

DHANALAKSHMI SRINIVASAN UNIVERSITY
SAMAYAPURAM - 621112



SYLLABUS FOR BACHELOR OF SCIENCE IN ACCIDENT AND EMERGENCY CARE TECHNOLOGY

HEALTH FOR ALL

ACCIDENT AND EMERGENCY CARE TECHNOLOGY

I YEAR

S.NO	NAME OF THE SUBJECTS	TOTAL HOURS ALLOTTED
1.	ANATOMY	60 HOURS
2.	PHYSIOLOGY	60 HOURS
3.	BIOCHEMISTRY	30 HOURS
4.	EMERGENCY MEDICALSERVICES	80 HOURS
5.	ENGLISH	60 HOURS
6.	INTRODUCTION TO COMPUTERS	50 HOURS
7.	CLINICAL	1000 HOURS

II YEAR

S.NO.	NAME OF THE SUBJECTS	TOTAL HOURS ALLOTTED
1.	PATHOLOGY	40 HOURS
2.	MICROBIOLOGY	50 HOURS
3.	PHARMACOLOGY	60 HOURS
4.	PHYSICAL EXAMINATION AND NURSING	90 HOURS
5.	EMERGENCY MEDICINE AND EMERGENCY MEDICAL SERVICES-II	100 HOURS
6.	CLINICAL	1000 HOURS

III YEAR SUBJECT

S.NO	NAME OF THE SUBJECTS	TOTAL HOURSALLOTTED
1.	EMERGENCY MEDICINE AND EMERGENCY MEDICAL SERVICES-III	120 HOURS

2	EMERGENCY SURGERY ANDEMERGENCY SURGICAL SERVICES	120 HOURS
3.	CLINICAL PROCEDURES & INSTRUMENT IN EMERGENCYSERVICES	100 HOURS
4.	PATIENT CARE	1000 HOURS

**SCHEME OF EXAMINATION
FIRST YEAR**

Subject	Internal assessment		Theory		Practical		Total	
	Max	Min	Max	Min	Max	Min	Max	Min
Paper 1: Anatomy, Physiology, Biochemistry	50	25	100	50	50	25	200	100
Paper 2: Introduction to Emergency medicine (EM) and EMS-I	50	25	100	50	50	25	200	100
Paper 3: Computers Science	50	25	100	50	50	25	200	100
Paper 4: English	50	25	100	50	50	25	200	100

Note : Paper 3 and Paper 4 is Internal Examination

SECOND YEAR

Subject Title	IA		THEORY		PRACTICAL		VIVA		TOTAL
	Max	Min	Max	Min	Max	Min	Max	Min	MIN
Pathology, Microbiology, Pharmacology	50	25	100	50	-	-	-	-	75
Patient examination and Nursing	50	25	100	50	-	-	-	-	75
Emergency medicine (EM) and EMS -II Practical exam on Patient Examination, Nursing, Triage, Life Support, Trauma care	50	25	100	50	50	25	50	25	125

THIRD YEAR

Subject Title	IA		THEORY		Practical Marks		TOTAL	
	Max	Min	Max	Min	Max	Min	Max	Min
Emergency medicine (EM) and EMS -III	50	25	100	50	50	25	200	100
Emergency surgery & Emergency Surgical Services	50	25	100	50	-	-	150	75
Clinical Procedures and Instrumentation	50	25	100	50	50	25	50	100

POSTINGS DURING ONE YEAR INTERNSHIP

1. 3 months – Medicine (MICU/0 delay/ Triage/Lab)
2. 3 months – Surgery (Operation Theatre/ CSSD/Laundry/Speciality ICU)

3. 3 months – Emergency Medicine

4. 3 months – Obstetrics 1 ½ months – Paediatric Emergency & ICU – 1 ½ months

ANATOMY

COURSE DESCRIPTION

The course is designed to assist students to acquire knowledge of the normal structure of human body and its functions. To ensure that the students understand the alteration in anatomical structure and function in disease in the practice of accident and emergency care technology

OBJECTIVES

At the end of the course, the student will be able to

1. Describe the anatomical terms, organization of human body and structure of cell, tissue, membranes and glands.
2. Describe the structure and functions of bones and joints.
3. Describe the structure and functions of systems in body.
4. Have knowledge about Applied Anatomy

COURSE CONTENT

INTRODUCTION TO ANATOMICAL TERMS ORGANIZATION OF THE HUMAN BODY

- Human Cell structure
- Tissues -Definition, Types, characteristics, classification, location, functions and formation
- Membranes and glands - Classification and Structure
- Upper limb – clavicle, scapula, humerus, radius, ulna
- Lower limb - femur, hipbone, sacrum, tibia, fibula, Vertebral column

