**Curriculum and Credit Framework**
**As per NEP 2020**

**For**

# B.Sc. in Operation Theatre Technology (BOTT)

**(To be effective from the Academic Session 2023-24)**

**Faculty of Life Sciences**
**Gurugram University, Gurugram**
(A State Govt. University Established Under Haryana Act 17 Of 2017)

**Semster 1**

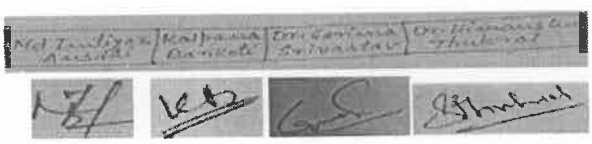
| Course Code | Course Title | Course ID | L | T | P | Credits | TE | TI | PE | PI | Tota l |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Discipline Specific Courses (DSC)** | | | | | | | | | | | |
| 240/BOTT/CC/101 | General Anatomy-I-Theory | | 2 | 1 | - | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/101 | General Physiology-I–Theory | | 2 | 1 | - | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/101 | General Anatomy-I-Practical | | - | - | 4 | 2 | - | - | 35 | 15 | 50 |
| 240/BOTT/CC/101 | General Physiology-I-Practical | | - | - | 4 | 2 | - | - | 35 | 15 | 50 |
| 240/BOTT/CC/101 | Introduction To Healthcare Delivery System in India-Theory | | 3 | - | - | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/101 | A-Medical Terminology and Record Keeping<br>B-Medical Law and Ethics- Theory | | 3 | - | - | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/101 | A-Professionalism and Values<br>B-Principles of Management-I-Theory | | 3 | - | - | 3 | 50 | 25 | - | - | 75 |
| **Minor (MIC) / Vocational Courses (VOC)** | | | | | | | | | | | |
| 240/BOTT/MI/101 | Digital Marketing | | 1 | 1 | | 2 | 35 | 15 | - | - | 50 |
| **Multidisciplinary courses(MDC)** | | | | | | | | | | | |
| 240/BOTT/MD/101 | Music and Dancing- Theory | | 1 | 1 | | 2 | 35 | 15 | - | - | 50 |
| **Ability Enhancement Course (AEC)** | | | | | | | | | | | |
| 240/BOTT/AE/101 | English & Communication Skill- Theory | | 2 | | | 2 | 35 | 15 | - | - | 50 |
| **Skill Enhancement Course (SEC)/ Internship/Dissertation** | | | | | | | | | | | |
| 240/BOTT/SE/101 | Basic in Computer& Information Science- Theory | | 2 | | | 2 | 35 | 15 | - | - | 50 |
| **Value Addition Course(s)** | | | | | | | | | | | |
| 240/BOTT/VA/101 | Community Orientation and Clinical Visit-Practical | | - | - | 15 | 5 | - | - | - | - | - |
| **Total Credits** | | | | | | 32 | **Total Marks** | | | | 675 |

**Semester 3**

| Course Code | Course Title | Course ID | L | T | P | Credits | TE | TI | PE | PI | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Discipline Specific Courses (DSC)** | | | | | | | | | | | |
| 240/BOTT/CC/301 | General Pathology-Theory | | 3 | 1 | - | 4 | 70 | 30 | - | - | 100 |
| 240/BOTT/CC/302 | Principles Of Anesthesia-Theory | | 3 | 1 | - | 4 | 70 | 30 | - | - | 100 |
| 240/BOTT/CC/303 | General Pathology-Practical | | - | - | 6 | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/304 | Medicines Relevant to OT Techniques-Practical | | - | - | 6 | 3 | 50 | 25 | - | - | 75 |
| 240/BOTT/CC/305 | Principles Of Anesthesia-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| **Minor (MIC) / Vocational Courses (VOC)** | | | | | | | | | | | |
| 240/BOTT/MI/301 | Medicines Relevant to OT Techniques-Theory | | 4 | - | - | 4 | 70 | 30 | - | - | 100 |
| **Multidisciplinary courses(MDC)** | | | | | | | | | | | |
| 240/BOTT/MI/301 | Short hand & Typing | | 2 | - | - | 2 | 35 | 15 | - | - | 50 |
| **Skill Enhancement Course (SEC)/ Internship/Dissertation** | | | | | | | | | | | |
| 240/BOTT/SE/301 | Medical Ethics & Legal Aspects-Theory | | 2 | - | - | 2 | 35 | 15 | - | - | 50 |
| **Total Credits** | | | | | | **25** | **Total Marks** | | | **625** | |

**Semester 5**

| Course Code | Course Title | Course ID | L | T | P | Credits | TE | TI | PE | PI | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Discipline Specific Courses (DSC)** | | | | | | | | | | | |
| 240/BOTT/CC/501 | Basic of surgical procedure- Theory | | 3 | 1 | - | 4 | 70 | 30 | - | - | 100 |
| 240/ BOTT /CC/502 | CSSD procedures- Theory | | 4 | - | - | 4 | 70 | 30 | - | - | 100 |
| 240/ BOTT /CC/503 | Advance Anesthestic Techniques-Theory | | 3 | 1 | - | 4 | 70 | 30 | - | - | 100 |
| 240/ BOTT /CC/504 | Basic Intensive Care- Theory | | 3 | 1 | - | 4 | 70 | 30 | - | - | 100 |
| 240/ BOTT /CC/505 | Basic Of Surgical Procedure-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| 240/ BOTT /CC/506 | CSSD Procedures-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| 240/ BOTT /CC/507 | Advance Anesthestic Techniques-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| 240/ BOTT /CC/508 | Basic Intensive Care-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| 240/ BOTT /CC/509 | A-Research Methodology and Biostatistics-<br>B-Introduction to quality and patient safety-Practical | | - | - | 6 | 3 | - | - | 50 | 25 | 75 |
| **Minor (MIC) / Vocational Courses (VOC)** | | | | | | | | | | | |
| 240/BOTT/MI/501 | A-Research Methodology and Biostatistics-<br>B-Introduction to quality and patient safety-Theory | | 3 | - | - | 3 | 50 | 25 | - | - | 75 |
| **Total Credits** | | | | | | **34** | **Total Marks** | | | **850** | |



## Semester 7& 8

| Course Code | Course Title | Course ID | L | T | P | Credits | TE | TI | PE | PI | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Discipline Specific Courses (DSC) | | | | | | | | | | | |
| 240/BOTT/CC/701 | Internship- Practical | | - | - | - | 40 | | | - | - | |
| 240/BOTT/CC/801 | Research Project &Evaluation- Practical | | - | - | - | 5 | - | - | 200 | - | 200 |
| Total Credits | | | | | | 45 | Total Marks | | | 200 | |

**FIRST SEMESTER**

**Syllabus**

| Course Title: - Introduction to Healthcare Delivery System in India-THEORY | |
|---|---|
| **Semester: I** | **Core** |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e., one from each unit.

