

SYLLABUS OF POST BASIC DIPLOMA IN CARDIOTHORACIC NURSING

Number of Courses/Papers and Total Number of Theory and Practical Hours Post Basic Diploma in Cardiothoracic Nursing

#	Course	Theory hours	Practical hours
1	Clinical Nursing-I (including Foundation Course- Cardiothoracic Nursing)	155	1280
2	Clinical Nursing-II (Cardiothoracic Nursing)	155	
3	Supervision & Management, Clinical Teaching, Elementary Research & Statistics (Cardiothoracic Nursing)		
i)	Supervision & Management	30	
ii)	Clinical Teaching	30	
iii)	Elementary Research & Statistics	30	
4	Internship		160
	TOTAL	400	1440

POST BASIC DIPLOMA CARDIO-THORACIC NURSING
CLINICAL NURSING – I (INCLUDING FOUNDATION COURSE- CARDIO-THORACIC
NURSING)
TOTAL THEORY HOURS: 155

Description: This course is designed to develop an understanding of the principles of related biological and behavioural sciences and to practise cardio-thoracic nursing.

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

1. Describe the concept and principles of behavioural, biological and nursing sciences as applied to cardio thoracic nursing.
2. Describe the various drugs used in cardio-thoracic disorders and nurses responsibility
3. Apply nursing process in providing comprehensive care to patients with cardio-thoracic disorders and emergencies
4. Practice infection control measures
5. Describe the nurse's role in various diagnostic measures
6. Identify the psychological problems of patients and family members and provide holistic care
7. Plan the dietary regimen of patients with cardiothoracic disorders
8. Assisting patient and family to cope with emotional and spiritual distress and grief anxiety

Unit I Psychology

10 hours

Review

- Individual differences
- Learning, Motivation, attention & perception
- Emotions
- Human behavior & needs in crisis
- Stress and coping in crisis situations
- Attitude and humanizing care

Unit II Microbiology

10 hours

Review

- Immunity
- Infection
- Principles of asepsis, Sterilization & disinfection
- Diagnostic tests in Microbiology & related nurses' responsibility
- Standard safety measures & biomedical waste management

Unit III Applied Anatomy and Physiology

20 hours

Review

- Respiratory system
- Cardiovascular system (heart, lung, thoracic cavity & blood vessels, embryology of heart and lung)
- Neurological system
- Endocrine system

Unit IV Pharmacology

10 hours

Review

- Pharmacokinetics
- Analgesics/Anti-inflammatory agents
- Antibiotics, antiseptics
- Drug reaction & toxicity
- Drugs used in cardiac emergencies
- Blood and blood components
- Antithrombolytic agents
- Inotropic agents
- Beta-blocking agents
- Calcium channel blockers
- Vasoconstrictors
- Vasodilators
- ACE inhibitors
- Anticoagulants
- Antiarrhythmic drugs
- Antihypertensives
- Diuretics
- Sedatives and tranquilizers
- Digitalis
- Antilipidemics
- Principles of drug administration, role and responsibilities of nurses and care of drugs

Unit V Genetics

10 hours

Meaning of genetics and heredity

Mendelian laws of inheritance

Genetic disorders

- Chromosomal errors
- Inborn errors of metabolism
- Congenital anomalies

Genetic counseling

- Nurses' role in genetic counseling

Unit VI Introduction to Cardio-thoracic nursing

10 hours

Historical development and advancement in the cardio-thoracic field

Cardio-thoracic diseases/major health problems

Cardio-thoracic surgery

New technology, developments and nursing practice

Levels of cardiac care and role of nurse

National program for prevention and control of cancer, diabetes, cardiovascular disease and stroke (NPCDCS) (related to cardiovascular disease).

