases – Lawrence Martin (Lea & Febiger)
7. Text book of Advanced Cardiac Life Support. American Heart Association
8. Mechanical Ventilation – Susan P Pilbeam & J M Cairo (Elsevier)
9. Critical Care Secrets: Parsons, Wiener – Kronish, Jaypee Brothers
10. Washington Manual of Critical Care



U20CCTT32

ICU THERAPY

| L | P | Hrs |
|----|-----|-----|
| 50 | 100 | 150 |

MECHANICAL VENTILATION/VENTILATOR DEPENDENCE/DIFFICULT WEANING BASIC CONCEPTS

- Mechanics of ventilation
- Mechanics of exhalation
- Work of breathing
- Distribution of ventilation
- Efficiency and effectiveness of ventilation Indications
- Mechanical Ventilators
- How ventilators work
- Operator interface
- Types of ventilators

Modes of Mechanical Ventilation Basic and newer modes Ventilator initiation

- Initial ventilator settings
- Adjusting ventilatory settings
- Oxygenation
- Ventilation
- Timing – Inspiratory of gas / Expiratory, inspiratory hold Flow
- Tidal volume
- Pressure- Peak /Plateau PEEP
- POP – OFF
- Pressure support
- Proximal airway (VS) distal FiO₂

Humidification

- Humidifier types
- Advantages & disadvantages

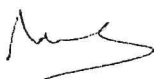
Non-Invasive Ventilation

- Types of NIV (CPAP, BIPAP)
- Goals of & indications of NIV
- Patient selection and exclusion criteria for NIV Equipment used in the application of NIV Instituting and managing NIV
- Complications of NIV
- Time & cost associated with NIV

Trouble shooting and alarms

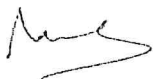
Weaning and Extubation

- Weaning
- Definitions
- Reasons for ventilator dependence Patient evaluation
- Preparing patient methods
- Newer techniques for facilitating ventilator discontinuance Selecting an approach



REFERENCE BOOKS:

1. Egan's Fundamentals of Respiratory Care – Robert L. Wikins, James K Stoller
2. The ICU Book – Paul L Marino (Lippincott, Williams & Wilkins)
3. Practical Methods for Respiratory Care – Raymond Sibberson (Mosby)
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| | | | | |
|------------------|---|-----------|----------|------------|
| U20CCTT33 | ICU ADMINISTRATION, LOGISTICS, COMMUNICATIONS & MANAGEMENT | L | P | Hrs |
| | | 30 | - | 30 |

BASIC ADMINISTRATION

- Economic issues in ICU
- Raising purchase orders for equipment Unit
- Maintaining consumable stock
- Equipment repair

CSSD PROCEDURES

- Waste disposal collection of used items from user area, reception protective clothing and disinfection safe guards
- Disinfection in ICU –Surfaces
- Reusable equipment and accessories
- Wrapping & packing
- General principles of sterilization
- Moist heat sterilization
- Dry heat sterilization
- Chemical sterilization
 - EO gas sterilization
 - H₂O₂ gas plasma vapsterilization

COMMUNICATION AND COUNSELING:

Basic principles



| | | | | |
|-----------|--------------------------|----|---|-----|
| U20CTAT31 | BIostatISTICS AND ETHICS | L | P | Hrs |
| | | 30 | - | 30 |

BIostatISTICS (15Hrs)

- Introduction to Statistics
- Scales of Measurement
- Collection and Presentation of data
- Measures of Central tendency
- Measures of Variation
- Probability
- Binomial and Normal distribution
- Sampling Methods
- Sample size determination
- Correlation and Regression
- Statistical Significance
- Non-Parametric tests
- Health Statistics including hospital statistics

REFERENCE BOOKS:

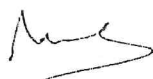
1. KR Sundaram, SN Dwivedi and V Sreenivas (2010): Medical Statistics, Principles and Methods, BI Publications Pvt Ltd, New Delhi, India.
2. A Indrayan (2008): Basic Methods of Medical Research, Second edition, AITBS Publishers, India.
3. NSN Rao and NS Murthy (2008): Applied Statistics in Health Sciences, First Edition, JAYPEE brothers medical publishers (P) Ltd, India.

MEDICAL ETHICS (15Hrs)

1. Medical ethics - Definition - Goal -Scope
2. Code of conduct - Introduction–Basic principles of medical ethics–Confidentiality
3. Malpractice and negligence
4. Rational and irrational drug therapy
5. Autonomy and informed consent Rights of patients
6. Care of the terminally ill-Euthanasia
7. Organ transplantation
8. Medico legal aspects of medical records – Medical legal case and type- Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - Release of medical information - Unauthorized disclosure- retention of medical records- other various aspects.

REFERENCE BOOKS:

1. Medical Ethics Manual-The Pocket Manual
2. The Medical Ethics Today The BMA's Handbook of Ethics and Law –The British Medical Association



Curriculum and Syllabi R-2020

Monitoring the patient during weaning

- Chronically ventilator dependent patients & difficulty in weaning
- Terminal weaning
- Extubation: Indications ,Procedure, Post extubation care

Nebulization and MDI

- Inhaled drug therapy Nebulization
- Different types
- Advantages & disadvantages MDI with spacer
- Characteristics of therapeutic aerosols Hazards of aerosols therapy
- Aerosol drug delivery system
- Assessment based bronchodilator therapy protocols Special considerations
- Controlling environmental and contamination

Suctioning and chest physiotherapy

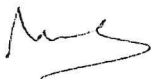
- Incentive Spirometry
- Inspiratory resistance exercises
- Care of Patient on Ventilator
- Ensuring proper placement
- Cuff pressure
- Tracheo bronchial hygiene & suctioning
- Humidification
- chest physiotherapy
- Ventilator settings
- Monitoring ventilatory parameters
- Care of the chest tube
- Drainage systems of pleural with fluid
- Extubation failure

AIRWAY ASSISTANCE

- Tracheal intubation (oral, nasal) – Insertion of ICD
- Cricothyrotomy
- Open/percutaneous tracheostomy
- Fiberoptic bronchoscopy
- FOB Intubation
- Therapeutic BAL
- Decanulation of tracheostomy

CARDIOVASCULAR SYSTEM

- Fluid resuscitation and inotropes
- Basic of IABP /ECMO
- Pericardiocentesis



Curriculum and Syllabi R-2020

LIFE SUPPORT

- Basic life support
- AED, Mask ventilation, Chest compression
- Advanced cardiac life support
- Drugs, defibrillation

Trauma life support

- A –Airway and cervical spine stabilization
- B – Breathing
- C –Circulation and hemorrhage control
- D –Disability
- E -Exposure D Manual inline stabilization
- Basic care of surgical wounds and fractures
- Burns Assessment
- History and physical assessment
- Assessment of burns and fluid and electrolyte loss
- Etiology classification, Pathophysiology, clinical manifestations, Diagnosis, treatment modalities

RENAL / ABDOMEN

- Basics of Renal Replacement Therapy, modes of dialysis
- Intra-abdominal pressure, abdominal compartment syndrome

CENTRAL NERVOUS SYSTEM

- Care of Unconscious Patient, Comfort
- Skin integrity assessment and care
- Physiotherapy – chest & limbs
- Nutritional needs & supply
- Pain Control, Care of epidural, Patient controlled analgesia

INFECTION CONTROL

- Hand hygiene
- Universal precautions
- Isolation

PRACTICAL

- Clinical rotations in selected Medical and Surgical areas
- Patient assignments for patient centered comprehensive care
- Case presentations, Drug study discussion