**1. Course Introduction**

As antibiotic resistant strains of bacteria are growing rapidly, making it difficult to cure such patients, the importance of sterilization and proper disposals is only way to prevent it. Well known sayings,prevention is better than cure, the main objective of this course is to focus mainlyonthepreventive measures and quality assurance tothepatients.This course emphasizes more on risk management principles and safe handling of disposals, basic emergency care and basic life support skills which can prove remedy in emergency cases.

2. **Course Objectives:**The main objective of this course is to teach students quality measures to provide patients with effective methods of treatment with more focus on proper handling of infected specimens and proper treatment withbest sterilized anddisinfected means toreducethe cross-infection scenario and nosocomial infections, which occurs due to poor handling of infected specimens and improper disposal means polluting environment too. Students are madeto learn basic concepts of quality in health care and develop skills to implement sustainable qualityassurance program. Introducing students to basic emergency care, infection prevention& control with knowledge of biomedical waste management and antibiotic resistance.

3.

4. **Course Learning Outcomes**

Uponsuccessfulcompletionofthecourse,thestudentsshould beableto:

**CLOl:** Understood quality improvement approaches, NABH, NABL, JCI guidelines which purely focuses on the quality measures and proper handling of disposals providing qualityfacility to patients. (Understanding Based)

**CL02:**Understood basic lifesupport skillswhichcansavemanylivesinurgent cases. (Applying Based)

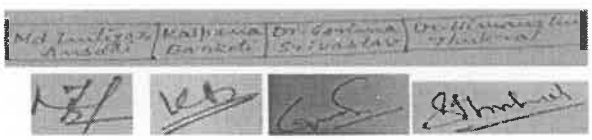
**CL03:** Understood proper disposals of biomedical waste, reducing risk of infection to waste handling personnel and cross infection which can occur due to improper handling of infected waste polluting surroundings too. (Applying Based)

**CL04:** Understood effective hand hygiene, prevention and control of common health care associated infections. (Remembering Based)

**CLOS:** Understood fundamentals of emergency management, disaster preparedness. (Remembering Based)

**Unit 1:** Introduction to healthcare delivery system

a. Healthcare delivery system in India at primary, secondary and tertiary care
b. Community participation in healthcare delivery system
c. Health system in developed countries.
d. Private Sector



e. National Health Mission

f. National Health Policy

g. Issues in Health Care Delivery System in India

**Unit 2:**National Health Programme- Background objectives, action plan, targets, operations, achievements and constraints in various National Heath Programmes.

**Unit 3:**Introduction to AYUSH system of medicine

-Introduction to Ayurveda.

-Yoga and Naturopathy

-Unani

-Siddha

-Homeopathy

Need for integration of various system of medicine

Health scenario of India- past, present and future

Demography & Vital Statistics

-Demography-its concept

-Vital events of life & its impact on demography

-Significance and recording of vital statistics

-Census & its impact on health policy

**Unit 4:**Epidemiology

Principles of Epidemiology

Natural History of disease

Methods of Epidemiological studies

Epidemiology of communicable & non-communicable diseases, disease transmission, host defense immunizing agents, cold chain, immunization, disease monitoring and surveillance.

**7.CourseReferences**

Texts,Materials,andSupplies:

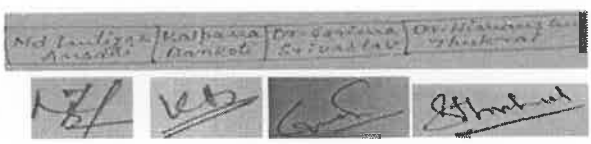
• Turgeon,Mary Louise.(2015).ClinicalLaboratoryScience,7th ed. MarylandHeights, MO: Mosby. ISBN 9780323225458

RecommendedReadings:

• MedicalDictionary

**Others**

1. disastermanagementsetupinIndia-opcw.org www.opcw.org/sites/default/files/documents/eventphotos/2010/tabletopexercisepolandno v201.



2. Biomedical waste managementinIndia:Critical appraisal -NCBI-NIH www.ncbi.nlm.nih.gov/pmc/articles/PMC5784295
3. Vitalsigns:Understandingwhat thebodyistellingus https://www.coursera.org/learn/vital-signs/
4. PatientSafetyandQualityImprovement https://www.coursera.org/learn/patient-safety

| Course Title: A-Medical Terminology and Record Keeping<br>B-Medical law and Ethics- (Theory) | |
|---|---|
| **Semester:I** | **ICore** |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course Introduction:**

This course introduces the elements of medical terminology. Emphasis is placed on building familiarity with medical words through knowledge of roots, prefixes, and suffixes. Topics include: origin, word building, abbreviations and symbols, terminology related to the human anatomy, reading medical orders and reports, and terminology specific to the student's field of study. Spelling is critical and will be counted when grading tests.27 Topics to be covered under the subject are as follows:

**Course outcome-**

Students are aware about the law & ethics. Gain knowledge about the medical terminology & record keeping.

**Unit 1:**

Derivation of medical terms.

Define word roots, prefixes, and suffixes.
Conventions for combined morphemes and the formation of plurals.
Basic medical terms.

**Unit 2:** Form medical terms utilizing roots, suffixes, prefixes, and combining roots.

Interpret basic medical abbreviations/symbols.
Utilize diagnostic, surgical, and procedural terms and abbreviations related to the integumentary system, musculoskeletal system, respiratory system, cardiovascular system, nervous system, and endocrine system.

**Unit 3:** Interpret medical orders/reports.

Data entry and management on electronic health record system.

| CourseTitle: Professionalism and values, Principle of management- Theory | |
|---|---|
| Semester : I | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e., one from each unit.

**Course objective:**

The module on professionalism will deliver the concept of what it means to be a professional and how a specialized profession is different from a usual vocation. It also explains how relevant is professionalism in term of healthcare system.

**Course outcome-**

understood human values, their significance and role in life.

Promote self-reflection and critical inquiry that foster critical thinking of individual value and values of others.

**Unit 1:** Professional Values- Integrity, Objective, Professional competence and due care, confidentially. Ethical or moral value

**Unit 2:** Attitude and behavior- professional behavior treating people equally.

**Unit 3:** Code of Conduct, professional accountability and responsibility.

**Unit 4:** Difference between professions and importance of team efforts, Cultural issues in the healthcare environment.

| CourseTitle:GENERALANATOMY-I- THEORY | |
|---|---|
| Semester: I | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**CourseIntroduction**

Allied and healthcare professionals (AHPs) include individuals involved with the delivery of health or healthcare related services, with qualification and competence in therapeutic, diagnostic, curative, preventive and/or rehabilitative interventions.

They work in multidisciplinary health teams in varied healthcare settings including doctors, nurses and public health officials to promote, protect, treat and manage a person 's physical, mental, social, emotional, environmental health and holistic well-being. The study of anatomy helps them in putting into perspective theknowledge thattheygainforbetter good of humanity.

