

Faculty of Allied Health Sciences

0124-2278183, 2278184, 2278185

Bachelor of Science (Operation Theatre Technology)(BOTT)

Syllabus

2017

PROPOSED SCHEME FOR CREDIT BASED GRADING SYSTEM IN B. Sc. OPERATION THEATRE TECHNOLOGY (SEMESTER SYSTEM)

SCHEME OF EXAMINATION

SEMESTER -I

124/1		Se	mester- I (1	st Year)			1.14	
Paper	Subject	Paper Code	T Exa	Theory mination	Practical Examination		Total Marks	Credits
		a Section	Univ. Exam.	Internal Assessment	Univ. Exam.	Internal Assessment		2
1	Anatomy	1000	60	40	60	40	200	3+1
2	Physiology		60	40	60	40	200	3+1
3	Biochemistry		60	40	60	40	200	4+2
4	Microbiology		60	40	60	40	200	4+2
5	Pathology	P Self Sect	60	40	60	40	200	4+2
6	Communication Skills and Personality Development		60	40		-	100	2
	Total	1	360	240	300	200	1100	28
		Se	mester-II (1	st year)	2			1 Cong
1	Anatomy	1.2. 18.	60	40	60	40	200	3+1
2	Physiology	Geologica S	60	40	60	40	200	3+1
3	Biochemistry	1.	60	40	60	40	200	4+2
4	Microbiology		60	40	60	40	200	4+2
5	Pathology	1. 1. 1.	60	40	60	40	200	4+2
6	Fundamentals of Computer Science		60	40	-	-	100	2
1. 14	Total		360	240	300	200	1100	28

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SEMESTER -III

S.No.	Subject	Paper	Theory Exa	mination	Practical Ex	amination	Total	Total
		Code	University Exam	Internal Exam	University Exam	Internal Exam	Marks	Credits
1.	Introduction to OT Technology		60	40	60	40	200	4+2
2.	Basic Anaesthesia Technology		60	40	60	40	200	4+2
3.	Medicine Relevant to OT Technology Part A		60	40			100	3
4.	Medical Ethics		60	40		and and	100	4
5	Environmental Sciences		60	40	-	-	100	4
	Total		300	200	120	80	700	23

SEMESTER -IV

S. No.	Subject	Paper	Theory Exam	mination	Practical Examination		Total	Total
			Code University I Exam I	Internal Exam	University Exam	Internal Exam	Marks	Credits
1.	Surgical equipments and Machinery		60	40	60	40	200	4+2
2.	Advanced Anaesthesia Technology		60	40	60	40	200	4+2
3.	CSSD Procedures, Cleaning And Sterilization		60	40	60	40	200	4+2
4.	Medicine Relevant to OT Technology Part B		60	40			100	3
	Total		240	160	180	120	700	21

SEMESTER -V

S. No.	Subject	Paper	Theory Exam	mination	Practical Ex	amination	Total	Total Credits
		Code	University Exam	Internal Exam	University Exam	Internal Exam	Marks	
1.	Operation Theatre Technolog- Clinical		60	40	60	40	200	4+2
2.	Regional Anaesthesia Techniques		60	40	60	40	200	4+2
3.	Operation Theatre Technology - Applied		60	40	60	40	200	4+2
4.	Research Methodology and		60	40			100	4
	Biostatistics	12 Same	240	160	180	120	700	22

SEMESTER -VI

S. No.	Subject	Paper Code	Theory Examination		Practical Examination		Total Marks	Total Credits
			University Exam	Internal Exam	University Exam	Internal Exam		
1.	Operation theatre technology- Advanced		60	40	60	40	200	4+2
2.	Post Anaesthesia Care Unit		60	40	60	40	200	4+2
3.	Anaesthesia For specialty surgeries		60	40	60	40	200	4+2
4.	Basic Intensive Care		60	40	60	40	200	4+2
	Total		240	160	240	160	800	24

BOTT

	CORE COURSES (18)	ABILITY ENHANCEMET ELECTIVE COURSE (AEEC) (2)	ABILITY SKILL ENHANCEMENT COURSES (ASEC) (2)	ELECTIVE DISCIPLINE SPECIFIC (DSE)	ELECTIVE GENERIC Interdisciplinary/ Open Elective (GE)
Sei	mester-I				
1	C - O T T - O 1 A n a t o m y (Theory+Practical)	AEEC- OTT-01 Communication Skills & Personality Development (Theory)			
2	C - O T T - 0 2 P h y s i o l o g y (Theory+Practical)				
3	C - O T T - 0 3 Biochemistry (Theory+Practical) C - O P T - 0 4				
5	Microbiology (Theory+Practical) C - O T T - 0 5 P a thology				
	(Theory+Practical)				
Ser	nester-II				
1	C - O T T - 0 6 A n a t o m y (Theory+Practical)		ASEC-OTT-01 Fundamentals of Computer Science (Theory)		
2	C - O T T - 0 7 P h y s i o l o g y (Theory+Practical)				
3	C - O T T - 0 8 Biochemistry (Theory+Practical)				
4	C - O T T - 0 9 Microbiology (Theory+Practical)				
5	C - O T T - 1 0 P a t h o l o g y (Theory+Practical)				
Sen	nester-III				I
1	C-OTT-11 Introduction to OT technology (Theory+Practical)	AEEC-OPT-02 Environmental Science(Theory)		0	
2	C-OTT-12			M	

	the second s	and the second	and the second		
	Basic anesthesia technology (Theory+Practical)		2		
3	C-OTT-13 Medicine relevant to OT technology-I (Theory)				
4	C-OTT-14 Medical ethics (Theory)				
Sen	iester-IV				
1	C-OTT-15 Surgical equipments and machinery (Theory+Practical)				
2	C-OTT-16 Advanced anaesthesia (Theory+Practical)				
3	C-OTT-17 CSSD procedures cleaning and sterlization (Theory+Practical)				
4	C-OTT-18 Medicine relevant to OT Technology –II (Theory)				
Sen	nester-V			7 . W. M.	A REAL PROPERTY.
1	C-OTT-19 Operation Theatre technology advanced (Theory+ Practical)		ASEC-NPT-02 Research & Biostatistics (Theory+Tutorials)		
2	C-OTT-20 Regional anaesthesia technology (Theory+ Practical)				
3	C-OTT-21 Operation theatre technology applied (Theory+Practical)				
Sen	nester-VI				
1	C-OTT-22 Operation theatre technology advanced (Theory+Practical)				
2	C-OTT-23 Post anaesthesia care unit (Theory+Practical)	0			

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3	C-OTT-24 Anaesthesia for speciality surgeries (Theory+Practical)	
4	C-OTT-25 Basic intensive care (Theory+Practical)	

		Summary of Courses		
Ι	Core Courses(5)	Theory	18	18
	(5)	Practical	16	8
	AEEC (1)	Theory	2	2
-		Total	36	28
П	Core Courses (5)	Theory	18	18
	(5)	Practical	16	8
	ASEC(1)	Theory	2	2
		Total	36	28
Ш	Core Courses (4)	Theory	15	15
	(2)	Practical	8	4
	AEEC (1)	Theory	4	4
	1.46	Total	27	23
IV	Core Courses (4)	Theory	15	15
	(3)	Practical	12	6
		Total	27	21
V	Core Courses (3)	Theory	12	12
	(3)	Practical	12	6
	ASEC(1)	Theory	4	4
		Total	28	22
VI	Core Courses (4)	Theory	16	16
	(4)	Practical	16	8
		Total	32	24
	Strange Lange States	Grand Total	186	146

Course Codes

CORE COURSES

- 1. C O P T 0 1 Anatomy (Theory+Practical)
- 2. C O T T 0 2 Physiology (Theory+Practical)
- 3. C-OTT-03 Biochemistry (Theory+Practical)
- 4. C O T T 0 4 Microbiology (Theory+Practical)
- 5. C-OTT-05 Pathology (Theory+Practical)
- 6. C O T T 0 6 Anatomy (Theory+Practical)
- 7. C O T T 0 7 Physiology (Theory+Practical)
- 8. C-OTT-08 Biochemistry (Theory+Practical)
- 9. C O T T 9 Microbiology (Theory+Practical)
- 10. C-OTT-10 Pathology (Theory+Practical)
- 11. C-OTT-11 Introduction to OT technology (Theory+Practical)
- 12. C-OTT-12 Basic anesthesia technology (Theory+Practical)
- 13. C-OTT-13 Medicine relevant to OT technology-I (Theory)