Unit VII Introduction to Nursing Process

15 hours

Nursing Process

- Assessment
- Nursing diagnosis

- Nursing care plan
- Implementation
- Evaluation

Cardio-thoracic nursing assessment

- History taking
- Health assessment – Physical examination, chest examination

Unit VIII Diagnostic Measures

30 hours

Non-Invasive

- ECG – normal and abnormal ECG & its interpretation
- Echocardiography
- Pulmonary function test
- Cardiac monitoring techniques, chest lead and modified lead placement, telemetry
- Echocardiogram, 2-D, 3-D, Colour Doppler, Trans-oesophageal echocardiogram
- Nuclear diagnostic procedures
- Magnetic Resonance Imaging
- Chest X-Ray

Invasive

- Bronchoscopy and graphics
- CVP and JVP
- Blood gases and its significance
- Cardiac catheterization and angiographies
- Arterial monitoring, swan Ganz, monitoring
- Diagnostic radiographies of chest & CVS
- Latest diagnostic measures
- Nurses' role in diagnostic tests

Unit IX Emergency interventions

20 hours

Cardio-thoracic emergency interventions

- CPR – BLS and ALS
- Use of ventilator, defibrillator, pacemaker
- Post-resuscitation care

Unit X Dietary interventions

5 hours

Diet in Cardiac-thoracic Conditions

- Dietary principles
- Diet in hypertension
- Diet in myocardial infarction/angina/CAD/CABG
- Diet in congestive cardiac failure

Unit XI Communication Skills

10 hours

Communication Skills and IPR

- Process & methods
- Establishing and maintaining good IPR & communication with family, staff and colleagues
- Breaking bad news

- Multidisciplinary team & role of nurses
- Guidance & Counseling

Unit XII End of life Care

5 hours

Care of dying patients

- Spiritual support to the dying
- Grief and grieving process
- Bereavement support
- Organ donation and counseling
- Care of dead

**POST BASIC DIPLOMA CARDIO-THORACIC NURSING
CLINICAL NURSING – II (CARDIO-THORACIC NURSING)
TOTAL THEORY HOURS: 155**

Description: This course is designed to develop an understanding of cardio-thoracic disorders, cardio-thoracic emergencies and their management

Objectives: At the end of the program the students will be able to:

1. Describe the etiology, pathophysiology, signs & symptoms investigations, nursing management of adult and children with cardio-thoracic disorders
2. Describe nurses' role in various diagnostic & therapeutic procedures
3. Discuss the pre and post operative nursing care of adult and children with cardio-thoracic surgery

Unit I Cardio-thoracic disorders

20 hours

Cardio-thoracic disorders: Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of:

- Coronary Artery Disease
- Angina of various types
- Cardiomegaly
- Myocardial Infarction
- Congestive cardiac failure
- Heart Failure, Pulmonary edema, Shock
- Hypertension
- Rheumatic Valve Diseases
- Inflammatory Heart Diseases
 Infective Endocarditis, Myocarditis, Pericarditis
- Cardiomyopathy, dilated, restrictive, hypertrophic
- Associated illness

Unit II Pulmonary conditions

20 hours

Altered pulmonary conditions: Etiology, clinical manifestations, diagnosis, prognosis related pathophysiology and nursing management of:

- Bronchitis
- Bronchial asthma
- Bronchiectasis
- Pneumonias
- Lung abscess
- Lung tumor
- Pulmonary tuberculosis,
- Fibrosis, pneumoconiosis etc
- Pleuritis, effusion
- Pneumo, haemo and pyothorax
- Interstitial Lung Disease
- Acute and Chronic Obstructive pulmonary disease (conditions leading to)
- Acute respiratory failure
- Adult respiratory distress syndrome

- Pulmonary embolism
- Pulmonary Hypertension

Unit III Patients with pacemaker **5 hours**

Nursing Care of patients with temporary or permanent pacemaker

- Types of temporary and permanent pacemaker
- Indication for each type
- Principles of pacing procedure
- Patient teaching before, during and after pacing

Unit IV Coronary revascularization **5 hours**

Nursing Care of patients after Coronary revascularization

- Percutaneous Transluminal Coronary Angioplasty; Stunt, Balloon, Types: Indications, procedure complications
- Laser therapy for revascularization