**CourseObjectives**

This course is designedto provide the studentsthe basic knowledgein anatomy.At the end of the course, the student should be able to:

1. Comprehend the normal disposition, inter-relationships, gross, functional and applied anatomy of various structures in the human body.
2. Identify the microscopic structures of various tissues, and organs in the human body & correlate the structure with the functions.
3. Comprehend the basic structure and connections between the various parts of the central nervous system so as to analyse the integrative and regulative functions on the organs and systems.

**CourseLearningOutcomes**

Uponsuccessfulcompletionofthecourse,thestudentsshouldbeableto:
**CLOl:** Understand thevarious organ structures withabackdrop ofgeneral anatomy (Remember & Understand)

**CLO2:** Compare the differences between the similar structures in the body and their relevance (Analyze)

**CLO3:** Learn to apply theknowledge of various structures to clinical aspect of diseases (Apply &Analyze)

**CLO4:**Augmenttheirlearningby makingmodels,chartsandlearningonsimulators

**Course content-**
**Unit 1**

**Urinarysystem**-Kidneys,glomerularapparatus,ureters,urinarybladder,urethra.

**Unit 2**

1. **Introductiontogenetics**-Featuresofchromosomes,DNA.
2. **Reproductivesysteminfemales**-External&internal genitalorgans,breast.
3. **Reproductivesysteminmales**-Penis,scrotum,testes,prostategland.

**Unit 3**

**Endocrinesystem**-Hormones,pituitarygland,thyroidgland,parathyroidglands, adrenal glands, endocrine pancreas.

**Unit 4**

**Specialsenses**-Olfactorysystem,tasteapparatus,externalmiddle&internalear,eye.

**Skin**-Featuresofskin,hair,sebaceousglands,sweatglands,nails.

Theclasseswillbetwotheoriesandtwopracticals including thetutorialsinaweek

**Course Assessment Scheme**

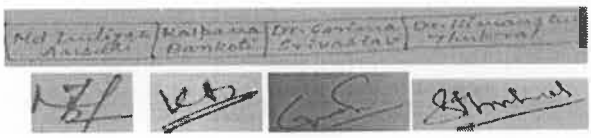
Students would be assessed continuously throughout the semester in the form of continuous evaluation. Periodic tests and surprise tests will be conducted. Students will have to submit written assignments, make charts and posters, make models, and conduct quiz for the topics. Practical will be conducted with viva.

**TextBooks:**

1. P.RAshalatha&GDeepa'sTextbookofanatomy &physiologyby
2. B.D.Chaurasia'shumananatomy

**Referencebooks:**

1. SampathMadhyastha'sManipalmanual ofanatomyforalliedhealthsciences
2. KrishnaGarg&MadhuJoshi'sPracticalanatomy workbook
3. Dixit'sAtlasofHistologyforMedicalStudents
4. BasicHistology:AColorAtlas&Text
5. Jana'sExamOrientedPracticalAnatomy
6. Krishan'sAnatomyMnemonics



| CourseTitle:GENERALPHYSIOLOGY-I THEORY | |
|---|---|
| Semester : I | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**CourseIntroduction**

The course pedagogy includes a comprehensive study including the study of general structures and the specialized organs in a manner aimed at being student friendly. Various clinical aspects are discussed in relevance to the topic taught so as to relieve the monotony of the subject. Regular doubt clearing sessions, written assignments, quiz, chart and poster making and model making are some of the measures for learning. Periodic and surprise tests are taken to apprise and evaluate the students. They are taught on simulators for alive feeling. The practical includes the study of structures through mannequins which helps inholding the interest of the students.

**CourseObjectives:**

This course isdesignedtoprovidethestudents thebasic knowledge inphysiology.At theend of the course, the student should be able to:

1. Explainthenormalfunctioningofvariousorgansystemsofthebodyandtheir interactions.
2. Elucidatethephysiologicalaspectsofnormal growth anddevelopment.
3. Describethephysiological responseandadaptationstoenvironmentalstresses.
4. Knowthephysiologicalprinciplesunderlyingpathogenesisofdisease.

**CourseLearningOutcomes**

Uponsuccessfulcompletionofthecourse,thestudentsshould beableto:

**CLOl:** Understand the various organ functions with a backdrop of general physiology (Remember &Understand)

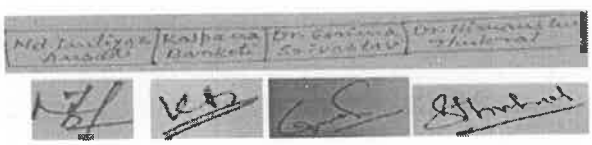
**CL02:**Compare the differences between the similar functions in the body and their relevance (Analyze)

**CL03:** Learn to apply the knowledge of various physiological process to clinical aspect of diseases (Apply &Analyze)

**CL04:** Augmenttheir learningby makingmodels,charts andlearningon simulators (Synthesize, evaluate &create)

**Course Contents and Duration**

Course contents and duration: The classes will be two theories and two practicals including the tutorials in a week.



**Coursecontents**

**Unit 1**

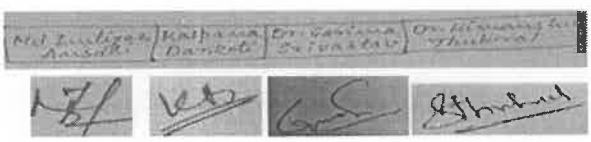
1. **Introductionto physiologyof the humanbody** -Compositionof body, Homeostasis, Introduction to chemistry of life.
2. **Organizationofthehumanbody at the cellularlevel**-Functionoflipids, carbohydrates, proteins & cell organelles.
3. **Organizationofthehumanbodyatthetissuelevel**-FunctionofEpithelial, Connective, Muscular & Nervous tissues.
4. **Blood**-Haemopoesis,haemostasis,coagulationofblood,bloodtransfusion.
5. **Lymphatic system**-Function oflymph vessels, lymphatic tissue &organs, lymphatics, spleen, tonsil, thymus.
6. **Resistance&immunity**-Innateimmunity,acquiredimmunity,humoral&cell mediated immunity.

**Unit 2**

1. **Nervous system** -Properties of nerve fibres, function of neuroglia, synapse, CNS, CSF, brain, cranialnerves, demonstration of reflexes.
2. **Muscularsystem**-Propertiesofskeletalmuscle,cardiacmuscle,smoothmuscle, muscles of the body.
3. **Skeletalsystem**-Functionsofbones,axialskeleton,appendicularskeleton.
4. **Musculoskeletalsystem**-Movementinthejoints ofupper&lower limb.

**Unit 3**

1. **Respiratory system**-Physiology ofrespiration, pulmonary function tests,gas exchange inlungs, transport of gases between lungs & tissues, regulation of respiration.
2. **Cardiovascularsystem**-Heart&bloodvessels:Systemiccirculation,pulmonary circulation, ECG, cardiac output, blood pressure.
3. **Digestivesystem** -Processofdigestion,functionoforalcavity,pharynx,salivary glands,oesophagus,stomach,smallintestine,largeintestine,liver,gallbladder,pancreas.