- 14. C-OTT-14 Medical ethics (Theory)
- 15. C-OTT-15 Surgical equipments and machinery (Theory+Practical)
- 16. C-OTT-16 Advanced anaesthesia (Theory+Practical)
- 17. C-OTT-17 CSSD procedures cleaning and sterlization (Theory+Practical)
- 18. C-OTT-18 Medicine relevant to OT Technology -II (Theory)
- 19. C-OTT-19 Operation Theatre technology advanced (Theory+ Practical)
- 20. C-OTT-20 Regional anaesthesia technology (Theory+ Practical)
- 21. C-OTT-21 Operation theatre technology applied (Theory+Practical)
- 22. C-OTT-22 Operation theatre technology advanced (Theory+Practical)
- 23. C-OTT-23 Post anaesthesia care unit (Theory+Practical)
- 24. C-OTT-24 Anaesthesia for speciality surgeries (Theory+Practical)
- 25. C-OTT-25 Basic intensive care (Theory+Practical)

ABILITYENHANCEMETELECTIVECOURSE (AEEC) : 1st & IIIrd Semester

- AEEC- OTT-01 : Communication Skills & Personality Development (Theory)
- AEEC-OTT-02 : Environmental Science(Theory)

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ABILITY SKILL ENHANCEMENT COURSES (ASEC): IInd, &Vth Semester

- 1 ASEC-OTT-01 : Fundamentals of Computer Science (Theory)
- 2 ASEC-OTT-02 : Research & Biostatistics (Theory+Tutorials)

ELECTIVEDISCIPLINESPECIFIC (DSE)

ELECTIVE :GENERIC (GE) Interdisciplinary/Open Elective:

	Semester-I (Total marks= 1100)								
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit				
1.	C-OTT-01	Anatomy (Theory+Practical)	3	200	3+1				
2.	C-OTT-02	Physiology (Theory+Practical)	3	200	3+1				
3.	C-OTT-03	BiochemistryPathology (Theory+Practical)	4	200	4+2				
4.	C-OTT-04	Microbiology (Theory+Practical)	4	200	4+2				
5	C-OTT-05	Pathology (Theory+Practical)	4	200	4+2				
6	AEEC- OTT-01	Communication Skills & Personality Development (Theory)	2	100	2				
1		Total	20	1100	28				

Marks Scheme

		Semester-II (Total man	rks=1100)	and the second	in the second second
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit
1.	C-OTT-06	Anatomy (Theory+Practical)	4	200	3+1
2.	C-OTT-07	Physiology (Theory+Practical)	4	200	3+1
3.	C-OTT-08	Biochemistry (Theory+Practical)	4	200	4+2
4.	C-OTT-09	Microbiology (Theory+Practical)	4	200	4+2

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5	C-OTT-10	Pathology (Theory+Practical)	4	200	4+2
6	ASEC-OTT-01	Fundamentals of Computer Science (Theory)	2	100	2
		Total	18	1100	28

		Semester-III (Total r	narks= 700)	the states of the	
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit
1.	C-OTT-11	Introduction to OT technology (Theory+Practical)	4	200	4+2
2.	C-OTT-12	Basic anesthesia technology (Theory+Practical)	4	200	4+2
3.	C-OTT-13	Medicine relevant to OT technology-I (Theory)	4	100	3
4.	C-OTT-14	Medical ethics (Theory)	4	100	4
5.	AEEC-OPT-02	Environmental Science	4	100	4
		Total	24	700	23

	Semester-IV (Total marks=700)						
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit		
1.	C-OTT-15	Surgical equipments and machinery (Theory+Practical)	4	200	4+2		
2.	C-OTT-16	Advanced anaesthesia (Theory+Practical)	4	200	4+2		
3.	C-OTT-17	CSSD procedures cleaning and sterlization (Theory+Practical)	4	200	4+2		
4.	C-OTT-18	Medicine relevant to OT Technology –II (Theory)	4	100	3		
		Total	24	700	21		

Semester-V (Total marks=700)							
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit		
1.	C-OTT-19	Operation Theatre technology advanced (Theory+ Practical)	4	200	4+2		
2.	C-OTT-20	Regional anaesthesia technology	4	200	4+2		

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		(Theory+ Practical)			
3.	C-OTT-21	Operation theatre technology applied (Theory+Practical)	4	200	4+2
4.	ASEC-OTT- 02	Research & Biostatistics (Theory+Tutorials)	4	100	4
-		Total	20	700	22

		Semester-VI (Total n	narks=800s)		
S. No.	Corse Code	Course Title	Hrs/week	Total Marks	Credit
1.	C-OTT-22	Operation theatre technology advanced (Theory+Practical)	4	200	4+2
2.	C-OTT-23	Post anaesthesia care unit (Theory+Practical)	4	200	4+2
3.	C-OTT-24	Anaesthesia for speciality surgeries (Theory+Practical)	4	200	4+2
4.	C-OTT-25	Basic intensive care (Theory+Practical)	4	200	4+2
		Total	20	800	24

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BOTT Semester 1 Paper 1 ANATOMY

Theory: 35 Hours

Objective: Students to have an overview of human body and are not required to learn in depth.

Introduction: human body as a whole

Definition of anatomy and its subdivisions Anatomical nomenclature and terminology (planes & positions) Surface Anatomy of main structures and vessels

Histology

Cell and its organelles and various types of tissues -Classification with examples

Locomotion and support (with relevant applied anatomy)

Musculo Skeletal system-Classification

Cartilage - definition, types with example

Bone -- Classification with examples, functions, parts, blood supply of long bones. Ossification of bone. Joints -- Classification of joints with examples, synovial joint in detail, common movements of joints with range of motion.

Muscular system: Classification of muscles with examples, function of main muscles.

Bones of the body (region wise): Bony architecture of upper limb, lower limb, skull (including the mandible) thorax. Vertebral column: cervical thoracic lumbar, sacral and coccyx vertebrae intervertebral disc (in brief).

Cardiovascular system (with relevant applied anatomy)

Heart-Size, location, chambers. Circulation -Systemic & pulmonary Great vessels of the heart, branches of aorta.

Overview of blood vessels of upper extremity and lower extremity

Lymphatic system- (with relevant applied anatomy)

Salient features of lymphatic organs (spleen, tonsil, thymus, lymph node)

Gastro-intestinal system (with relevant applied anatomy)

Parts of the gastrointestinal tract

Gross anatomy of Tongue, stomach, small and large intestine, liver, gall bladder pancreas and other digestive organ& related applied anatomy

Respiratory system (with relevant applied anatomy)

Parts of respiratory system with salient gross features of lung Brief description of intercostal muscles and para-nasal air sinuses Related applied anatomy

ANATOMY PRACTICAL -

15 Hours

51

Practical & demonstration : Practicals to be conducted with respect to theory and with radiograph of related courses.

- 1. Identification of epithelium and tissue with examples.
- 2. Identification of bones of axial & appendicular skeleton with important bony landmarks.
- 3. Identification of heart & its chambers with great vessels
- 4. Surface anatomy of main arteries, veins and nerves.
- 5. Identification of parts of respiratory system with salient features of lungs.
- 6. Marking of quadrants of abdomen and identification of abdominal and pelvic organs.

Semester 1 Paper 2 PHYSIOLOGY

Theory: 35 hours

Objective: Students to have an overview of human physiology and are not required to learn in detail.

Cell Physiology:

Cell structure in brief Tissue formation, repair Membranes & glands- functions Alterations in disease

Muscular System & Skeletal System:

Bone formation & growth, Functions Muscle movements, Muscle tone, Physiology of contraction, Maintenance of posture Alteration in disease

Nervous system

Functions of Neuroglia & Neurons Nerve –Impulse: Definitions and mechanism Functions of brain, Spinal cord, cranial and spinal nerves Cerebrospinal fluid-composition, Circulation and functions Reflex arc, reflex action and reflexes Autonomic functions Pain: Somatic, visceral and referred Pain Autonomic Nervous system Alternations in disease

Blood & Circulatory System:

Blood formation, Blood composition, Blood groups, Blood coagulation Hemoglobin: Structure, synthesis and Breakdown, variation, estimation

Respiratory System:

Functions of respiratory organs Pulmonary ventilation, lung Volumes & capacities Mechanics of respiration Gaseous exchange in lungs Carriage of oxygen and carbon-dioxide

Exchanges of gases in tissues Regulation of respiration Alterations in disease.