THORAX

- Intercostal space, pleura, bony thoracic cage, ribs, sternum & thoracic vertebrae

HEART

- Surface anatomy of heart
- Chambers of the heart
- Valves of the heart
- Major blood vessels of heart
- Pericardium

- Coronary arteries
- Muscles of thorax
- Muscles of upper limb - (arm & fore arm)
- Flexor and extensor group of muscles (origin, insertion, action)

EXCRETORY SYSTEM

- Kidneys
- Ureters
- Bladder

NERVOUS SYSTEM

- Autonomic nervous system
- Peripheral nervous system
- Central nervous system

METHODS OF TEACHING

1. Lecture cum discussion
2. Demonstration
3. Lab visit
4. Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments
4. Oral Presentations

PRACTICALS

Mannequins To Be Provided SPOTTERS (OSPE)

Osteology – Bones identification (right and left side) and prominent features and muscle attachment of the bone, clavicle, scapula, radius, ulna, humerus, femur, hip bone, sacrum, tibia, and fibula.

PHYSIOLOGY

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal physiology of various human body systems and understand the alternation in physiology in disease and practice of accident and emergency care technology

OBJECTIVES

At the end of the course, the student will be able to:

1. Describe the physiology of cell, tissues, membranes and glands.
2. Describe the physiology of blood and functions of heart.
3. Demonstrate blood cell count, coagulation, grouping, Hb; BP and Pulse monitoring
4. Describe the physiology and mechanism of respiration.
5. Demonstrate spirometry
6. Describe the physiology of Excretory system

COURSE CONTENT

THE CELL

Cell Structure and functions of the various organelles.

Endocytosis and exocytosis

Acid base balance and disturbances of acid base balances (Alkalosis, Acidosis)

CARDIO-VASCULAR SYSTEM

- Physiology of the heart
- Heart sounds
- Cardiac cycle, Cardiac output.
- Auscultatory areas.
- Arterial Pressures, Blood Pressure Hypertension
- Electro cardiogram (ECG)Blood
- Composition of Blood, functions of the blood and plasma proteins, o classification and protein.
- Pathological and Physiological variation ofthe RBC.
- Function of Hemoglobin
- Erythrocyte Sedimentation Rate (ESR).
- Detailed description about WBC-Total count (TC)
- Differential count(DC) and functions.
- Platelets – formation

RESPIRATORY SYSTEM

- Respiratory movements.

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

EXCRETORY SYSTEM

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

REPRODUCTIVE SYSTEM

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

CENTRAL NERVOUS SYSTEM

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

ENDOCRINE SYTEM

Functions

- Pituitary,
- Thyroid,
- Parathyroid,
- Adrenal
- Pancreatic Hormones

DIGESTIVE SYSTEM

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

METHODS OF TEACHING

- 1 Lecture cum discussion
- 2 Demonstration
- 3 Lab visit
- 4 Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments
4. Oral Presentations

PRACTICAL

- OSPE

- The compound Microscope
- Determination of Blood Groups.
- Measurement of Vitals: HR, BP, Respiratory rate, Temperature, SPO₂

BIOCHEMISTRY

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the normal biochemical functioning of human body and alterations.

OBJECTIVES

At the end of the course, the student will be able to

1. Identify the basic principles of biochemistry.
2. Synthesize the knowledge of these principles in various situations.

COURSE CONTENT

1. CARBOHYDRATES

Glucose and Glycogen Metabolism

2. PROTEINS

Classification of proteins and functions, Metabolism

3. LIPIDS

Classification of lipids and functions, Metabolism

4. ENZYMES

Definition & functions Classification

Factors affecting enzyme activity

Active site – Coenzyme – Enzyme Inhibition – Units of enzyme

5. VITAMINS & MINERALS

Fat soluble vitamins(A,D,E,K)

Water soluble vitamins – B-complex vitamins- principal elements(Calcium, Phosphorus, Magnesium, Sodium, Potassium, Chlorine and sulphur)-

Trace elements – Calorific value of foods – Basal metabolic rate(BMR)

respiratory quotient (RQ) Specific dynamic action(SDA) – Balanced diet

Marasmus – Kwashiorkor

6. ACIDS AND BASES

- Definition Ph Values
- Henderson – Hasselbalch equation Buffers
- OSPE
- Urine strip test, Urine Nitrite test.

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Lab visit
- Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments
4. Oral Presentations

EMERGENCY MEDICINE & EMERGENCY MEDICAL SERVICES – I

COURSE DESCRIPTION

This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of accident and emergency care technology in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of practice them in Supervised Clinical settings.