Unit V Arterio-vascular diseases **5 hours**

Nursing care of patients with Arterio-vascular diseases, Aortic aneurysms

Unit VI Dysrhythmias **15 hours**

Interpretation, Management of Dysrhythmias and Nurses' Role

- Sinus arrhythmias
- Atrial Arrhythmias
- Junctional or Nodal arrhythmias
- Ventricular arrhythmias
- A V Blocks
- Pathophysiological responses
- Re-circuit arrhythmias and ablation therapy
- Automatic implantable cardioverter/defibrillator
- Nurses role and responsibilities

Unit VII Chest tubes and Autotransfusion **5 hours**

Nursing Care of patient with chest drainage tubes

- Principles of under-water seal drainage
- Equipment, set up, assessment, care of patient, complications
- Principles of autotransfusion, indications, complications, care, setup

Unit VIII Congenital Heart Disease **15 hours**

Congenital Heart Diseases

Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of:

- Embryological development of heart
- Classification – cyanotic and acyanotic heart disease
- Tetralogy of Fallots.
- Atrial Septal Defect, Ventricular Septal Defect, Eisenmenger's complex
- Patent ductus arteriosus, AP window
- Truncus arteriosus

- Transposition of great arteries
- Total Anomaly of Pulmonary Venous Connection
- Pulmonary stenosis, atresia
- Coarctation of aorta
- Ebstein's anomaly
- Double outlet right ventricle, Single ventricle, Hypoplastic left heart syndrome

Unit IX Paediatric conditions

10 hours

Nursing care of pediatric patient with cardio-thoracic disorders

- Review of growth and development
- Psychosocial aspects of pediatric care and family
- Pre, peri and post-operative cardio-thoracic care
- Pediatric pain assessment and management

Unit X Cardiothoracic surgery

40 hours

Nursing Care of patient undergoing cardio-thoracic surgery

- Indications, selection of patient
- Preoperative assessment and preparation; patient teaching
- Intraoperative care: Principles of open heart surgery, equipment, anaesthesia, cardiopulmonary bypass
- Surgical procedures for Coronary Artery Bypass Grafting, recent advances and types of grafts, Valve replacement or reconstruction, cardiac transplant, Palliative surgery and different Stunts, vascular surgery, other recent advances
- Thoracic surgery: lobectomy, pneumonectomy, tumour, excision etc
- Immediate post-operative care: Assessment, post-operative problems and interventions: Bleeding, Cardiac tamponade, low cardiac output, Infarction, Pericardial effusion, Pleural effusion, Pneumothorax, Haemothorax, Coagulopathy, Thermal imbalance, Inadequate ventilation/perfusion, Neurological problems, Renal problems, Psychological problems
- Chest physiotherapy
- Pain assessment and nursing interventions, complimentary therapy/alternative systems of medicine
- Intermediate and late post operative care and after CABG, valve surgery, others
- Rehabilitation after cardiac surgery

Unit XI Obstructive airway disorders

15 hours

Nursing care of a patient with obstructive airway disorders

- Assessment
- Use of artificial airway
- Endotracheal intubation, tracheostomy and its care
- Complication, minimum cuff leak, securing tubes

Oxygen delivery systems

- Nasal Cannula
- Oxygen mask, Venturi mask
- Partial rebreathing bag
- Bi-PAP and C-PAP masks
- Uses, advantages, disadvantages, nursing implications of each

Mechanical Ventilation

- Principles of mechanical ventilation
- Types of mechanical ventilation and ventilators
- Modes of ventilation, advantage, disadvantage, complications
- PEEP therapy, indications, physiology, and complications, weaning off the ventilator
- Nursing assessment and interventions of ventilated patient.
- Ventilator adjustments related to correcting ABG abnormality.
- Care of a chronic ventilated patient.

**POST BASIC DIPLOMA CARDIO-THORACIC NURSING
SUPERVISION & MANAGEMENT, CLINICAL TEACHING, ELEMENTARY RESEARCH
& STATISTICS (CARDIO-THORACIC NURSING)
TOTAL THEORY HOURS: 90**

Section-A	Supervision & Management (30 hours)
Section-B	Clinical Teaching (30 hours)
Section-C	Elementary Research & Statistics (30 hours)

Description: This course is designed to develop an understanding of the principles of supervision and management, clinical teaching and research.