Digestive System:

Functions of organs of digestive tract, Movements of alimentary tract, Digestion in mouth, stomach, Small intestine, Absorption of food, Functions of liver, gall bladder and pancreas Metabolism of carbohydrates, proteins and fats

Semester1 PHYSIOLOGY Practical: 20hours

- 1. Haemoglobinometry
- 2. WhiteBloodCellcount
- 3. RedBloodCellcount
- 4. DeterminationofBloodGroups
- 5. Leishman'sstainingandDifferentialWBCcount
- 6. DeterminationofpackedcellVolume
- 7. Erythrocytesedimentationrate[ESR]
- 8. CalculationofBloodindices
- 9. DeterminationofClottingTime,BleedingTime

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BOTT Semester 1 Paper 3 BIOCHEMISTRY

Theory : 35 Hours

SPECIMEN COLLECTION:

Types of Specimens

Method of specimen collection (Blood, serum, Urine and others)

Pre-analytical & analytical variables

Use of preservatives in specimen collection

Use of proper Anticoagulants in specimen collection

INTRODUCTION TO LABORATORY APPARATUS:

Overview of the functioning of Biochemistry clinical laboratory. Introduction to glass wares: Pipettes and their Calibration (different types of pipettes like graduated, volumetric and automated pipettes) . Burettes and Beakers. Flasks and their applications (volumetric, conical and round bottomed). Reagent Bottles (graduated , common, Wash bottles and specimen bottles). Funnels and their uses. Measuring cylinders.

Introduction to the laboratory instruments and their maintenance: Use care and maintenance. Waterbath Oven Incubators

BIOCHEMISTRY PRACTICALS

pH Meter General tests of biomolecules General tests of carbohydrates General test of proteins Urine analysis Normal urine Abnormal constituents of urine 15 hours

BOTT Semester 1 Paper 4 MICROBIOLOGY

Microscopy

Theory: 35 Hours

Light microscope, Dark field, Phase contrast microscopy, Fluorescent & Electron microscopy

Sterilization and Disinfection

Physical Methods of Sterilization Chemical Methods of Sterilization Methods of Disinfection

- Growth, Nutrition & Metabolism of Bacteria
- Bacterial genetics
- Bacterial Culture and Identification

Culture Media & Transport Media

Sample collection and transport Methods

Aerobic Bacterial Culture Techniques

Anaerobic Bacterial Culture Techniques

Smear preparation & Staining methods

Principle and techniques of biochemical Test Morphology, Classification & infection caused by Microorganisms (in brief)

Bacteria

Morphology, Classification Human infection caused by bacteria

Viruses

Morphology, Classification Human infection caused by Viruses

Fungi

Morphology, Classification Human infection caused by Fungi

Parasites

Morphology, Classification Human infection caused by Parasite

• Mechanisms of drug resistance

Antimicrobial susceptibility testing
Diffusion Methods
Dilution Methods

MICROBIOLOGY PRACTICAL

• Microscope Light Microscope

• Staining Grams staining ZN staining

• Preparation of commonly used culture media Nutrient Agar Blood Agar Chocolate agar

Mac Conkey agar Muller Hinton agar

• Culture methods Streak method Lawn method Stroke method Stab method Pour Plate method Liquid method

• Antibiotic susceptibility test Diffusion methods Dilution Methods

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BOTT Semester 1 Paper 5 PATHOLOGY

Theory: 35 Hours

Basic Pathology:

Pathology & its branches Normal cell and its functions Various types of microscope & light microscope in details.

Haematology

Introduction to hematology and laboratory Organization.

Formation of Blood

Composition and functions of blood

Various anticoagulants, their uses, mode of action and their merits & demerits.

Collection & preservation of blood for various hematological investigations.

Normal hematological indices (MCV, MCH, MCHC, PCV)

Normal and absolute values in hematology.

Quality assurance in hematology.

Various methods of estimation of Hb involved and standardization of instrument.

Haemocytometery:- Procedure of cell count, visual as well as electronic red cell, Leucytes and platelet count.

Romanowsky dyes, preparation and staining procedure of blood smears.

Morphology of normal blood cells and their identification.

ESR & Factors influencing ESR and various procedures for its estimation.

PATHOLOGY PRACTICAL

15 hours

Hemoglobin estimation – Sahli's method Peripheral blood film (PFB), Preparation, staining by leishman stain & examination. Cell counts by Neubauer chamber – RBCs, WBC, Platelets.

ESR & PCV estimation

BOTT SEMESTER 1 PAPER 6 COMMUNICATION SKILL AND PERSONALITY DEVELOPMENT

Total: 40 hours

Unit I Listening Comprehension

- Speeches
- Interviews
- audio-video clippings followed by exercises
- Introduction to Communication
- Importance of Communication
- · Barriers to Communication and ways to overcome them

Unit II Conversation Skills

- · Greetings and introducing oneself
- Framing questions and answer
- Role play
- · Buying: asking details etc
- Word formation strategies
- · Vocabulary building: Antonyms, Synonyms, Affixation, Suffixation, One word substitution

Unit III

Reading Comprehension

- Simple narration and Stories
- Simple Passages
- Newspaper and articles clippings
- Note Making
- Paragraph Writing
- Comprehension
- · Report Writing: types, characteristics
- Introduction to Letter Writing

Unit IV: Pronunciation

- Pronunciation
- Syllable and Stress
- Intonation and Modulation

UNIT V

Writing Comprehension

- Letters: types, format, style
- Précis Writing
- Paragraph: Order, Topic sentence, consistency, coherence
- Report and Proposal

Project Writing: Features, Structure

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BOTT Semester 2 Paper 1 ANATOMY

Theory: 35 Hours

Objective: Students to have an overview of human body and are not required to learn in depth.

Urinary system (with relevant applied anatomy) Parts of urinary system Salient gross features of kidney, urinary bladder, ureter and urethra

Reproductive system

Parts of male and female reproductive system with salient gross features of testis & uterus, ovary and fallopian tube

Endocrine glands

List of the endocrine glands, their position and salient gross features Hormones produced by each endocrine glands

Nervous system

Classification of the nervous system, Definitions of central, peripheral and autonomic nervous system Neuron- structure and classification, neuroglia

Names of lobes of Cerebrum and cerebellum, parts of brainstem (salient features only). Cerebrospinal fluid and its circulation, names of cranial nerves, spinal nerve, meninges, ventricles (salient features only)

Sensory organs

Skin: Its appendages and functions Eye: parts of eye and its structure Ear: parts of ear- external, middle and inner ear and contents..

Embryology

Spermatogenesis & oogenesis Ovulation, fertilization, Placenta, Fetal circulation.

ANATOMY PRACTICAL -

15 Hours

Practical & demonstration : Practicals to be conducted with respect to theory and with radiograph of related courses.

- 1. Identification of brain with lobes, cerebellum and spinal cord.
- 2. Identification of bones of the body region-wise Upper limb, Lower Limb, Head and neck, Thorax, Abdomen.
- 3. Radiographs region-wise Upper limb, Lower Limb, Head and neck, Thorax (with Normal chest radiograph showing heart shadows), Abdomen and pelvis
- 4. Identification of organs and parts of male and female reproductive system
- 5. Identification of tongue, palate, trachea, oesophagus, thyroid gland

BOTT Semester2 Paper2 PHYSIOLOGY

Theory: 35hours

Excretory system:

Functions of kidneys, Composition of urine Mechanism of urine formation Regulations of body temperature Fluid and electrolyte balance Alterations in disease

Sensory Organs:

Functions of skin, eye, ear, nose, tongue Alterations in disease

Endocrines

Functions of pituitary, Pineal gland, Thymus, Thyroid, Parathyroid, Pancreas, Suprarenal & placenta Alterations in disease

Reproduction

Reproduction of cells-DNA, Mitosis, Meiosis, Spermatogenesis, Oogenesis Functions of female reproductive organs: Functions of breast, female sexual cycle Introduction to embryology Functions of male reproductive organs: Fertility system Alterations in disease

Lymphatic and Immunological system:

Circulation of lymph Immunity Formations of T- Cells and B- Cells Types of Immune response Antigens Cytokines Antibodies

Semester2 PHYSIOLOGY Practical: 20hours

- 1. Haemoglobinometry
- 2. White Blood Cell count
- 3. Red Blood Cell count
- 4. Determination of Blood Groups
- 5. Leishman'sstainingand Differential WBC count
- 6. Determination of packed cell Volume
- 7. Erythrocyte sedimentation rate[ESR]
- 8. Calculation of Blood indices
- 9. Determination of Clotting Time, BleedingTime
- 10. Blood pressure recording
- 11. Auscultation for Heart Sounds
- 12. Artificial Respiration

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BOTT

Semester 2 Paper 3 BIOCHEMISTRY

Theory : 35 Hours

INTRODUCTION TO LABORATORY APPARATUS: Overview of the functioning of Biochemistry clinical laboratory.