**Unit 4: Urinary system** - Function of kidneys, juxtaglomerular apparatus, ureters, urinary bladder, urethra, physiology of urine formation, glomerular filtration, tubular reabsorption, water balance, micturition.

- **Introductiontogenetics**-Featuresofchromosomes,DNA,proteinsynthesis,dominant inheritance,recessiveinheritance,sexlinkedinheritance.

- **Reproductive system-female:** Physiology of female reproductive system.
**-Reproductive system-male:**Physiologyofmalereproductivesystem.

**-Endocrine system** - Mechanism of action of hormones, function of pituitary gland, thyroid gland, parathyroid glands, adrenal glands, endocrine pancreas.

**Special senses**-Physiology of olfaction, taste, hearing, balance &vision.

- **Skin** - Function of skin, hair, sebaceous glands, sweat glands, nails, temperature regulation.

**CourseReferences**

1. PRAshalatha&GDeepa'sTextbookofanatomy&physiology
2. NGeetha'sTextbookofphysiology

**ReferenceBooks:**

1. CCChatterjee'sHumanPhysiology
2. CCChatterjee'sPracticalPhysiologyforParamedicalCourses
3. CNChandraShekhar'sManipalManualofMedicalPhysiology
4. RKMaurya'sMedicalPhysiology

**PRACTICALS**

| Course Title: GENERAL ANATOMY-I- Practical | | | |
|---|---|---|---|
| Semester:I | ICourse code: BOTT 106P | Credits:03 | ICore |
| Numberofsessions:60 | | Total Marks: 70 | |
| Course Pre-requisites: | | Timing: 3 Hours | |

**Practical**

1. Demonstrationofvariouspartsofbody
2. Demonstrationoftissuesofbody
3. Demonstrationofpartsofdigestivesystem
4. Demonstrationofpartsofrespiratorysystem
5. Demonstrationofpartsofskin
6. Demonstrationofpartsofexcretorysystem
7. Demonstrationofvariouspartsofcirculatorysystem(Demonstrationfrom models)
8. Examinationofbloodfilmforvariousbloodcellsfromstainedslides
9. Bloodpressureestimation

| CourseTitle:GENERALPHYSIOLOGY-I Practical | | | |
|---|---|---|---|
| Semester:I | ICoursecode: BOTT 107 P | Credits:03 | ICore |
| Numberofsessions:60 | | Total Marks: 70 | |
| CoursePre-requisites: | | Timing: 3 Hours | |

**Practical:**

**Blood test:**

1. Microscope
2. Haemocytometer
3. Blood
4. RBCcount
5. Hb
6. WBC count
7. DifferentialCount
8. Hematocritdemonstration
9. ESR
10. Bloodgroup&Rh.Type
11. Bleeding timeandclottingtime.

**Digestion**

**Testsalivarydigestions**

**Excretion**

I.ExaminationofUrine

2.Specificgravity

3. Albumin

4.Sugar

5.Microscopic examinationforcellsandcysts

**RespiratorySystem:**

1.Clinicalexaminationofrespiratorysystem

**CardioVascularSystem:**

I.Measurementofbloodpressureandpulserate

2.Effectofexerciseonbloodpressureand pulse rate

**CourseReferences**

3. PRAshalatha&GDeepa'sTextbookofanatomy&physiology
4. NGeetha'sTextbookofphysiology

**ReferenceBooks:**

5. CCChatterjee'sHumanPhysiology
6. CCChatterjee'sPracticalPhysiologyforParamedicalCourses
7. CNChandraShekhar'sManipalManualofMedicalPhysiology
8. RKMaurya'sMedicalPhysiology

| **CourseTitle:Music & Dancing-I Practical** | |
|---|---|
| **Semester : I I Course code: BOTT 108T** | **Credits:02 ICore** |
| **Numberofsessions:60** | **Total Marks: 70** |
| **CoursePre-requisites:** | **Timing: 3 Hours** |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course Outcome-**

Demonstrate increased movement skills, concentration and physical control in performing movement for artistic expression.

**Course content**

**UNIT 1**

**Music: Concepts, Aims and Objectives**

□□Concept of Music, types and importance of Music in present scenario

□□History of Indian Music: Ancient, Medieval and Modern period.

□□Aims and objectives of Music as a subject in the School curriculum.

□□Bloom's Taxonomy and Instructional objectives in teaching of Music

**UNIT 2**

**Teaching Skills, Lesson Planning, Notation and Voice Culture of Indian Music**

□□Micro-teaching skills: Meaning, Process, Utility, Merits, Limitations

□□Introducing the Lesson

□□Questioning

□□Stimulus Variation

□□Illustration with Examples

□□Explaining

Lesson Planing: Meaning, Importance & types.

□□Possibilities of notation for Indian Music: Critical study of Bhatkande and Vishnu DigamberPulskar

□□Voice-culture-importance in Indian context

**UNIT 3**

**Teaching Methods, Qualities of Music Teacher, Motion and Rhythm, Aesthetics in Indian Music**

□□Methods of teaching Music

□□Alankar - Geet Method

□□Demonstration – imitation Method

□□Project Method

□□Individual and Group Teaching Method

□□Qualities of Music Teacher-Gayak, Vadak and Avadyakar/composer.

□□Knowledge and Importance of Taal/Motion and Rhythm and its training

□□Aesthetics in Indian Music

**UNIT 4**

**Instructional Aids, Textbooks, Classical Music, Evaluations**

□□Meaning and Importance of Audio-visual Instructional Aids in Teaching of Music

□□Textbooks: Meaning, Importance of textbooks in teaching of Music, Qualities of a good

textbooks of Music

□□Importance of Classical Music, Suggestions for the popularization of Classical Music.

□□Evaluation in Music: Meaning, Purpose, Importance, Evaluation Devices-Oral, Written and Practical

**Tasks & Assignments: Any one of the following (10 marks)**

□□Tuning of the instrument related to the subject of the students.

□□Collection of Musical documents (Notes, Newspaper and Magazines Articles cutting).

□□Preparation of Project Report on the legends of Music.

□□Preparation of low cost teaching aids.

□□Any other project/ assignment given by the institution.

| CourseTitle:English &CommunicationSkill- Theory | |
|---|---|
| Semester:I | JCore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**CourseIntroduction:**

As the Indian government aims for Universal Health Coverage, the lack of skilled human resource may prove to be the biggest impediment in its path to achieve targeted goals. The benefits of having AHPs in the healthcare system are still unexplored in India.An enormous amount of evidence suggests that the benefits of AHPs range from improving access tohealthcare services to significant reduction in the cost of care. The teaching of English and communication skillsaimstointegrate theirlearning insyncwiththeunderstanding ofthebasics of spoken English and communication techniques.