COURSE CONTENT

1. INTRODUCTION TO EMS

History of EMS & Current trends

Understanding Emergency Medicine (the specialty, Its pros & cons)

Roles & responsibilities of emergency medical technician\

Medico - Legal issues

- Abandonment, sexual harassment, consent & referral Negligence
- DNR orders, Coroner & medical examiner cases
- Principles of life support- Basic-Adult and Paediatric Triage
- Critical points in functioning of EMS at a national level
- Required components of EMS system
- Existing EMS in India

1. HOSPITALS & PATIENTS:

- History
- Classification Organization & structure
- Doorway to the hospital department Departments & Team
- Paramedical Staff
- Ancillary departments Lab
- Pharmacy Imaging Physio/speech/Patient support services
- Admission
- Medical insurance Dietary
- Social services
- Health information management Medical records
- Electronic Medical Records

- Medicolegal issues Hospital safety

2. HEALTH ASSESSMENT

- Purposes
- Process of Health assessment Health history
- Physical examination:
- Methods - inspection, Palpation, Percussion, Auscultation and Olfaction
Consent counseling

3. PRE HOSPITAL TRANSPORT- ROLES & RESPONSIBILITIES

- Inter facility transport
- Types of Ambulance
- Ambulance-Communication system, Communication Equipments
Ambulance - communication with base and physician
- Safety during transport
- Sequence of procedure for Emergency call - Preparation & scene management
- Confidentiality / privacy Documentation

ENGLISH

COURSE DESCRIPTION:

The course is designed to enable students to enhance ability to comprehend spoken and written English (and use English) required for effective communication in their professional work. Students will practice their skills in verbal and written English during clinical and classroom experience.

OBJECTIVES :

- At the end of the course, the student will develop
- Ability to speak and write grammatically correct English
- Effective skill in reading and understanding the English language
- Skill in reporting

COURSE CONTENT COMMUNICATION

- Communication at the work place
- Human needs and communication “Mind mapping”
- Information communication

COMPREHENSION PASSAGE

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

EXPLAINING

- How to explain clearly
- Explaining procedures
- Giving directions

WRITING BUSINESS LETTERS

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

REPORT WRITING

- Reporting an accident

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

PRACTICALS

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

METHODS OF EVALUATION

1. Individual Oral presentations.
2. Group Discussion.
3. Answering questions front the prescribed English text.
4. Summary / Essay / Letter writing.
5. Medical / General vocabulary exercises

METHODS OF EVALUATION

1. Individual oral presentations
2. Group discussion
3. Answering questions from the prescribed English text.
4. Summary / Essay / Letter writing
5. Grammar exercises
6. Medical / General vocabulary exercises

WEIGHTAGE OF MARKS

English 100 marks

Internal Examination: 100 marks

No Practical's for English

Internal assessment For English

Term test	30 marks
Assignment	20 marks

INTRODUCTION TO COMPUTERS

DESCRIPTION

This course is designed for students to develop basic understanding of uses of computer and its applications.

OBJECTIVES

At the end of the course, the student will develop

1. Demonstrate skill in the use of MS Office, MS Excel and MS Power point
2. Demonstrate use of internet and Email

COURSE CONTENT

INTRODUCTION TO COMPUTER

- Creating and Managing Professional Documents using Word
- Presenting and Managing Data effectively using Excel Creating and Managing presentations using Power point
- Communicate and Manage tasks, contacts and Appointments Using Office Outlook
- Introduction to Digital Life Style

TYPING TEXT IN MS WORD

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

CREATING TABLE IN MS-EXCEL

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

PREPARING NEW SLIDES USING MS- POWERPOINT

- Inserting slides – Slidetransition and animation – Using templates
- Different text and font sizes – Slides with sounds – Inserting clip arts, pictures, tables and graphs– Presentation using wizards.

INTRODUCTION TO INTERNET

- Using search engine – Google search – Exploring the next using Internet Explorer and
- Navigator – Uploading and Download of files and images
- E-mail ID creation Sending messages – Attaching files in E-mail
- Typing a text and aligning the text with different formats using MS-Word
- Inserting a table with proper alignment and using MS-Word
- Create mail merge document using MS-word to prepare greetings for 10 friends
- Preparing a Slide show with transition, animation and sound effect using MS PowerPoint
- Customizing the slide show and inserting pictures and tables in the slides using MS PowerPoint
- Creating a worksheet using MS-Excel with data and use of functions
Using MS-Excel prepare a worksheet with text, date time and data
Preparing a chart and pie diagrams using MS-Excel
- Using Internet for searching, uploading files, downloading files and creating e-mail ID

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments
4. Oral Presentations

WEIGHTAGE OF MARKS 25

Term test	15marks
Assignment	10 marks

PATHOLOGY

COURSE DESCRIPTION

The course is designed to assist students to acquire the knowledge of the fundamentals of pathology