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

1. Describe Professional trends
2. Describe role of nurse in management and supervision of nursing personnel in Cardio-thoracic unit, ICCU & ICU
3. Teach nurses and allied health workers about cardiac thoracic nursing
4. Describe research process and perform basic statistical tests
5. Plan and conduct research in cardiac thoracic nursing

Section-A Supervision & Management 30 hours

Unit I Supervision & Management 20 hours

Management

- Definition & Principles
- Elements of management of ICCU, cardio-thoracic unit: Planning, Organizing, Staffing, Reporting, Recording, and Budgeting
- ICU & coronary care unit management: time, material & personnel
- Layout and Design of a Cardio-thoracic Unit & ICU/ICCU.
- Cardiac patients transport services
—Mobile coronary care unit

Clinical supervision

- Introduction, definition and objectives of supervision
- Principles & Functions of supervision
- Qualities of supervisors
- Responsibilities of clinical supervisors
- Practice Standards of Cardio-thoracic units

Policies and Procedures

Establishing Standing Orders and Protocols of Cardio-thoracic units

- Orientation programme for new recruits

Quality assurance programme in cardiothoracic units

- Nursing audit

Performance appraisal

- Principles of performance evaluation
- Tools of performance appraisal
 - Rating scales
 - Checklist
 - Peer review
 - Self appraisal

Staff development

- Introduction & purposes
- In-service education
- Continuing education

Unit II Professional trends

5 hours

Professional trends

- Introduction
- Code of Ethics, code of professional conduction and practice standards of Nursing in India
- Ethical issues in coronary care unit
- Expanding role of the nurse: Specialist nurse, Nurse Practitioner etc.
- Professional organization

Unit III Medico-Legal aspects

5 hours

Medico-Legal aspects

- Legislations and regulations related to cardio thoracic care
- Consumer Protection Act (CPA)
- Negligence & Malpractice
- Legal responsibilities of nurses
 - Bill of rights of a patient, Case studies of judgment with regard to negligence of services in the Hospital
- Records and Reports
- Role of the nurse in Legal issues
- Professional practice issues in the cardio thoracic Unit
- Bioethical Issues in Cardio-thoracic Care:- Ethics, Ethical principles, Withholding & withdrawing treatment, Ethical decision making in a cardio thoracic unit
- Code of Professional conduct and Practice Standards

Section-B Clinical Teaching 30 hours

Unit IV Teaching learning process

30 hours

Teaching learning process

- Introduction and concepts
- Principles of teaching and learning
- Formulation of learning objectives
- Lesson Planning
- Teaching methods
 - Lecture
 - Demonstration, Simulation
 - Discussion
 - Clinical teaching methods
 - Micro teaching
 - Self learning
- Evaluation
 - Assessment of Students
 - Purposes
 - Types
 - Steps
 - Tools for assessing knowledge, skill and attitude

- Use of media in teaching learning process

Section-C Elementary Research & Statistics

30 hours

Unit V Research and Statistics

30 hours

Research

- Research and research process
- Types of Research
- Research Problem/Question
- Review of Literature
- Research approaches and designs
- Sampling
- Data collection: Tools and techniques
- Analysis and interpretation of data:
- Communication and utilization of research
- Research priorities in cardio-thoracic

Statistics

- Sources and presentations of Data
 - Qualitative and quantitative
 - Tabulation; frequency distribution, percentiles
 - Graphical presentation
- Measure of central tendency – mean; median, mode
- Measures of variance
- Normal Probability and test of significance
- Co-efficient of correlation
- Statistical package and its application
- Preparing a research proposal