**CourseObjectives:**

1. This course trains thestudents inoral presentations, expository writing, logical organization and structural support.
2. By acquiring skills in the use of communication techniques the students will be able to expressbetter, grow personally and professionally, develop poise and confidence and achieve success.
3. **CourseLearningOutcomes**

Upon successful completion of the course, the students should beable to:

**CLOl:** Understood the role of radiographer in personal and professional ethics.

**CLO2:** Understood the handling of patient with good language.

**CLO3:** Understood the importance of good communication with patient as a health care professional.

**Unit-1:**

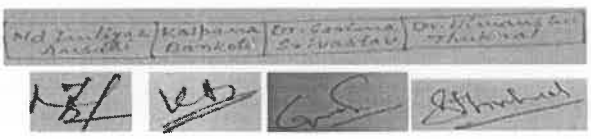
1. BasicLanguageSkills:GrammarandUsage.
2. Business Communication Skills.Withfocusonspeaking-Conversations,discussions, dialogues, short presentations,pronunciation.
3. Teachingthedifferentmethodsofwritinglikeletters,E-mails,report,casestudy,collectingthepatient data etc.

**Unit-2:**

1. Basiccompositions,journals,withafocuson paragraphformandorganization.
2. Basic concepts &principlesofgoodcommunication.
3. Specialcharacteristicsofhealthcommunication.

**Unit-3:**

1. Types&processofcommunication-verbal,non-verbalandwrittencommunication.
2. Upward,downwardandlateralcommunication.
3. Therapeuticcommunication:empathyversussympathy.



**Unit-4:**

1. Communicationmethodsforteachingandlearning.
2. Communicationmethodsforpatienteducation.
3. Barriersofcommunication&howto overcome.

**Reference Book:**

-Raman,Meenakshi&Sharma,Sangeeta.TechnicalCommunication
-Konar,Nira.CommunicationSkillsForProfessionals,PHILearningPvt.Ltd-2011
-BoardofEditors.WrittenandSpokenCommunicationinEnglish,UniversityPress2007

| CourseTitle:BasicinComputer&InformationScience- Theory | | | |
|---|---|---|---|
| Semester : I | I Course code: BMLS 110T | Credits:03 | ICore |
| NoofsessionsLectures/Tutorial:30 | | Total Marks: 70 | |
| CoursePre-requisites: | | Timing: 3 Hours | |

**CourseObjectives:**

- Thecoursehasfocusoncomputerorganization,computeroperatingsystemandsoftware, andMSwindows, Wordprocessing, Exceldataworksheet andPowerPoint presentation.
- Thestudentswillbeabletoappreciatetheroleofcomputertechnologyandsomeextentable to gain hand-on experience in usingcomputers.

**Course Outcomes:**

After successful completion of this course students will able to:

- Do basic assembly of the desktop system
- Do effectively MS office
- Do use of internet in effective & meaningful way

**Course content-**

**Unit1**

1. Introductiontocomputer:Introduction,characteristicsofcomputer,blockdiagramof computer, generations of computer, computer languages.
2. Inputoutputdevices:Inputdevices (keyboard,pointanddrawdevices,datascanning devices,digitizer,electroniccardreader,voicerecognition devices, vision-input devices), outputdevices (monitors,pointers,plotters,screenimageprojector,voiceresponse systems).
3. Processorandmemory:TheCentralProcessingUnit(CPU),mainmemory.
4. StorageDevices:Sequentialanddirectaccessdevices,magnetictape,magneticdisk,optical disk, mass storage devices.

**Unit2**

1. Introduction of windows: History, features, desktop, taskbar, icons on the desktop, operation with folder, creating shortcuts, operation with windows (opening, closing, moving, resizing, minimizing and maximizing, etc.).
2. Introduction toMS-Word: introduction, components ofawordwindow,creating,opening andinsertingfiles,editingadocument file,pagesettingandformattingthetext,savingthe document, spell checking, printing the document file, creating and editing of table, mail merge.
3. IntroductiontoExcel:introduction,aboutworksheet,enteringinformation,saving workbooks and formatting, printing the worksheet, creatinggraphs.

**Unit3**

1. Introductiontopower-point:introduction,creatingandmanipulatingpresentation,views, formatting and enhancing text, slide withgraphs.
2. IntroductionofOperatingSystem:introduction,operatingsystemconcepts,typesof operating system.
3. Computernetworks:introduction,typesofnetworks(LAN,**MAN,WAN,**Internet, Intranet), networktopologies(star,ring,bus,mesh, tree,hybrid), components ofnetwork.

4. Internet anditsApplications: definition, briefhistory,basicservices(E-Mail, FileTransfer Protocol, telnet,theWorldWideWeb(WWW)), www browsers, useoftheinternet.
5. ApplicationofComputersinclinicalsettings.

| CourseTitle: Digital Marketing-Theory | | | |
|---|---|---|---|
| Semester : I | I Course code: BOTT 111T | Credits:02 | ICore |
| Numberofsessions:60 | | Total Marks: 70 | |
| CoursePre-requisites: | | Timing: 3 Hours | |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-**

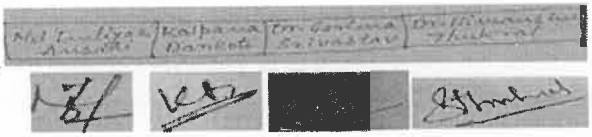
Measures the success of a digital marketing campaign.

Apply the knowledge about metrics in digital marketing.

**Course content-**

Unit -1

| | |
|---|---|
| **Unit-1** Introduction to Digital Marketing | Principles of Digital Marketing; Digital Marketing Channels; Tools to Create Buyer Persona; Competitor Research Tools, Website Analysis Tools, etc. |
| Content Marketing | Content Marketing Concepts & Strategies; Planning, Creating, Distributing & Promoting Content; Optimize Website UX & Landing Pages; Measure Impact; Metrics & Performance; Using Content Research for Opportunities, etc. |
| **Unit 2-** Social Media Marketing | Introduction; Major Social Media Platforms for Marketing; Developing Data-driven Audience & Campaign Insights; Social Media for Business; Creation & Optimization of Social Media Campaigns, etc. |
| Search Engine Optimization | Search Engine Optimization Fundamentals; Keywords and SEO Content Plan; SEO & Business Objectives; Writing SEO Content; On-site & off-site SEO; Optimize Organic Search Ranking, etc. |
| **Unit 3-**Web Analytics & Google Analytics | Google Analytics Tools; Web Analytics Tools, etc. |
| E-mail Marketing | Effective E-mail Campaigns; E-mail Plan; E-mail Marketing Campaign Analysis; Measuring Conversions & keeping up, etc. |
| Web Design | Web design, optimization of websites; Publishing a basic website; User-centred Design and Website Optimization; Design Principles and Website Copy; Website Metrics & Developing Insight, etc. |
| Introduction to CRM | Fundamentals to CRM; CRM Platforms; CRM Models; CRM Strategy, etc. |



| | |
|---|---|
| **Unit- 4-**<br><br>Video Advertising | Basics of Video Advertising; Creating Video Campaigns; Measurement & Optimization; Creating & Managing a YouTube Channel; Targeting Video Campaigns, etc. |
| Digital Marketing Budgeting | Digital Marketing Budget & Plan; Resource Planning; Cost Estimating; Cost Budgeting; Cost Control |

# THIRD SEMESTER

| Course Title: GENERAL PATHOLOGY –Theory | |
|---|---|
| Semester : III | I Core |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Learning Objectives:** Students will be made aware of the cell adaptation and cell death. Students will learn the basic concepts of response of infection.