COURSE CONTENT

1. INTRODUCTION - CELL

- Cellular adaptation, Cell injury & cell death.
- Overview: Cellular response to stress and noxious stimuli. Cellular adaptations of growth and differentiation.
- Overview of cell injury and cell death. Causes of cell injury.
- Reversible and irreversible cell injury. Examples of cell injury and necrosis

2. INFLAMMATION

- Historical highlights
- General features of inflammation. Acute inflammation
- Chemical mediators of inflammation. Outcomes of acute inflammation
- Chronic inflammation

3. IMMUNITY DISORDERS

- General features of the immune system
- Disorders of the immune system

4. INFECTIOUS DISEASES.

- General principles of microbial pathogenesis
- Viral infections – Dengue, Hepatitis
- Bacterial infections- Rheumatic Heart Disease.
- Typhoid fever, Tuberculosis, Leprosy Fungal infections
- Parasitic infection - Malaria
- Rickettsial infections – Scrub typhus, Leptospirosis

5. NEOPLASIA

- Definitions
- Biology of tumor growth. Benign and Malignant neoplasms

Carcinogenic agents and their cellular interactions

6. ENVIRONMENTAL AND NUTRITIONAL DISORDERS.

- Environmental and disease
- Common environmental and occupational exposures
Nutrition and disease.

7. CARDIOVASCULAR SYSTEM

- Coronary artery disease.

8. SHOCK

- Mechanism & types – Anaphylactic, Distributive, Septic, Obstructive SIRS, SEPSIS

PRACTICALS

- Bleeding time
- Clotting time
- Blood grouping
- Urine analysis by dipstick method
Haemoglobin Estimation

MICROBIOLOGY

COURSE DESCRIPTION

The course is designed to assist students to acquire understanding of fundamentals of microbiology and identification of microorganisms. It also provides opportunities for practicing infection control measures in hospital settings

OBJECTIVES

At the end of the course, the student will be able to:

1. Identify common disease producing microorganisms
2. Explain the basic principles of microbiology and their significance in health and disease.
3. Demonstrate skill in handling specimens
4. Explain various methods of disinfection and sterilization
5. Identify the role of the nurse in hospital infection control system

COURSE CONTENT

1. INTRODUCTION

- Concepts and terminology
- Principles of microbiology

2. GENERAL CHARACTERISTICS OF MICROBES

- Structure and classification of Microbes
- Morphological types
- Size and forms of bacteria Motility
- Colonization
- Blood and body fluids
- Laboratory methods for identification of Microorganisms
- Staining techniques: Gram staining, Acid Fast staining, Hanging drop preparation
- Culture: various medias

3. CLINICAL MICROBIOLOGY AND INFECTION CONTROL

INTRODUCTION - Importance of infection in an ICU, Agents causing Infection
SPREAD OF INFECTION Source; host; transmission, Bio hazardous materials
Hospital Acquired infections : Prevention & Universal precautions

- Sterilisation & Disinfection - concepts o Methods of sterilization
- Spread of infection
- Elimination of source - Cleaning and sterilizing equipments
- Interrupting transmission of infection - role of HealthCare Workers
- Disposal of infectious wastes
-

SPECIFIC INFECTIONS

- HIV-AIDS
- Hepatitis A, B, C
- Tropical Infections - Tetanus, Malaria, Leptospirosis, Dengue, Sepsis, Chikungunya, Scrub typhus, Enteric fever, Tuberculosis

PRACTICALS:

- Use and care of microscope
- Identification of smear, Blood Mounts and Yeasts.
Quick card tests for Malaria, Dengue
- While giving care in the wards the students will practice collection of samples and processing of sterilization, immunization, chemotherapy and maintenance of personal and environmental hygiene.
- Observation visit to incinerator, posting in CSSD and infection control department

METHODS OF TEACHING

- Lecture cum discussion Demonstration
- Lab visit
- Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments
4. Oral Presentations
5. Spotters -OSPE

WEIGHTAGE OF MARKS

Theory: Clinical Microbiology - Paper 2 in Year 2 - Total 100 marks

Practicals - Total 50 marks

Internal Assessment: 50 marks (Term tests 30 marks + 20 marks for assignments)

PHARMACOLOGY

COURSE DESCRIPTION

The course is designed to assist students to acquire understanding of fundamentals of drugs and their mode of action. It also provides opportunities for practicing infection control measures in hospital settings. It also helps to assist the students to use knowledge of pharmacology in practice of accident and emergency care technology.

OBJECTIVES

At the end of the course, the student will be able to:

To identify drugs used in ICU and describe their pharmacology, route of administration uses and adverse effects.