Introduction to glass wares:

Test tubes and serum tubes.

Test tube draining rack, bottle racks, Pipette stands, tripod stand, wire gauze and Bunsen burner. Cuvettes and their application in colorimetery and spectrdophotometry. Bottle Dispensers and their Maintenance. Maintenance, Care and cleaning of laboratory glassware.

Introduction to the laboratory instruments and their maintenance: Use care and maintenance.

Water Distillation Plant and Deionizers Refrigerators Centrifuges Laboratory Balance and Direct Readout Electrical Balances Colorimeter Spectrophotometer pH Meter and its Calibration

CONVENTIONAL AND SI UNITS USED IN THE LABORATORY

Molecular and equivalent weight Normality, molality, molarity Concentrations of solutions by w/w, w/v, v/v etc. Preparation of standard solutions Molar solutions and Percent solutions

DILUTIONS of solutions or samples:

Preparation of a stock standard and working standard. Proper method of dilution of a solution or a laboratory sample. Serial dilutions of samples Saturated and supersaturated solutions Significance of volumetric flask in preparing standard solutions,

Basic concept of acids, bases salts and indicators

Acid, base, salts and buffers Indicators and their Functions Buffers of the body

BIOCHEMISTRY PRACTICALS pH Meter

Acid, base, salts and buffers Demonstration of pH meter General tests of biomolecules

General test of lipids

Colorimetry

Princilples of colorimetry (Lambert and Beer's laws and their verification) Standard curve Estimation of Blood sugar Estimation of serum proteins.

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15 hours

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Semester 2 Paper 4 MICROBIOLOGY

Theory: 35 Hours

- Immunology- I
- Immunity
- Antigen & Antibody
- Immunology II

Antigen antibody reactions I

Precipitation, Agglutination

Antigen antibody reactions II Complement fixation, Neutralization, ELISA, RIA, IF

Morphology, Classification & infection caused by Microorganisms (in brief)

Bacteria

Morphology, Classification Human infection caused by bacteria

Viruses

Morphology, Classification Human infection caused by Viruses

Fungi

Morphology, Classification Human infection caused by Fungi

Parasites

Morphology, Classification

Human infection caused by Parasite

Applied Microbiology

- Hospital infection control
- Health care associated infection
- Biomedical waste management
- Monitoring of air quality in Operation theatre
- Sterilization of Operation theatres
- Infection control measures in ICUs
- Central sterile supplies department

MICROBIOLOGY PRACTICAL

15 Hours

Identification of bacterial culture Colony characteristics

Morphological characteristics

Bio medical waste

Use of colour coded bags Black Blue Red Yellow Demonstration of Sterili

Demonstration of Sterilization & Disinfection method

Autoclave Hot Air oven

Water bath

Inspissator

Chemical Sterilization

Collection of specimen

From outpatient units

Inpatient units

Minor operation theatre

Major operation theatre for sterility testing

Disinfection of wards, OT and Laboratory

Visit to CSSD

Demonstration of personal protective equipment Sterility testing Methods

BOTT Semester 2 Paper 5 PATHOLOGY

Theory: 35 Hours

Clinical Pathology

Normal urine- Physical and chemical properties. Body fluid sample such as CSF, pleural fluid & Ascitic fluid –normal values. Semen – Normal

Basic Transfusion medicine

History and discovery of blood group system. ABO and Rhesus blood group system. Other blood group system.

Histopathology

Grossing, Tissue Processing, Fixation, section cutting & staining with Haematoxylin & eosin with other special staining.

Biomedical waste management PATHOLOGY PRACTICAL

15 hours

- 1. BT & CT determination
- 2. ABO/Rh blood grouping by slide methods- Forward & reverse grouping
- Urine examination complete (Physical & chemical examination for glucose, proteins, bile salts & ketone bodies).
- 4. Semen analysis Physical, Chemical & Neubauer's chamber counting.

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BOTT SEMESTER 2 PAPER 6 FUNDAMENTALS OF COMPUTER SCIENCE

Total: 40 Hours

1. Introduction:

What are computers, Application areas, Characteristics & limitations, Evolution of computers, Classification& generations of computers, Data representation in computer memory (numbering system)

2. Computers Architecture /Organization:

Basicarchitecture, Functional Block diagram, Types of computers on the basis of purpose, Signal and Portability.

3. Hardware:

CPU their generations and performance parameters, Input, output and storage devices. Primary (Main) Memories (RAM, ROM, Types of RAM and ROM, Cache Memory, Registers and types of registers, Storage Evaluation Criteria, Memory Capacity), Secondary Storage Devices: (Magnetic Disk, Floppy and Hard Disk, USBs, Optical Disks CD-ROMs)

4. Software:

Types: System Software (Machine Level Languages, Operating Systems, Device Specific Drivers), Higher Level Languages, and Applications

- 5. Languages: Machine Language, Assembly Languages, Programming Languages. Use of Compilers, Assemblers, Linkers, Loaders and interpreters in programming languages
- 6. Operating System: Booting/Start Up Procedure of machines, Introduction to Operating System, Functions and Classification of Operating Systems, Basic introduction to DOS, UNIX/LINUX OS, Windows
- 7. HTML, Use of Multimedia, Computer aided teaching and testing Application Software MS office (Word, Excel and Powerpoint)

8. Basic Introduction to Computer Networks:

Data Communication, Network devices (Hub, Switches, Modems, and Routers etc), LAN, LAN topologies, WAN, MAN, Internet: Introduction, Basics of E-mail, Web browsers (IE, Google Chrome, and Mozilla Firefox),

9. Structure of Universal Resource Locator, Domains (.com, .in, .country specific, .org and rationale behind them), IP address, Backbone network, Network connecting devices, HTTP, DNS, Network Security and Search Engine.

B.Sc. OTT SEMESTER-III Paper -1 Paper Code -

INTRODUCTION TO OT TECHNOLOGY

	Card Martin Cardon	Total Hou	irs 55
S. No.	Торіс	Teaching Guidelines	Teaching Hours
	OT Techniques	Must Know Control of infection: Cleaning, Carbonization and Maintenance of OT Theatre clothes including lead apron and Goggles. Scrubbing Techniques Handling sterilized articles in operation theatre Types of Operation Lights and other sources of lights their care and handling. Setting and use of Image intensifier O.T. environment and storing in OT	8 Hours
1.	Medical Gas	Must Know - compressed gas cylinders -Colour coding different gas cylinder and pipe line system -Cylinder storage space and things to remember while empty and full cylinder storing. -Diameter index safety system -Medical gas pipe line system and station outlets. -Alarms and safety devices in pipe line gas supply. Desirable to Know -Air compressor -Oxygen concentrator working principal their uses and care.	8 Hours
2.	Gas administration devices	Must Know - Simple oxygen administration devices -Flow meters -Gas Regulators -Flow restrictors	8 Hours
3.	Oxygen Therapy	Must Know - Definition, causes and responses to hypoxemia. -Clinical signs of hypoxemia. -Goals of oxygen therapy. Desirable to Know -Evolution of patients receiving oxygen therapy -Hazards of oxygen therapy.	8 Hours
4.	Injection Techniques	Must Know - Intra muscular and insertion of Intra Venous channels. -Handling of sterilized syringes and needles.	7 Hours
5.	Fluids and Electrolytes	Must Know -Type of fluid (Crystalloids & Colloids) -Steps to prepare I.V. drip -Indication of specific fluid and their complication	7 Hours