**Course outcome-**

Outline a classification of cause of disease, basic responses of the body to injury and manifestation of disease and classify common examples in each category.

**Introduction:**

**Unit 1:**Cellular adaptation and cell death
Inflammation and repair, infection, circulatory disorders, immune defense
Genetics of disease
Neoplasia
Cell injury and adaptation
Atrophy, hypertrophy, metaphase, hyperplasia

**Unit 2:**Classification of tumors, premalignant lesion
Types of inflammation & system manifestations of inflammation
Disorders of vascular flow & shock (brief introduction)
Oedema, hyperemia or congestion, thrombosis, embolism, infarction shock, ischemia, over hydration, dehydration

**Unit 3:**The response to infection
Categories of infectious agents, host barriers to infection
How disease is caused

**Unit 4:**Inflammatory response to infectious agents
Hematopoietic and lymphoid System
Hemorrhage, various types of anemia, leucopenia, leukocytosis, bleeding disorders coagulation mechanism.

| CourseTitle: Medicine relevant to OT Techniques –Theory | |
|---|---|
| Semester: III | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-** gain basic knowledge about the medicine relevant to OT Techniques.

**Introduction:**

**Unit 1:**Common symptoms of diseases –

-Pain: pathophysiology, clinical types, assessment and management
-Fever: clinical assessment and management
-Cough, chest pain, dyspnoea, hemoptysis
-Edema, anasarca, ascites
-Pallor, jaundice
-Bleeding

**Unit 2:**Anorexia, nausea and vomiting

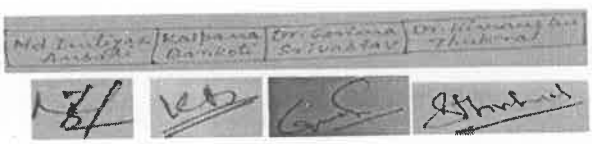
-Constipation and diarrhea
-Hematemesis, malena and hematochezia
-Common urinary symptoms- dysuria, pyuria, anuria, oliguria, polyuria, nocturia, enuresis
-Body pains and joint pains
-Headache, seizures, fainting, syncope, dizziness, vertigo
-Disturbances of consciousness and coma
- Weight loss and weight gain

**Unit 3:**Immune Response and Infections

-Approach to infectious diseases – diagnostic and therapeutic principles
-Immune defense mechanisms
-Laboratory diagnosis of infections
-Principles of immunization and vaccine use
-Immunodeficiency disorders – acquired
-Immunodeficiency disorders – congenital

**Unit 4:**Systems

-Cardiovascular system- Clinical examination of the cardiovascular system, majormanifestations of cardiovascular disease
-Respiratory system Clinical examination of the respiratory system, major manifestations of respiratory disease
-Renal and Genito-urinary system- Major manifestations of renal and urinary tract disease
-Liver and biliary tract disease – Viral hepatitis, alcoholism.
-Endocrinology and metabolism – Diabetes mellitus, Hyper- and hypothyroidism.
-Disorders of the Immune System, Connective Tissue and Joints
-Disorder of hemopoiesis – Anemia iron deficiencies anemia.



| CourseTitle: - Principles of anesthesia-Theory | |
|---|---|
| Semester : III | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-** Students are able to gain knowledge about the anesthesia.

**Unit 1:**Medical gas supply

a. Compressed gas cylinders
b. Color coding
c. Cylinder valves; pin index.
d. Gas piping system
e. Recommendations for piping system
f. Alarms & safety devices.
g. Scavenging of waste anesthetic gases

**Unit 2:**Anesthesia machine

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

**Unit 3:**Breathing system

-General considerations: humidity & heat
-Common components – connectors, adaptors, reservoir bags.
-Capnography
-Pulse oximetry
-Methods of humidification.
-Classification of breathing system
-Mapleson system
-Jackson Rees system, Bain circuit
-Non rebreathing valves – AMBU valves
-The circle system

**Unit 4:**Face masks & Airway laryngoscopes

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

**Unit 5:**Anesthesia ventilator and working principles.Monitoring

-Electrocardiography (ECG)
-Pulse oximetry ($Sp0_2$)
-Temperature- central and peripheral
-End tidal carbon dioxide ($EtCO_2$)
-Anesthesia gas monitoring
-Non-invasive blood pressure (NIPB) and Invasive blood pressure(IBP)
-Central venous pressure (CVP)

-PA Pressure, LA Pressure & cardiac output
-Anesthesia depth monitor
-Neuromuscular transmission monitor

| CourseTitle: -General Pathology-Practical | |
|---|---|
| **Semester : III** | **ICore** |

**Practical:**

-Hemorrhage
- various types of anemia
-leucopenia
-leukocytosis
- bleeding disorders coagulation mechanism

| CourseTitle: -Medicines Relevant to OT Techniques -Practical | |
|---|---|
| **Semester: III** | **ICore** |

**Practical:**

-Pain: pathophysiology, clinical types, assessment and management
-Fever: clinical assessment and management
-Cough, chest pain, dyspnoea, hemoptysis
-Pallor, jaundice
-Bleeding
-Cardiovascular system- Clinical examination of the cardiovascular system
-Respiratory system Clinical examination of the respiratory system
-Renal and Genito-urinary system- Major manifestations of renal and urinary tract disease
-Liver and biliary tract disease – Viral hepatitis, alcoholism.

| CourseTitle: - Principles of Anesthesia-Practical | |
|---|---|
| **Semester : III** | **ICore** |

**Practical:**

1. Supply of compressed gases:
    a. Types of gases and their chemical anphysical properties.
    b. Types of containers.
    c. Their checking and maintenance.
    d. Types of compressors.
    e. Structure and mechanism of various type ofgauges, liquid oxygen storage and supplysystem.

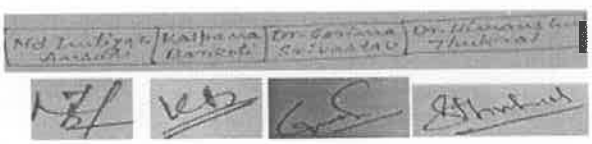
2.Structure of reducing valves

Mechanism of pressure reducing valves.
Their maintenance and safety checks

3. Structure and mechanism of flow meters, maintenance and safety checks

1. Volatile anaesthetic agents.
    i. Selection of material to be used for containers of the volatile anaesthetic agents.
    ii. Structure of different types of vaporizers. C. Principles of various vaporizers, their maintenance and safety precautions.