COURSE CONTENT

1. INTRODUCTION TO PHARMACOLOGY

- Definitions
- Sources
- Common Terminologies used
Types / Classification
Pharmacodynamics: Actions,
- Therapeutics, Adverse Effect, Toxic Effect
- Pharmacokinetics: Absorption, Distribution, Metabolism, Interaction, Excretion
- Review: Routes and principles of administration of drugs Indian Pharmacopoeia(IP)
- Legal issues Rational use of drugs

CLINICAL PHARMACOLOGY

- Drugs - Nomenclature Mode of action of drugs Routes of administration
- Drug dose calculation - Dilution, infusion rate Medical gases: O₂ ; N₂O
Neuromuscular Blocking agents
- Antimicrobial drugs, Anti Viral and Anti Fungal agents - basic concepts
- Antimicrobial Resistance Antiseptic agents

2. DRUGS USED FOR CENTRAL NERVOUS SYSTEM

- Sedatives, hypnotics, opioid analgesics, general anesthetics, CNS stimulants, anticonvulsants, local anesthetics, NSAIDS.

3. DRUGS USED FOR AUTONOMIC NERVOUS SYSTEM

- Parasympathetic agents, Parasympathetic Blocking agents, Sympathetic Agents
- Sympathetic Blocking Agents

4. DRUGS USED FOR CARDIOVASCULAR SYSTEM

- Drugs for congestive cardiac failure, Antiarrhythmic drugs, Antihypertensive drugs
- Antianginal drugs, diuretics, Coagulants and Anticoagulants, Cardiac stimulants, Drugs used in the treatment of shock

5. DRUGS USED FOR ENDOCRINE AND METABOLIC DISORDERS:

- Insulin and oral antidiabetic agents, corticosteroids, thyroxin anti-thyroid drugs.

6. DRUGS USED FOR RESPIRATORY SYSTEM

- Drugs for cough and bronchial asthma
- Respiratory stimulants & antihistamine

7. DRUGS USED FOR GASTRO INTESTINAL SYSTEM

- H2 antagonist, proton pump inhibitors, Antacids, Emetics and antiemetics,

8. GENERAL PRINCIPLES FOR THE TREATMENT OF POISONING PRACTICALS

- Drugs identification (spotters)
- Identification of poisoning symptoms & treatment (OSPE)
Route of drug administration

METHODS OF TEACHING

- Lecture cum discussion
- Demonstration
- Practical work record

METHODS OF EVALUATION

1. Written Test
2. Record Book
3. Assignments

4. Oral Presentations

PHYSICAL EXAMINATION AND NURSING

COURSE DESCRIPTION

This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of nursing in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of accident and Emergency care technology and practice them in Supervised Clinical settings.

OBJECTIVES

Students are able to:

- Understand the basic principles of nursing
- Describe the historical development of nursing in India.
- Demonstrate the beginning skill for effective communication
- Meet the needs of the patient in relation to comfort, rest and sleep including hygienic needs
- Demonstrate skill in applying nursing care related to vital signs
Render first aid treatment
- Demonstrate the teaching skills while educating the patient, family and community.

COURSE CONTENT

1. INTRODUCTION - PUBLIC HEALTH

- Importance of Community
- Transmission of Diseases
- Principles of Prevention & Control of Diseases
- Hospital infections, disinfection, disinfection and sterilization
- Disposal of Hospital wastes
- Important Communicable diseases - - Respiratory, Intestinal; contact - STD /AIDS
- Health education

2. INDIVIDUAL PATIENT CARE

- The Art of History taking Physical examination (GPE & different systems)
- Care of Unconscious patient
- Diagnosis of Brain death

3. INTRODUCTION TO HEALTH AND HEALTH CARE SYSTEM

- Definition and concepts of terms health, illness, morbidity, mortality, patient
Nature of disease pattern

- Impact of illness on individual, family and community
Hospital (settings type and functions)

4. ADMISSION OF PATIENTS

- Preparation of unit
- Admission procedure
- Medico legal issues

5. COMMUNICATION SKILLS

- Process of communication
- Modes of communication
- Characteristics of effective communication
- Factors affecting communication
- Observing, listening and interviewing
- Nurse patient relationship
- Communication with other members of health team

5. COMFORT DEVICES/REST AND SLEEP NEEDS OF PATIENTS

- Purposes of rest and sleep
- Factors affecting rest and sleep
- Common problems of sleep
- Use of comfort devices

6. PATIENT HYGIENE

- Definition and principles relevant to hygiene, Factors influencing hygiene
- Care of skin and its appendages, mouth, eyes, ear, nose, perineum and clothing
- Common health problems of poor personal hygiene

7. HOUSE KEEPING

- Care of Rubber Goods, Enamel Ware, Plastic, Porcelain, Glass Articles etc.