6.	Blood	Must Know	7 Hours
	Transfusion	- Various types of blood and blood products	
		-Pre transfusion Checks	
	S	-Transfusion reactions	

INTRODUCTION TO OT TECHNOLOGY- Practical

- 1. Various Techniques of Injection –Advantages and Disadvantages
- 2. Crystalloids and colloids
- 3. Medical Gas delivery Devices, DISS, PISS, Oxygen concentrator
- 4. Oxygen therapy devices, hypoxia, hazards of oxygen therapy
- 5. Blood products, Pretransfusion checks, transfusion reactions

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B.Sc. OTT SEMESTER-III Paper -II Paper Code -

Total Hours FO

BASIC ANAESTHESIA TECHNOLOGY

6		Techine C italian	Traching
5.	Торіс	Teaching Guidelines	Teaching
NO.			Hours
1.	Anaesthesia	Must Know	11 Hours
	Machine	Boyles Machine and its function.	
	1	-Modern anesthesia machine.	
		-Hanger and Yoke system	
		-Cylinder pressure gauge	
		-Pin index	
		-Pressure regulator	
		Desirable to Know	
	A Standards	, pressure relief valve, Ether bottle, Flow meter assembly,	
		Vaporizers-Types, Hazards, Maintenance, Filling and Draining	
2.	Breathing	Must Know	9 Hours
	System	Classification of breathing system	
		Open, Semi closed and Closed Circuits,	
		-Mapleson breathing system ventilation	
		-Jackson and Rees system	
		-Bain circuit	× 3
al d'	- Parker Park	-Non rebreathing valves- Ambu valves	
3.	Anesthesia	Must Know	8 Hours
	Equipment	Method of cleaning and maintenance of anesthetic equipments.	
	Maintenance		
4.	Gas Analyzers	Must Know	8 Hours
		-Pulse oxymeter	
	1. Set	-CO2 Monitor / Capnography	
		Desirable to Know	
		-Transcutaneous oxygen monitor	
		-Oxygen Analyser / sensor	
5.	Resuscitation	Must Know	8 Hours
	Techniques	Basic life support (Airway, Breathing, and Circulation) and	
		equipment utilized for it, Drugs used in CPR, Defibrillation	
6.	Artificial Air	Must Know	8 Hours
	Ways	-Parts of airway (nasal/oral) and features, Types, Sizes	-
		-Indication for use	
		-Face mask- Types, sizes and its uses.	
		Desirable to Know	
		-Methods of Airways insertion	
7	Minimum	Must Know	10 Hours
	Standards of	-Requirement of the drugs and equipments before anaesthesia	Torrours
	Anesthesia	-How to keen the airway clear	
	, incontrola		

-Pre operative preparation of patient.
-Management of pre operative and post operative rooms.
-Transportation Techniques of patient in conscious, semi conscious
and unconscious patient to and from operation theatre.

BASIC ANAESTHESIA TECHNOLOGY - Practical

- 1. Functioning of Anaesthesia Machine, Safety Mechanism
- 2. Pressor gauge and Pressor Regulater , vapourisers
- 3. Semi Closed , closed circuits
- 4. Cleaning and Maintenance of Anaesthesia Equpuiements
- 5. Capnography, Plathysmography, Gas Analysers
- 6. Maintenance of Airway, CPR Technique, Defibrillagan, AMBU Bag
- 7. Oropharyngeal and nasopharyngeal airways, face masks-types and sizes
- 8. Pre anaesthesia checklist

B.Sc. OTT SEMESTER-IV Paper -IV Paper Code -MEDICINE RELEVANT TO OPERATION THEATR Part B

- James		lime	Theory -24 Hours
S. No.	Торіс	Teaching Guidelines	Teaching Hours
1.	Anaemia	Must Know - Signs and symptoms Desirable to Know -Causes -Diagnosis -Treatments -Epidemiology	4 Hours
2.	Chronic renal failure	Desirable to Know - Signs and symptoms -Causes -Diagnosis -Treatment	4 Hours
3.	Chronic liver disease/failure	Desirable to Know -Causes of chronic liver disease -Physical signs -Recognition -Risk factors for various liver diseases -Treatment	4 Hours
4.	Paediatric patient infant/neonate	Desirable to Know -Physical characteristics of newborn -Internal physiological changes at birth -Neonatal Nursing : -Care and feeding of newborn -Potential diseases of neonatal period	4 Hours
5.	Epilepsy	Must Know - Signs and symptoms -Management Desirable to Know -Causes -Pathophysiology -Diagnosis -Prevention	4 Hours

6.	CVA	Desirable to Know - Types of stroke -Causes -Pathophysiology -Evaluation -Treatment	4 Hours

MEDICINE RELEVANT TO OPERATION THEATRE – Practical

- 1. Signs and symptoms of anaemia,
- 2. CRF, liver Diseases and importance
- 3. CVA, epilepsy
- 4. Handling of newborn, and paediatric patients

B.Sc. OTT SEMESTER-III Paper -IV Paper Code MEDICAL ETHICS

Time- 40 Hours

S. No.	Торіс	Teaching Guidelines	Teaching Hours
1.	Medical ethics	Must Know - Definition - Goal - Scope	4 Hours
2.	Code of conduct	Must Know - Introduction to code of conduct - Goal	3 hours
3.	Basic principles	Must Know - Basic principles of medical ethics - Confidentiality	3 Hours
4.	Malpractice and negligence	Must Know Malpractice and negligence of patient/treatment Rational and irrational drug therapy	6 Hours
5.	Autonomy and informed consent - Right of patients	Must Know - Introduction to consent - Types of consents - Autonomy and informed consent - Right of patients	6 Hours
6.	Care of the terminally ill	Must Know - Care of the terminally ill patients Desirable to Know - Euthanasia and its norms in India - Organ transplantation, Will and norms	7 Hours
7.	Medico legal aspects of medical records	Desirable to Know - Medico legal case and type - Release of medical information - Unauthorized disclosure Nice to Know - Records and document related to MLC - ownership of medical records - Confidentiality Privilege communication - retention of medical records - other various aspects	11 Hours

B.Sc. OTT SEMESTER-IV Paper -I Paper Code SURGICAL EQUIPMENT AND MACHINERY

S.	Topic	Teaching Guidelines	Teaching
No.	lopic		Hours
1.	Introduction of surgery	Must Know -Basic principal of surgery. -Asepsis	14 Hours
2.	Wound	Must Know	13 Hours
	Management	-Different types of bandages. -Surgical Needle & Needle holders. -Types of suture material. -Techniques of stitching and removal of stitches	
		rechniques of stitching and removal of stitches.	
3.	Surgical Instruments	Must Know - Instruments used for cleaning and draping for a surgical procedure. -Classification of General surgical instruments.	15 Hour
		Desirable to know -Urological surgery Instruments -Orthopedic surgery instruments -Obstetrics and Gynecological surgery instruments -Reconstructive surgery instruments	
		Laparoscopic instruments used for Cholycystectomy and Laparoscopic gynecology procedures	
4.	Applied Surgery	Must Know - Intra-operative & postoperative problems and complications of general surgery. -Management of emergency caesarean section. -Care and maintenance of Para surgical equipment (Cautery, OT lights, OT Table) -Esmarch bandage, simple tourniquet, pneumatic tourniquet uses, care and maintenance -Major abdominal incision. -Positioning of patient for different operation.	28 Hours
		Desirable to know -Laparoscopic gynecology procedures. -Surgical Consideration in TURP and PCNL -Surgical management in major burns. -Surgical management of Fracture, Joint replacement and arthroscopy. -Surgical management of endoscopies, laryngectomy and cochlear implant. -Management of PPV and perforating eye injury.	

5.	Suction Apparatus	Must Know Foot operated, electrically operated suction apparatus, its General Principal, uses and care -Central pipeline suction, colour coding	8 Hours
6.	Medical Ethics	Must Know - Medical ethics. -Relevant medico legal aspects. -Responsibilities and duties. -Ethical behavior and conduct. Desirable to know -Medico legal aspects and relation to consumer protection act.	7 Hours

SURGICAL EQUIPMENT AND MACHINERY- PRACTICAL

- Identification and Demonstration of working of the instruments,
- Fumigation,
- Cleaning and disinfection of articles,
- Packing articles for sterilization,
- Tourniquet Types , Esmarch bandage.
- Care Sterilization & Lubrication of Orthopedic and other instruments.
- Setting up trolley for various surgeries
- Demonstration of Image Intensifier machine.
- Cautery machine- Types setting & uses.
- Positioning of orthopedic patient and other surgeries.
- Advanced O.T. Table & Their attachment as well as their maintenance.