2. Types of circuits:
    i. Open, Semi closed and closed circuits.
    ii. Non-rebreathing valves.
    iii. T-piece circuit and its modifications. D. To and fro system and circle absorber.



| Course Title: Medical Ethics and Legal Aspects- Theory | |
|---|---|
| Semester:III | lCore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**CourseObjectives:**

This course isdesigned toprovide thestudents thebasicknowledge inlaws and ethics to follow as professionals. health

Aftercompletionofthecoursethestudentswillbeableto:Understandthevariousdefinitions

**Course outcome-** Legal and ethical considerations are firmly believed to be an integral part of medical practice in planning patient care. Advances in medical Science, growing sophistication of the modern society's legal framework, increasing awareness of human rights and changing moral principles of the community at large, now result in frequent occurrences of healthcare professionals being caught in dilemmas over aspects arising from daily practice.

**Course Contents**

**Unit- 1**

Role, Definition and Interaction with the patients and healthcare professionals, Ethical, Moral, and Legal Responsibilities, Patient safety and quality, restrain policies and role of health professionals.
Biomedical waste Management, medical records and reports.

**Unit-2**

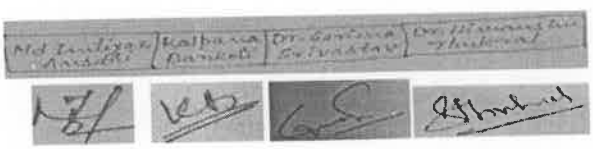
Medical terminology-The course employs a body systems-oriented, word-analysis approach to learning medical terminology.

**Unit- 3**

The goal of the class is to prepare students for the terminology they might encounter in their subsequent coursework, i their clinical rotations and ultimately in their roles as health care professionals.

**Books Recommended**

www.wikiQedia.in



# FIFTH SEMESTER

| CourseTitle: - Basic of Surgical Procedure-Theory | |
|---|---|
| Semester :V | Core |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-**

Understanding & gain knowledge about the transfusion of blood,General surgical procedure and para-surgical equipment.

**Syllabus**

**Unit 1:**Blood Transfusion

a. History of discovery of blood groups and genetics of blood groups.
b. Types of blood groups and Rh factor.
c. Coombs test.
d. Collection of blood, its preservation and standardization.
e. Various types of blood and blood products(Packed cells, PRP, FFP)
f. Pre-transfusion checks.
g. Transfusion reactions.
h. Fluids and electrolytes
i. Body fluid compartments and the effect of fluid administration on them.
j. Types of fluids (crystalloids and colloids) and their chemical composition.
k. Indications of specific fluids and their complications.

**Unit 2:**General surgical procedure and para-surgical equipment

l. Operating tables: structure, material used, maintenance, control, Hydraulic system and electrical system.
m. Different types of diathermy machine. Monopolar, Bipolar, Ligasure, Harmonic Scalpel,CUSA- Principle, hazards, prevention, functioning and maintenance.
n. Types of operation lights and light sources: Features, Care, cleaning, sterilization and maintenance.
o. Operation Theatre sterilization- Different recent advances.
p. LAR/APR—Positioning of patient, care-Prevention of hazards.

q. Total thyroidectomy-with emphasis on proper positioning.

r. Transthoracic esophagectomy-Different approaches.

s. Venesection and Tracheostomy.

t. Laparoscopic Cholecystectomy –Pneumoperitoneum – Creation and removing, principles.

u. Nephrectomy.

v. Breast surgery.

w. Positioning of patient for different operations: Problems and hazards.

x. Hypothermia and hyperthermia.

| CourseTitle: - CSSD Procedure-Theory | |
|---|---|
| Semester: V | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-** Record and maintain an accurate effectiveness of the cleaning, disinfecting, and sterilizing process. To enforce necessary controls to prevent cross infection according to infection control policies. To constantly update the practices to improve the quality or service provided.

**Syllabus**

**Unit 1:**Principles of sterilization and disinfection.

Methods of sterilization

Dry Sterilization.

Wet sterilization.

**Unit 2:**Gaseous sterilization.

Chemical sterilization.

Sterilization by radiation (Gamma rays, ultraviolet rays)

**Unit 3:**Techniques of sterilization of rubber articles. (LMA, FOB, ETT, Laryngoscopes, Anesthesia machines and circuits)

Technique of sterilization of carbonized articles.

Methods of disinfection.

Boiling.

Chemical disinfection.

**Unit 4:**Hazards of sterilization.

Prevention of hazards of sterilization.

Precautions to be taken during sterilization.

| CourseTitle: - Advance Anesthesia Techniques-Theory | |
|---|---|
| Semester: V | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**Course outcome-**To provide an overview of anesthetic techniques used to obtain pain relief during surgery and to facilitate performance of surgical operations. 2. To teach certain essential psychomotor skills that all physicians may be called upon to perform under controlled and emergent situations.

**Course content-**

**Syllabus**

**Unit 1:**Heart as a pump.

Cardiac cycle.

Cardiac contractility and stroke volume.

Cardiac output and its measurement.

**Unit 2:**Various ECG Leads, their placement and Normal ECG.

Cardiac Arrhythmias (atrial fibrillation, ventricular tachycardia, extra systoles)

Circulatory shock and its physiology.

**Unit 3:**Cardiac failure.

Physics of blood flow and pressure.

Measurement of blood flow.

Electromagnetic flow meter, ultrasonic flow meter, plethysmography.

Regulation of arterial pressure and hypertension (Drugs used for treatment of hypertension)

Arterial circulation including cardiopulmonary bypass.

**Unit 4:**Artificial ventilation and related equipment:

- Physiology of IPPV (Intermittent positive pressure ventilation)
- Principles of mechanical ventilation.
- Various modes of IPPV.
- Automatic pressure and time cycled ventilators.
- Operating room ventilators.
- Other types of ventilators (HFJV, NIV)
- Complications in patients on ventilators.
- General care of a patient on ventilator.
- Disinfection and sterilization of ventilators.
- Humidification
- Principles of oxygen administration and methods used to deliver oxygen.

| CourseTitle: - Basic Intensive Care-Theory | |
|---|---|
| Semester : V | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e., one from each unit.

**Course outcome-**

1) Demonstrate physical examination skills appropriate to various critical presentations.

2) Identify historical facts suggestive of an immediate threat to survival.

3) Demonstrate the ability to obtain a comprehensive and accurate history of present illness in critical illnesses.

**Unit 1:** Care and maintenance of ventilators, suction machine, monitoring devices.

Sterilization and disinfection of ventilators.

Care, maintenance and operational capabilities of beds, lights and other apparatus.

Air conditioning and control of pollution in ICU.