8. VITAL SIGNS

- Temperature
 - Definition and normal body temperature
 - Factors affecting normal body temperature
 - Assessment of normal body temperature
- Definition and normal pulse rate
 - Characteristics of normal pulse
 - Factors influencing pulse
 - Alterations in pulse
- Assessment of Respiration

- Definition and normal respiratory rate
- Characteristics of normal respiration
- Factors influencing respiratory rate
- Alterations in respiration
- Blood pressure
- Definition and normal blood pressure
- Factors influencing normal bloodpressure
- Assessment of blood pressure

FIRST AID AND NURSING EMERGENCIES

- Principles of first aid management Wounds, haemorrhage, shock, Fracture, dislocations, muscle injuries, Splinting
- Respiratory emergencies, unconsciousness
- Burns, scalds, foreign bodies in the skin, eye, ear, nose, throat, stomach Frost bite, effects of heat cramps, bites and stings
- Poisoning and Bandaging

9. FLUID AND ELECTROLYTE BALANCE

- Factors affecting fluid, electrolyte and acid base balance
- Care of patients with fluid and electrolyte imbalance
- Starting IV infusion

10. BODY MECHANICS

- Movement of patient lifting and transporting

11. INFECTION CONTROL

- Infection cycle
- Universal precautions
- Barriers technique

12. HEALTH EDUCATION

- Aims and objectives of health education
- Principles of health education
- Methods of health education
- Audio visual aids – purposes, types, selection and use

PRACTICALS

1. Use of comfort devices

2. Bandaging
3. Lifting and transporting of injured persons
4. Insertion of NG tube
5. Record keeping

EMERGENCY MEDICINE & EMERGENCY MEDICAL SERVICES - II

COURSE DESCRIPTION

This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of accident and emergency care technology in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of practice them in Supervised Clinical settings

TRIAGE AND GENERAL EMERGENCIES

- Concepts and principles of Disaster Nursing Causes and Types of Disaster
- Natural and Man made Earthquakes, Floods, Epidemics, Cyclones Fire, Explosion, Accidents, Violence, Terrorism; biochemical War
- Policies related to emergency/disaster management; International, national, state and institutional
- Disaster preparedness:
Team, Guidelines, protocols, Equipments, Resources , Coordination and involvement of Community, various govt. departments, non- government.
- Organizations and International agencies Legal Aspects of Disaster
- Impact on Health and after effects :Post Traumatic Stress Disorder
Rehabilitation - physical, psychosocial, Financial, Relocation
- Concept, priorities, principles and Scope of emergency care Organization of emergency services: physical setup, staffing, Equipment and supplies, protocols, Concepts of triage and role of triage person
- Coordination and involvement of different departments and facilities
Principles of emergency management

1. LIFE SUPPORT & RESUSCITATION

- Basic life support in perspective
- Cardiopulmonary function and actions for survival
- Adult Basic life support, Advanced Cardiac life support
- Pediatric Basic Life support
- Special resuscitation situations (drowning, hanging, Pregnancy)
- Safety during CPR training and actual rescue

BASIC PRINCIPLES OF TRAUMA CARE (ATLS)

- The principles of kinetic energy Mechanism –Basic mechanics of Injury Pattern.
- Primary survey
- Secondary survey as appropriate Re-assessment
- Identification of Life threatening injuries Shock –different types & Categories Revised trauma score, Glasgow Coma Score Lifting & transporting of injured persons Splints and Immobilization

PRACTICALS:-

- 12 Lead ECG and Interpretation of normal ECG-IV cannulation
- Blood sampling Triage
- Transportation of patients(Spine board and Scoop board)
- BLS , ACLS
- Biomedical waste dispose Splinting Immobilization

EMERGENCY MEDICINE & EMERGENCY MEDICAL SERVICES - III

Course Description: This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of accident and emergency care technology in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of practice them in Supervised Clinical settings.

COURSE CONTENT

1. Medical emergencies

- Hypoglycemia Hyperglycemia, DKA ,Poisoning
- Anaphylaxis Hypothermia Hyperthermia
- Mental illness

2. Fluids and electrolytes

- Fluid administration (Types of Fluids)
- Formulas (Hypo and Hyper natremia)
- Dehydration
- Over hydration
- Electrolyte imbalance (Sodium, Potassium, Bicarbonate, Chloride)

3. Acid base emergencies: (Respiratory and metabolic Acidosis/Alkalosis) Interpretation

4. Respiratory Emergencies:

- Foreign body obstruction
- Chronic obstructive pulmonary disease (COPD)Asthma
- Pneumonia, Pulmonary edema, ARDS
- Common medication in respiratory problems(Meter dose inhaler, nebuliser)
- Mechanical ventilator – General principles, Basic modes of ventilation, NIV