B.Sc. OTT SEMESTER-IV Paper -II Paper Code -

Advanced Anaesthesia Technology

-	1-	Time Theory -10	0 Hours
S.	Topic	Teaching Guidelines	Teaching
No.			Hours
1.	Anaesthesia	Must Know	10 Hours
		-General anaesthesia/sedation techniques	
		-Local anaesthesia techniques.	
		-Peripheral pulse – locations	
	2	-Methods of BP measurement	
		Desirable to Know	
		- History of anaesthesia, Evolution of modern anaesthesia.	
		-Dye allergies,	
		-Monitoring, Equipment options in the MRI	
2.	Anesthesia	Must Know	10 Hours
11	Gadgets	-Different type of larvngoscope and blades	10 mours
		-Description of plain and cuffed endotracheal tubes	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		-complications	
		-Other type of Endotracheal tubes Latex armored tubes Ring	
		Adair and Elwyn tube (RAE) Micro Jaryngeal tubes	1
		-IMA Ambu hag Tracheotomy tubes	100
	57. ¹	- LWA, Andu bag, Hacheotomy tubes.	
		Desirable to Know	
		-Protocol for tracheotomy decannulation	
		-Indication, Method of insertion,	
3.	Anesthesia	Must Know	9 Hours
	Monitoring	- Monitoring during anesthesia.	
		-Multi parameter monitor	
		- Arterial blood pressure - NIBP, IBP, Manual BP	
		monitoring,	
		- Electrocardiogram	T
	1	-SpO2, EtCO2	1.5
		Desirable to Know	o 1
	A	- Neuromuscular monitoring	
4.	Anaesthetic	Must Know	16 Hours
	Drugs	-Different route of drug administration.	
		-Drugs used during General anaesthesia and Regional anaesthesia,	
		-Intravenous anaesthetic agents uses and complications.	
		-Pre- medication indication, Type of drugs used for premedication,	8 T
	je a	Doses and side effects.	
		Desirable to Know	
		- Narcotic agents	

		-Anticholinesterase drugs - Vasopressors -, Antiarrhythmic, -Hypotensive, -Anticoagulant drugs.	
5.	Anesthesia techniques	Must Know - General Anaesthesia Technique -Regional / Local Anaesthesia Technique -Topical Anaesthesia Technique -TIVA -Inhalational Anaesthesia -MAC	17 Hours
6.	Artificial Ventilation and Related Equipment	Must Know -Operation room Ventilators and ICU ventilators -Complication in patients on Ventilators -General care of patient on Ventilator -Disinfection and sterilization of ventilators	
7.	Mental Sickness and Cardiology	Must Know -Various ECG leads, their placement and normal ECG. -Circulatory shock and its management. Desirable to Know -Electroconvulsive shock therapy, drug effects on seizure duration -Hemodynamic responses and appropriate treatment	9 Hours

Advanced Anaesthesia Technology- Practical

- 1. Type of Anaesthesia Techniques
- 2. Types of Laryngoscopes, ETT, LMA,
- 3. Multiparameter monitor, Clinical Monitoring, Nerve stimulator
- 4. Drugs used in GA,LA, premedication
- 5. Emergency drugs, Infusion pumps
- 6. OT and ICU ventilators , Care of Patients on ventilator
- 7. ECG leads placement, significance of ECG

B.Sc. OTT SEMESTER-IV Paper -III Paper Code -

CSSD EQUIPMENTS, CLEANING AND STERILIZATION

c	Tonic	Teaching Cuidelines	Treation
No.	Topic	reaching Guidelines	Hours
1.	CSSD	Must Know	4 Hours
	Techniques	- Cleaning, Carbolization and Maintenance in CSSD.	
		-Handling sterilized articles in CSSD.	1.1
		-CSSD environment and storing in CSSD.	
2.	Cleaning and	-Explain Methods of instruments cleaning, cleaning agents,	
	care of	detergents, mechanical washing ultrasonic cleaner.	
	instruments	-Lubrication and inspection of instruments.	
		-Care of micro surgical and titanium instruments.	1
3.	Sterilization and	Principal of sterilization and disinfection	
	disinfection	-Different methods of sterilization	
		-Precaution to be taken during sterilization	
	1.	-Recent advances in the methods of sterilization	
		-Sterilization of various type ET Tube, Laryngoscope and other	1 1 N 1 1
S. A		anaesthesia equipments.	1
4.	Autoclave	Must Know	1
	Machine	-Types of Autoclave Machine	
		-Autoclave able instruments/Equipments	
		-Loading of autoclave machine	
		-Required temperature and pressure for different materials	
		- Methods of check for efficiency of sterilization	
		-Precaution to be taken during sterilization	
5.	ETO	Must Know	
	Machine	 Availability of ETO Machine according volume 	
		 Autoclave able instruments/Equipments 	
		 Preparation of equipments/instruments sealed packets, 	1. 1. 1. 1. 1.
		stamping etc.	
		 Loading and working of ETO Machine 	1 1 1 1
		-Methods of check for efficiency of sterilization	
		-Precaution to be taken during sterilization	
6.	Plasma	Must Know	
	Sterilization	-Autoclave able instruments/Equipments	
		-Preparation of instruments for plasma sterilization	
		-Loading and working of Plasma Machine	
		-Methods of check for efficiency of sterilization	
		-Precaution to be taken during sterilization	
7.	Waste	-Recent amendment in EPA(Environmental Protection Agency)	
	Disposable	with reference to waste disposable.	
		0	

CSSD EQUIPMENTS, CLEANING AND STERILIZATION- Practical

- 1. Organisation of CSSD
- 2. Cleaning, disinfection, sterilization techniques
- 3. Functioning of Autoclave, steps of autoclaving
- 4. ETO, plasma sterilization.
- 5. Disposal of wastes,

B.Sc. OTT SEMESTER-IV Paper -IV Paper Code -MEDICINE RELEVANT TO OPERATION THEATR Part B

		Time	Theory -24 Hours
S. No.	Торіс	Teaching Guidelines	Teaching Hours
1.	Anaemia	Must Know - Signs and symptoms Desirable to Know -Causes -Diagnosis -Treatments -Epidemiology	4 Hours
2.	Chronic renal failure	Desirable to Know - Signs and symptoms -Causes -Diagnosis -Treatment	4 Hours
3.	Chronic liver disease/failure	Desirable to Know -Causes of chronic liver disease -Physical signs -Recognition -Risk factors for various liver diseases -Treatment	4 Hours
4.	Paediatric patient infant/neonate	Desirable to Know -Physical characteristics of newborn -Internal physiological changes at birth -Neonatal Nursing : -Care and feeding of newborn -Potential diseases of neonatal period	4 Hours
j.	Epilepsy	Must Know - Signs and symptoms -Management Desirable to Know -Causes -Pathophysiology -Diagnosis -Prevention	4 Hours

6. <i>CVA</i>	Desirable to Know - Types of stroke -Causes -Pathophysiology -Evaluation -Treatment	4 Hours

MEDICINE RELEVANT TO OPERATION THEATRE – Practical

- 5. Signs and symptoms of anaemia,
- 6. CRF, liver Diseases and importance
- 7. CVA, epilepsy
- 8. Handling of newborn, and paediatric patients

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B.Sc. OTT SEMESTER-V Paper -I

Paper Code -

Operation Theatre Technology - Clinical

S.	Topic	Teaching Guidelines	Teaching
No.			Hours
1.	OPERATION THEATRE Lay out, Physical Facility, Peripheral support area,	Must Know - Introduction Operating Room, -Physical facility available in OT, -Layout of operation theatre, -Transition, -Peripheral support area, -Potential source of injury to the care giver and patient Desirable to Know - Special procedure rooms	15 Hours
2.	Surgical equipments	Must know -Classification of different surgical equipments, -Surgical instrumentation fabrication, -Uses and maintenance of Powered surgical instruments, -Things to remember while handling instruments. -Preparation of surgical trolley	
3.	Specialized surgical equipment	Must know -uses, care and maintenance of specialized surgical equipment like electric cautry, laparoscopes, Laser microsurgery equipments -Endoscopes -Handling of delicate instruments	
4.	Suture Material and Needles	Must know -Types -Uses - Disinfection Desirable to Know - Storage	
5.	Preparation and Assisting for Various Surgical Procedures; as Circulating and Scrub Technician	Must know -Setting up of operation room and table - Setting up of trays and trolleys for various surgical procedures - Part preparation for surgical procedures - Positioning and draping according the surgical procedures - Incisions for various surgical procedures - Requirement of suturing materials for different surgeries.	