Attachment and intraoperative utility of ventilators and monitoring devices.

Care of unconscious adult and pediatric patients.

Physiotherapy techniques, feeding, Ryle's tube insertion and hyper alimentation.

Suctioning and posturing of semiconscious and unconscious patients.

Oxygen therapy, maintenance of clear Airway.

**Unit 2:** Ventilation of patient in crisis:

Mouth to mouth.

Mouth to ET Tube.

Resuscitator/ bag valve mask assembly

Different types of Airways.

**Unit 3:** Short term ventilation/Transport ventilators.

ICU Laboratory; Detection of blood gases of the patient, Principles of ABG machines

Management of asepsis.

Management of tetanus patient.

Psychological aspects of the patient, relative and staff.

Hemofiltration and hemodialysis.

**Unit 4:** Ventilators: Principles of working of different ventilators:

a. Volume cycled/Time cycled/Pressure cycled
b. ventilators.
c. High frequency ventilators and other types.
d. Methods of measuring the expired gases from the patient; Types of spirometers,Principles of

working of spirometers; Clinical application of above apparatus d. Apparatus and techniques of measuring of blood pressure and temperature; Principle and working of direct/indirect blood pressure monitoring apparatus; structure, principle and working of the oscillotonometer. Principles and working of aneroid manometer type B.P. instrument.

e. Laryngeal sprays; Types, material, principle and mechanism.

f. Monitoring techniques and equipment; Cardiac monitors, Respiratory monitors,Spirometers, Temperature monitors.

| CourseTitle: Research Methodology and Biostatistics & introduction to Patient Safety-Theory | |
|---|---|
| Semester : V | ICore |

**Instructions for paper setter:** Examiner is requested to set **one compulsory and eight other questions, two from each unit.** The compulsory question should be of 14 marks and should cover entire syllabus. Student should attempt four other questions i.e. one from each unit.

**CourseObjectives:**

This course isdesigned to provide thestudents thebasic knowledge inresearch process and Bio-statistics.At the conclusion of the course, the students willhave the knowledge of data collection, statistical application andfinally, presentation ofthestatistical data.Thefirst part shall be conducted insecond semester and second part shall becovered inthird semester

**CourseLearning Outcomes:**

Uponsuccessfulcompletionofthecourse, thestudents shouldbeableto:

**CLO l:** Understand the needs of research in clinical field of radiology.

**CLO2:**Understandthedifferencebetweenthevarioustypesofresearchmethodologies.

**CLO3:**Understandthevarioustypesofdatacollectingmethods.

**CLO4:**Understandand learnaboutheknowledgeofresearchtobeusedinclinicalareas.

**Syllabus**

**Unit 1:** Need for Research in the field of cardiology. Introduction to research methods, conducting a literature review, Research design, Sampling methods, Data collection and data collection tools, Data analysis: Quantitative and Qualitatively, Public health research, Issues in Research of research problems and writing research questions, Hypothesis, Null and Research Hypothesis, Type I and Type II errors in hypothesis testing

**Unit 2:** Introduction of epidemiology, Descriptive epidemiology, Experimental and non- experimental research designs, Screening, Sampling methods, biological variability, normal distribution

**Unit 3:** Bias and Confounding, Association and causation, Odds ratio and relative risk, sensitivity and specificity Data collection methods-Observation method, Interview method, Questionnaires and schedules Construction.

**Unit4: Quality assurance and Management**

Introduction, Quality improvement approaches, standards and norms, quality improvement tools, introduction to NABH guidelines.

**Basic of Emergency care and Life support skills**

Basic life support (BLS) following cardiac arrest, recognition of sudden cardiac arrest and activation of emergency response system, early cardiopulmonary resuscitation (CPR) and rapid defibrillation with an automated external defibrillator (AED)

**Basic emergency care**

First aid, choking, rescue breathing methods, ventilation including use of bag valve master (BVMs)

| CourseTitle: Basic of Surgical Procedure- Practical | |
|---|---|
| Semester :V | ICore |

**Practical:**

1. Coombs test.
2. Collection of blood, its preservation and standardization.
3. Various types of blood and blood products(Packed cells, PRP, FFP)
4. Pre-transfusion checks.
5. Transfusion reactions.
6. Fluids and electrolytes
7. Operation Theatre sterilization- Different recent advances.
8. LAR/APR—Positioning of patient, care-Prevention of hazards.
9. Total thyroidectomy-with emphasis on proper positioning.
10. Transthoracic esophagectomy-Different approaches.
11. Venesection and Tracheostomy.

| CourseTitle: CSSD Procedures- Practical | |
|---|---|
| Semester: V | ICore |

**Practical:**

1. Sterilization & Disinfectant
2. Autoclave
3. Hot air Oven
4. Boiling
5. Pasteurization
6. Flaming
7. By Chemical Disinfectants

| Course Title: Advance Anesthestic Techniques- Practical | |
|---|---|
| **Semester : V** | **ICore** |

a. Various modes of IPPV.
b. Automatic pressure and time cycled ventilators.
c. Operating room ventilators.
d. Other types of ventilators (HFJV, NIV)
e. Complications in patients on ventilators.
f. General care of a patient on ventilator.
g. Disinfection and sterilization of ventilators.
h. Humidification
i. Principles of oxygen administration and methods used to deliver oxygen.
j. Acid base balance.

| CourseTitle: Basic Intensive Care- Practical | |
|---|---|
| **Semester: V** | **ICore** |

**Practical:**

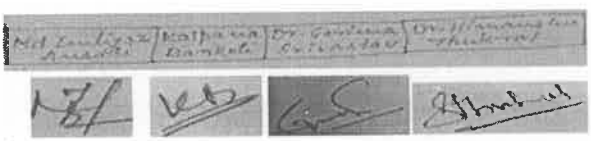
1. Ventilators: Principles of working of different ventilators:

-Volume cycled/Time cycled/Pressure cycled

-ventilators.

-High frequency ventilators and other types.

2. Methods of measuring the expired gases from the patient; Types of spirometers,Principles of working of spirometers; Clinical application of above apparatus d. Apparatus and techniques of measuring of blood pressure and temperature; Principle and working of direct/indirect blood pressure monitoring apparatus; structure, principle and working of the oscillotonometer. Principles and working of aneroid manometer type B.P. instrument.
3. Laryngeal sprays; Types, material, principle and mechanism.



| CourseTitle: Research Methodology and Biostatistics & introduction to Patient Safety-Practical | |
|---|---|
| **Semester : V** | **ICore** |

**Practical:**

1. Research design
2. Sampling methods
3. Data collection and data collection tools,
4. Data analysis: Quantitative and Qualitatively, Public health research, Issues in Research of research problems and writing research questions
5. Hypothesis, Null and Research Hypothesis
6. Type I and Type II errors in hypothesis testing
7. First aid, choking, rescue breathing methods
8. ventilation including use of bag valve master (BVMs)