5. Gastrointestinal Emergencies:

- Abdominal pain
- Peptic ulcer disease

- Cholecystitis Hepatitis Pancreatitis
- Abdominal aortic aneurysm Bowel obstruction
- Hernias
- Gastro intestinal bleeding

6. Cardiovascular Emergencies:

- Angina pectoris
- Myocardial infarction (MI), Thrombolytic Therapy
Congestive Cardiac Failure (CCF)
- Aortic Aneurysm Hypertensive Emergencies
- lead ECG and Interpretation Heart
Block and Cardiac Arrhythmias

7. Central Nervous System Emergencies:

Meningitis
Stroke
Seizure
Status epileptics
Syncope

6. Genito urinary emergencies:

- Renal failure
- Urolithiasis
- Urinary tract infection
- Haematuria

7. Hematological Disorders:

- Red blood cell disorders:
- Anemia and Types/Polycythemia
- White blood disorders
- Platelet abnormalities

8. Endocrine and Metabolic Emergencies:

- Diabetic Ketoacidosis
- Hyperosmolar coma
- Thyroid crisis Diabetes insipidus
- Vomiting
- Diarrhea

9. Emergency Drugs –

- Drug introduction, indication, contra-indications, side – effects and routes of administration with doses of following drugs:
- Adrenaline (Epinephrine) Aspirin
- Atropine Adenosine
- Amiodarone

- Antidotes
- Benzylpenicilin
- Beta blockers- Esmolol/Metoprolol/Lebatolol
- Calcium channel blockers- Verapamil/Diltiazem/Nifedipine/Amlodipile
- Calcium chloride
- Calcium gluconate
- Chlorpromazine
- Diazepam
- Dexamethasone
- Dextrose Dopamine
- Dobutamine
- Furosemide
- Flumazenil Fentanyl Glucagon Glyceryl trinitrateHydrocortisone Lidocaine
Lorazepam Mannitol
- Morphine Sulphate
- Midazolam
- Naloxone hydrochloride
- Norepinephrine Phenytoin
- Paracetamol Salbutamol Sodab carbonate
- Vasopressors
- Drugs in obstetrics – Oxytocin/Methergine/CarboprostIV fluids
- Potassium ChlorideSuccinyl choline Atracurium Vecuronium Propofol
- Ketamine Tranexamic acid Magnesium Sulphate

10. Dermatological Emergencies:

- Viral infections:
- Varicella Herpes zoster
- Acute leprosy reactionsAutoimmune disorders:
- Pemphigus vulgaris
- Systemic lupus erythematosusToxic disorders:
- Acute erythroderma
- Severe pruritus, Scabies
- Allergic reactions – Anaphylaxis/Angioedema

11. Communicable disease:

- Causative organism, Mode of transmission, Signs and symptoms, Prophylaxis, Investigation and common treatment of following diseases:
- Meningitis, Hepatitis, Malaria, Tuberculosis, Dengue. Acquired Immunodeficiency syndrome (AIDS), Typhoid, Plague, Polio, Tetanus,

Chicken pox, Cholera, Measles

- Category: - III infection, control measures, precautions during transfer

12. Toxicology:

- Define the term poison
- The four ways in which a poison may enter the body
- General principles of assessment and management of poison and overdose
Opiates toxicity
- Organophosphates Carbon monoxide Cyanide
- Caustics
- Copper sulphate Digoxin toxicity Hydrocarbons
- Tricyclic antidepressant toxicity Metals – Arsenic/Iron Acetaminophen overdose Poisonous alcohols - Methanol
- Poisonous plants – **Oleander, Oduvanthalai**

13. Emergencies due to venomous bites and stings:

- Snake bite
- Scorpion stings Spider bit
- Bee and wasp stings Dog bite
- Cat bite Human bite Monkey bite

14. INDUSTRIAL HAZARDS

- Electrocution
- Amputation
- Crush injury
- Fall from height
- Assaults

15. OBSTETRICAL EMERGENCIES

- Pre eclampsia
- Placenta praevia/Abruption Post Partum
- Hemorrhage Amniotic fluid embolism Cord prolapse
- Ectopic Pregnancy

16. MENTAL HEALTH EMERGENCIES

- Aggressive patient Suicide
- Deliberate self-harm

17. Paediatric emergencies

- Neonatal resuscitation Pediatric resuscitation
- Assessment of newborn and pediatric Meconium aspiration
- Diaphragmatic hernia Apnea
- Drowning
- SIDS (Sudden infant Death Syndrome) Neonatal Seizure
- Febrile convulsion Shock

EMERGENCY SURGERY & EMERGENCY SURGICAL SERVICES

OBJECTIVES

The student should gain knowledge and recognition of major abdominal illness and trauma, ask for relevant investigations, so as to avoid any delay in resuscitation.