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Operation Theatre Technology – Clinical – Practical

- 1. Layout of OT , OT lights, laminer airflow
- 2. Maintenance of Temperature, humidity and sterility
- 3. Classification of surgical instruments
- 4. Preparation of surgical trolley
- 5. Handling and maintenance of Endoscope, laparoscope, microsurgical instruments
- 6. Types of suture material, needles and uses.
- 7. Positioning, Part preparation, draping of Pat

B.Sc. OTT SEMESTER-V Paper -II Paper Code

Regional Anaesthesia Techniques

		Time Theory	-50 Hours
S. No.	Торіс	Teaching Guidelines	Teaching Hours
1.	General outlook about regional techniques	Must Know - Introduction, techniques for nerve location-peripheral nerve stimulator, -Complications-local anaesthesia systemic toxicity& block specific	15 Hours
		Desirable to Know -ultrasound guided * Indication * Contraindication	
2.	Spinal & epidural	Must Know - Spinal Anaesthesia - Epidural Anaesthesia	15
3.	Upper limb blocks	Must Know - Supraclavicular - Wrist Block	15
		Desirable to Know - Interscalene - Axillary	
4.	Lower limb blocks	Must Know -Ankle block Desirable to Know -Femoral Nerve block -Sciatic nerve block - Popliteal block	10
5.	Drugs used in regional blocks	 Must Know Local anaesthetics-xylocaine, bupivacaine, ropivacaine Adjuvants used in regional anaesthesia-clonidine, dexmeditomedine, dexamethasone, soda bicarbonate, Fentanyl 	5

Regional Anaesthesia Techniques- Practical

- 1. Types of RA techniques
- 2. CNB, difference between SA and EA
- 3. Drugs used in LA- uses and complications
- 4. Adjuvants used during LA techniques
- 5. Nerve mapper cum locator

B.Sc. OTT SEMESTER-V Paper -III Paper Code OPERATION THEATR TECHNOLOGY-APPLIED

Time Theory -50 Hours S. Topic **Teaching Guidelines** Teaching No. Hours Pre Operative **Must Know** 8 Hours 1. preparation - Pre operative time, Pre operative preparation of the patient, check list -Premedication : Drugs / doses, NPO protocol, -Consent / Informed Consent, -ASA grading 2. Monitoring **Must Know** -Patient record keeping pre operatively, during anesthesia and post anesthesia. -Principal and techniques of temperature monitoring. -Cardiovascular monitoring ,NIBP, IBP and ECG -Multiparameter monitor -Respiratory monitors, Anaesthesia ventilator and monitoring - Capnography, - Plethysmography -Proper care and preventive maintenance of equipments 3. General **Must Know** Anaesthesia -Types of anaesthesia - Intravenous and inhalation anaesthesia agents -Endotracheal intubation, Maintenance -Emergence, Reversal agents -Balanced anaesthesia -Describe OT ventilator in brief. -Clinical monitoring during intraop -Stages of anaesthesia -Preparation of Anaesthesia machine and drugs, check list **Desirable to Know** -Indication of general anaesthesia -Feeding ryle's tube insertion technique in awake and unconscious patient 4. Complication of Must Know Anesthesia cover Adverse drug reaction -Complication of General Anesthesia -Anaphylactic reaction -Resuscitation tray -Drugs used during resuscitation 5. Special Must Know -Sedation and monitoring during diagnostic procedures Diagnostic Procedures -Radio opaque dyes and uses **Desirable to Know** -Endoscopy

		-Angiography	
		Nice to Know -special diagnostic procedures -Nuclear medicine studies, - ultrasonography,	
6.	Diagnostic Procedures	Must Know -Introduction to MRI -Biopsy specimens Desirable to Know -Different Pathological examination for surgical diagnostic -Purpose, Different radiological examination, -Radiological contrast studies	

OPERATION THEATR TECHNOLOGY-APPLIED- Practical

- 1. PAC, drugs used in premedication, NPO protocol, ASA grading
- 2. Role of technician in Pre operative room
- 3. IV and inhalation anaesthetic agents
- 4. Balanced anaesthesia, Triad of Anaesthesia
- 5. Preoperative checklist of Anaesthesia and drugs
- 6. Complications of GA and RA
- 7. Sedation, MAC
- 8. MRI compatibility

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B.Sc. OTT SEMESTER-V Paper -IV Paper Code RESEARCH & BIO STATISTICS

S.	Торіс	Teaching Guidelines	Teaching
1	Introduction of	Must Know	6 Hours
1.	statistics	-Definition and characteristics of statistics, -Importance of the study of statistics, -Branches of Statistics, -Parameters and estimates, -Descriptive and inferential statistics, -Variables and their types -Measurement scales	
2.	Tabulation of Data	Must Know Raw Data, the array, frequency distribution, -Basic principles of graphical representation, Desirable to Know -Types of diagrams – histograms, frequency polygons, smooth frequency polygon, cumulative frequency curve, normal probability curve	6 Hrs
3.	Measures of Central Tendency	Must Know -Introduction: Uses, applications and practical approach -Definition and calculation of mean for ungrouped and grouped data -Meaning and calculation of mode -Comparison of mean and mode Desirable to Know -Guidelines for the use of various measures of central tendency	6 Hrs
4.	Measures of Variability	Must Know -Uses, applications and practical approach Desirable to Know -The range, average deviation or mean deviation -The variance and standard variation -Calculation of Variance and standard variation for ungrouped and grouped data -Properties and uses of variance and standard deviation	6 Hrs
5.	Probability and standard Distribution	Must Know -Meaning of probability of standard distribution, -The binominal distribution, -The normal distribution	6 Hrs

		Desirable to Know -Divergence from normality – skewness, Kurtosis	
6.	Sampling Techniques	Must Know -Uses, applications and practical approach -Criteria for good samples -Application of Sampling in Community -Sampling Methods, -Sampling and Non- Sampling errors -Sampling variation and tests of significance.	5 Hrs
7.	Health Indicator	Desirable to Know -Importance of health indicator -Indicators of population, morbidity, health services -Calculation of rates and ration of health	5 Hrs

B.Sc. OTT SEMESTER-VI Paper -I Paper Code

Operation Theatre Technology - Advanced

		Time Theory -:	ou Hours
S.	Торіс	Teaching Guidelines	Teaching
NO.			nours
1.	Management of a patient in crisis	Must Know - Management of poisoning, COPD, snakebite. -Gastric lavage -Ventilation of patient in crisis - Mouth to mouth - Mouth to ET tube - Ambu bag - Air ways- types, colour coding, sizes - Short term ventilation/Transport ventilation -Monitoring during transport -Hypotension, hypoxia, cyanosis	14 Hours
2.	Neuro surgery	Must Know -Introduction to different neurology surgery and position required for them - Preparation of patient and trolley Desirable to Know -Introduction to neurology special instruments - Emergency neurology surgery, required instruments	
3.	Gynecological/O bstetric Surgeries	Must Know -Introduction to different Gynecological diagnosis and surgeries -Instrument required for different Gynecological surgeries -Preparation and Positions for different Gynecological surgeries Introduction to different Obstetric diagnosis and surgeries -Instrument required for different Obstetric surgeries -Preparation and Positions for different Obstetric surgeries	
4.	Urology Surgery, Orthopedic Surgery, Ophthalmic Surgery	Must Know-Urology related diagnosis and surgeries-Preparation and Positions for different Urology surgeries-Introduction to different Orthopedic, diagnosis and surgeries-Instrument required for different Orthopedic surgeries-Preparation and Positions for different Orthopedic surgeries-Cleaning, maintenance and sterilization of different orthopedicinstruments.Desirable to Know-Instrument required for different Urology surgeries	
	2	Introduction to image -Introduction to different ophthalmic surgeries -Introduction to different ophthalmic instruments, their handling, cleaning and sterilization.	