Application of computer

POST BASIC DIPLOMA CARDIO-THORACIC NURSING CLINICAL/PRACTICAL ACTIVITIES NURSING SKILLS

ESSENTIAL CLINICAL/PRACTICAL ACTIVITIES

- Patient Care Assignments
- Writing of Nursing care plan for assigned patients with cardiac thoracic disorders.
- Writing case studies - 5
- Case presentations - 5
- Writing Observation report
- Planned health teaching - 3
- Research Project 1
- Clinical teaching - 3
- Drug study
- Conduct bedside rounds
- Prepare clinical rotation plan
- Prepare clinical teaching plan for students
- Perform clinical evaluation of students/staff
- Unit management plan- Designing
- Supervision techniques- Writing unit report, Performance appraisal, Guidance, Staff assignment
- Maintenance of Records and Reports
- Infection control measures

ESSENTIAL CARDIO THORACIC NURSING SKILLS (DIAGNOSTIC AND INTERVENTIONAL)

I. Procedures Observed:

1. Echo cardiogram & Doppler studies
2. Ultrasound
3. CT SCAN
4. MRI
5. Pet Scan
6. Insertion of JVP,CVP
7. Angiography
8. Cardiac catheterization
9. Angioplasty
10. Cardiothoracic surgeries (adult & pediatrics)
11. Any other cath. lab procedures

II. Procedures Assisted:

1. Cardio thoracic surgeries & dressings
2. Any other cath. lab procedures
3. Cardiac catheterization
4. Advanced life support system
5. Arterial Blood Gas analysis
6. ECG Recording
7. Arterial catheterization
8. Chest tube insertion
9. Endotracheal intubation
10. Tracheostomy
11. Mechanical ventilation

12. Insertion of Central line , arterial line , cardiac pacing
13. Swan- Ganz catheter
14. Intra- Aortic Balloon Pump (IABP): Physiology of IABP, Indications, contraindications, complications, care of patients on IABP
15. Left Ventricular Assist Device, Right Ventricular assist Device
16. Centrifugal, Pulsatile, Implantable devices
17. Extra corporeal membrane oxygenation cannulation
18. Use of defibrillator, Cardio pulmonary resuscitation
19. Bronchoscopy
20. Chest drainage
21. Pacemaker insertion (external and internal)

III. Procedures performed:

1. Cardiac assessment
2. Admission and Discharge
3. Pulse oxymetry
4. Arterial BP monitoring
5. Venous access, ABG collection & monitoring
6. Oxygen administration, Suctioning, Respiratory therapy, Tracheotomy care
7. CPR
8. Airway Management
 - Application of Oro Pharyngeal Airway
 - Oxygen therapy (nasal, tracheal)
 - Continuous Positive Airway Pressure (CPAP)
 - Tracheostomy suctioning
 - Endotracheal Intubation
9. Defibrillation & Cardio version
10. Care of intercostals drainage and removal, site dressing
11. Nebulisation, Inhalations
12. Chest Physiotherapy & spirometry
13. Monitoring of patients with cardiac disorders- clinically & with continuous monitors, Capillary refill time (CRT), ECG
14. Gastric Lavage
15. Enteral and Parenteral feeding
16. Hemodynamic monitoring of central venous pressure, Arterial pressure, Pulmonary artery pressure
17. Insertion of Orogastric tube
18. Thermoregulation – management of thermoregulation & control, use of hypothermia machines
19. Administration of drugs: IM/IV injection, IV cannulation, infusion pump, calculation of dosages, monitoring fluid therapy, heparinisation of cannula, Intra-cardiac drugs and Endo tracheal route
20. Administration of blood and its components
21. Procedures for prevention of infections: hand washing, disinfections & sterilization, surveillance, fumigation.
22. Collection of specimens related to cardiac care

23. Maintenance of intake and output chart
24. Mechanical ventilation (setting, monitoring, weaning, extubation)
25. PEEP therapy
26. Cardiac output- Thermo dilution procedures
27. Pulmonary function test (PFT)
28. Ambulatory care (lifting, shifting, transferring, positioning)
29. Use of cardiac devices
30. 12 lead ECG
31. Holter monitoring
32. Insertion of CVP,JVP, monitoring & removal
33. Removal of arterial line
34. Monitoring patient with pacemaker
35. Monitoring & care of patient on IABP
36. Removal of Intra Aortic Balloon
37. Health education
38. Cardiac rehabilitation