1. PRINCIPLES OF ANAESTHESIA

- General Anaesthesia
- Local Anaesthesia
- Regional Anaesthesia

2. WOUNDS AND SUTURING

- Types of common wounds Treatment
- Cleansing the wound
- Wound healing
- Principles of incision and closure (including suturing)

3. BURNS

- Skin Anatomy
- Classification of Burn
- Special Burn considerations

FOREIGN BODY OBSTRUCTION

4. GASTROINTESTINAL SYSTEM

- Acute Appendicitis
- Acute Pancreatitis
- Intestinal obstruction
- Upper GI Bleed
- Lower GI Bleed
- Duodenal and gastric ulcer
- Renal colic

5. TRAUMA

- Head injury
- Thoracic injuries
- Blunt trauma, Penetrating trauma

6. TORSION

TESTIS

PRACTICALS

Assisting in various procedures like:

- Central Venous Access o Suturing of Wounds
- Tracheostomy
- Intercostal Drainage
- Needle Thoracocentesis
- Cricothyroidectomy
- Skills of intubation in a Maniquenin

CLINICAL PROCEDURES AND INSTRUMENTS EMERGENCY SERVICES

COURSE DESCRIPTION

This course is designed to help the students to develop an understanding of the philosophy, objectives, theories and process of accident and emergency care technology in various Supervised Clinical settings. It is aimed at helping the students to acquire knowledge, understanding and skills in techniques of practice them in Supervised Clinical settings

1. INSTRUMENTATION IN EMERGENCY SERVICES

- Introduction to Biomedical engineering (Man – machine relationship)ECG
- DC Defibrillator Intravenous pumps
- Laryngoscope, ambubag, suction machine SPO2 monitoring, Temperature monitoring
- BP apparatus, BP monitoring-NIBP, IBP Ventilators
- Intensive care, portable Manual resuscitator
- Radiology equipment & radiation hazards Suction machine
- Nebuliser Medical gases
- Ambulance and its power supply Dialysis machine
- Infant warmer & incubator

1. CLINICAL PROCEDURES IN EMERGENCY ROOM

Vital Sign Measurement:

- Pulse assessment
- Respiratory assessment
- Temperature assessment
- Blood pressure assessment
- SP02
- Pain score (VAS)

Respiratory procedures:

- Endotracheal intubation and extubation
- Drugs through ET tube
- Tracheostomy insertion and management
- Suctioning an artificial airway:
- Naso tracheal suctioning
- Insertion of nasopharyngeal and oropharyngeal airway
- Mechanical ventilation
- Intercostal drain
- age
- Thoracocentesis

Intermediate Airways

- Laryngeal Mask Airway

- Esophageal – Tracheal Combitube

Non invasive Assessment and Support of Oxygenation and Ventilation

- o Pulse oximetry
- Carbon dioxide Monitoring --> Capnometry
- o Oxygen therapy
- Delivery systems for Inhaled Medication
- Nebulizers
- Metered Dose Inhaler

Cardiovascular procedures (Observation)

- Cardiac Monitoring
- Central venous pressure monitoring
- Insertion of Arterial line:
- Central venous cannulation
- Transcutaneous cardiac pacing
- Transvenous cardiac pacing
- Pericardiocentesis
- Cardioversion
- Defibrillation

Cannulating Umbilical Vein

- Indication
- Procedure
- Drugs through umbilical vein
- Complication

Intraosseous Infusion

- Indication
- Procedure
- Drugs through intraosseous line
- Complication

Gastrointestinal procedures

- Insertion of nasogastric tube
- Insertion of enteral feeding tube and initiation of feedings.
- Gastric lavage
- Upper gastrointestinal endoscopy
- Insertion of rectal tube
- Paracentesis
- Peritoneal lavage

Poison decontamination

- Activated charcoal
- Whole bowl irrigation

Genitourinary procedures

- Urethral catheterization
- Peritoneal dialysis
- Placement and Management of external Arteriovenous shunt (Assiting).
- Continuous Arteriovenous hemofiltration (Assiting)

Intravenous Therapy

- Insertion of intravenous catheter
- Administration of parenteral nutrition
- Blood and Blood product administration

Neurologic Procedures

Lumbar Puncture (**Observation/Assiting**)

PRACTICALS

- ECG Interpretation
- Spotter identification Thermometer
- BP apparatus
- Stethoscope
- Glucometer
- Intraosseous infusion
- LMA
- Combitube
- ET intubation
- Nebuliser Ventilator Capnography
- Pulse oximeter
- Chest X-ray interpretation
- ABG – Interpretation ACLS
- ATLS

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