		- ESWL, PCNL, TURP	
5.	Plastic and reconstructive surgery	Must Know -Introduction to Plastic and reconstructive surgeries -Instrument required for different Plastic and reconstructive surgeries -Preparation and Positions for different Plastic and reconstructive surgeries Desirable to Know	
		-Instrument required for different Plastic and reconstructive surgeries	
6.	Otorhinolaryngo logic surgery	Must Know -Introduction to Otorhinolaryngologic surgeries -Preparation and Positions for different Otorhinolaryngologic surgeries Desirable to Know -Instrument required for different Otorhinolaryngologic surgeries	
7.	Thoracic, Cardiac and Vascular Surgery	Desirable to Know -Introduction to Thoracic, Cardiac and Vascular surgeries -Instrument required for different Thoracic, Cardiac and Vascular Surgery surgeries -Preparation and Positions for different Thoracic, Cardiac and Vascular Surgery surgeries -Types of perfusion machine -Cell saver techniques - Introduction of Cardiopulmonary Bypass Surgery -CABG	

Operation Theatre Technology – Advanced- Practical

- 1. Shock, hypoxia , cardiac arrest S/S, and Management
- 2. Anaphylactic shock, snake bite, poisoning
- 3. Preparation, positioning for Gyne /obst surgeries
- 4. Different neurological surgeries positioning and preparation
- 5. Different orthopaedic, urology, ENT, Ophthalmic surgeries
- 6. Plastic and reconstructive, thoracic, cardiac surgeries

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B.Sc. OTT SEMESTER-VI Paper -II Paper Code

Post Anaesthesia care Unit

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S. No.	Торіс	Teaching Guidelines	Teaching Hours
1.	Setting up of PACU	Must Know - Definition of PACU - Set up - Staff/patient ratio - Monitoring in PACU	10 Hours
2.	Admission and discharge criteria	Must Know -Criteria for Shifting into PACU - Aldrete score - Discharge criteria	
3.	Common complications & its management in PACU	Must Know Post Operative Complications And Its Management -Nausea & Vomiting - Sore throat -hoarseness of voice, loss of voice - Airway obstruction, desaturation, bronchospasm, laryngospasm, - Unresponsiveness - Neurological complications coma, seizures, CVA(stroke), cerebral hypoxia, - Pulmonary edema - Haemorrhage from the surgical site - Vascular complications DVT, embolism,(thrombus, air, fat, amniotic) - Trauma to teeth - Headache - Backache - Ocular complications -loss of vision - Hypotension, hypertension, - Bradycardia, tachycardia, arrhythmia, myocardial infarction - Hypoglycemia, hyperglycemia - Electrolyte imbance-hyponatremia, hypokalemia, hymerkalemia	
4.	Post operative pain relief	Management of postoperative pain- narcotics, NSAID (im/iv), local anaesthetics through catheters, transdermal patches.	
5.	Causes of mortality in PACU	Mortality -myocardial infarction, arrhythmias, hypoxia, electrolyte imbalance, massive haemorrhage, embolism.	

Practicals

Checking ABG,

Insertion of IV cannulas,

Functioning of syringe and infusion pump,

Working of laryngoscopes,

Insertion of oropharyngeal airways,

Injecting drugs through epidural catheters, Checking vital parameters in PACU

B.Sc. OTT SEMESTER-VI Paper -III Paper Code

Anaesthesia for Specialty Surgeries

	-	Time Theory -50 Hours	
S.	Topic	Teaching Guidelines	Teaching
No			Hours
1.	Neuro	Must Know	10 Hours
	Anaesthesia	- Premedication	
		- Checklist	
		- Induction of a patient	
		- Reinforced Endotracheal tubes	
		- Postioning in neuro surgery	
		- Air embolism	
		- Reversal of the patient	
		- Transferring to I.C.U. / Ward	
		Desirable to Know	
	· · · ·	-Special investigation - CT, Angiography and MRI	
2.	Orthopedic	Must Know	
	Surgery	-Complications During Orthopedic procedures-fat embolism	
		-Haemorrhage,	
		-Tourniquet complications	
13	ALL BRIDE STATES	- Radiation hazard	
3.	Plastic And	Must Know	
	Reconstructive	- Burns -types and initial management-anaesthetic challenges	
	Surgery And	- RAE tubes	
	Vascular	No. and the second s	
	Surgery	Desirable to Know	
		-Complications during revascularization and its management	
		- Recognition of compartment syndrome	
4.	Obstetric	Must Know	1.
	Anaesthesia	-Differences between a pregnant and a non pregnant lady	
		- Risks for anaesthesiadifficult airway, supine hypotension	
		syndrome	1. A. 1. A. A.
		- Check list	
		- Regional vs general anaesthesia	
		- Induction / maintenance and recovery.	
		- Resuscitation of the new born,	
		- Reversal and extubation	
		Desirable to Know	
		- Emergencies - manual removal of placenta	
		- Rupture uterus	
		-Ectopic Pregnancy	
		- Amniotic fluid embolism	

5.	Paediatric Anaesthesia	Must Know - Check list -Premedication - modes - Induction - Intubation - Securing the ETT - Reversal & extubation - Problems and its management -Transferring / ICU management - Pain management	
6.	Cardiac Anaesthesia	Must Know -NYHA classification - Arrhythmias -types of arrhythmias and antiarrhythmic drugs - Angina- types - Dyspnoea-causes - Premedication - Setting up of monitoring system - Monitoring - invasive and non - invasive - Induction of cardiac patient, precautions to be taken - Cardiopulmonary bypass -indication and its function - Chest tube management	
7.	Anaesthesia Outside the O.T.	Must Know Problems of anaesthetising patients in - Endoscopy - Cath Lab - Radiology -CT,MRI	
8.	Day care Anaesthesia	Must Know Special features -Advantages - Disadvantages - Complication	

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Practicals

Setting up for cvp/ibp monitoring Checking of double lumen tubes Defibrillator-charging and method of defibrillation Care of ICD tube Bed side lung function tests Method of insertion of ICD Lithotomy position Insertion of ryles tube Preparation for anaesthesia in MRI Tourniquet application Position for tonsillectomy

B.Sc. OTT SEMESTER-VI Paper -IV Paper Code Anaesthesia for Specialty Surgeries

Time Theory -50 Hours S. Topic **Teaching Guidelines** Teaching No Hours General ICU 1. Must Know 10 Hours Care and - General care and transport of ICU patient Monitoring - eve, skin, bladder care, position, airways, drains, catheters. -Transport of critically ill patient to and out of ICU, transport of patient with drains, airway, inotropes, mechanical ventilator. - Monitoring in critical care: vital signs, drains, ECG, fluid intake & output, - central venous pressure monitoring 2. Infection Must Know **Control and** -Infection control in ICU: prevention of cross infection. personal protection. Nutrition in ICU **Desirable to Know** -Antibiotics and policy. - Nutrition and Fluid balance - total parentral nutrition, nasogastric tube, gastric tube, - jejunostomy tube care and feeding, IV Fluids. Systemic 3. Must Know **Diseases** and -Cardiac care in ICU: hypertension, hypotension, arrhythmias, Care in ICU cardiac arrest. - Respiratory care in ICU: airway care, tracheostomy care, endotracheal intubation, mechanical ventilation, care of ventilated patient, complications and weaning. **Desirable to Know** -. Renal failure: types, etiology, complications, corrective measures - Hepatic failure: types, etiology, complications, corrective measures 4. Head Injury Must Know 12 and Trauma -Head injury and Trauma Care: Glasgow coma scale, care of head injury patient, care in ICU poly trauma patient -. Blood and blood products transfusion: Transfusion reactions & complications, Massive transfusion Acid base 5. Must Know 12 disorders, - Neonatal mechanical ventilation: intubation and problems neonatal inherent to the neonate,

ventilation,	basic principles of neonatal ventilation, modes, initiation and
imaging in ICU	maintenance
	Desirable to Know
	-Acid-base & electrolyte balance and their correction, fluid,
	electrolyte, nutrition
	balance and management
	-Miscellaneous: X-rays, ultrasound, chest and limb physical
	therapy in ICU

Practical:

1. Monitoring of Patients

Operating devices, ventilator and monitor settings for different clinical conditions
 Drugs used in Intensive Care

4. Trouble shooting and maintenance of monitors, equipments and ventilators