

Subject No.2
CLINICAL SPECIALITY- II
MEDICAL SURGICAL NURSING
SUB SPECIALITY- CARDIO VASCULAR AND THORACIC NURSING

Total Hours: 1110

Theory Hours: 150

Clinical Hours: 960

AIM:

- This course is designed to assist students in developing expertise and in depth understanding in the field of cardiovascular and thoracic nursing. It will help students to develop advanced skills for nursing intervention in various cardio medical and surgical conditions. It will enable the students to function as cardio vascular and thoracic nurse/practitioner/specialist. It will further enable the student to function as educator, manager and researcher in the field of cardio vascular and thoracic nursing.

OBJECTIVES:

At the end of the course the students are able to:

- Appreciate trends and issues related to cardio vascular and thoracic nursing.
- Describe the epidemiology, etiology, pathophysiology and diagnostic assessment of cardio vascular and thoracic conditions.
- Participate in national health programs for health promotion, prevention and rehabilitation of patients with cardio vascular and thoracic conditions.
- Perform physical, psychosocial and spiritual assessment.
- Assist in various diagnostic, therapeutic and surgical procedures.
- Apply nursing process in providing comprehensive care to patients with cardio vascular conditions.
- Demonstrate advance skills /competence in managing patients with cardio vascular condition and thoracic conditions including advanced thoracic life support.
- Describe the various drugs used in cardio vascular and thoracic conditions and nurses responsibility.
- Demonstrate skill in handling various equipments/ gadgets used for critical care of cardiovascular and thoracic patients.
- Appreciate team work and coordinate activities related to patient care.
- Practice infection control measures.
- Identify emergencies and complications and take appropriate measures.
- Discuss the legal and ethical issues in cardiovascular and thoracic nursing.
- Assist patients and their families to cope with emotional distress, grief, anxiety and spiritual needs.
- Appreciate the role of alternative system of medicine in care of patients.
- Incorporate evidence based nursing practice and identify the areas of research in the field of cardiovascular and thoracic nursing.
- Identify the source of stress and manage burnout syndrome among health care providers.
- Teach and supervise nurses and allied health workers.

- Design a layout of ICCU and ICTU and develop; standards for cardiovascular and thoracic nursing practice.

CONTENTS:

Unit I -Introduction:

- Historical development, trends and issues in the field of cardiology.
- Cardiovascular and thoracic conditions – major health problem. .
- Concepts, principles and nursing perspectives.
- Ethical and legal issues
- Evidence based nursing and its application in cardio vascular and thoracic nursing.(to be incorporated in all the units)
- Role of nurse in Ethical and legal issues.

Unit II -Epidemiology:

- Risk factors: Heredity, psychosocial factors, hypertension, smoking, obesity, diabetic mellitus. etc.
- Health promotion, disease prevention, life style modification.
- National health programmed related to cardio vascular and thoracic conditions.
- Alternate system of medicine.
- Complementary therapies.

Unit III -Review of Anatomy and Physiology of cardio vascular and respiratory system:

- Review of anatomy and physiology of heart, lung, thoracic cavity and blood vessels. Embryology of heart and lung.
- Coronary circulation.
- Hemodynamic and electro physiology of heart.
- Biochemistry of blood in relation to cardio pulmonary function.

Unit IV -Assessment and Diagnostic measures:

- History taking
- Physical assessment: Heart rate variability: Mechanism, measurements, pattern, factors, impact of interventions on HRV.
- Diagnostic Tests: Hemodynamic monitoring: Technical aspects, monitoring, functional hemodynamic indices, ventricular function indices, output measurements (Arterial and swan Ganz monitoring), Blood gases and its significance, oxygen supply and demand.
- Radiologic examination of the chest: interpretation, chest film findings.
- Electrocardiography(ECG): electrical conduction through the heart, basic electrocardiography, 12 lead electrocardiogram, axis determination
- ECG changes in :intraventricular conduction abnormalities-arrhythmias, ischemia, injury and infarction, trial and ventricular enlargement, electrolyte imbalance,
- Electrocardiography: technical aspects, special techniques, echocardiography of cardiac structures in health and disease, newer techniques.
- Nuclear and other imaging studies of the heart; Magnetic resonance imaging
- Cardio electro physiology procedures: Diagnostic studies, interventional and catheter ablation, nursing care.
- Exercise testing; indication and objectives, safety and personnel, pre test considerations, selection, interpretation, tests termination, recovery period..

- Cardiac catheterization: indications, contraindications, patient preparation, procedure, interpretation of data.
- Pulmonary function test: Broncho scopy and graphies.
- Interpretation of diagnostic measures.
- Nurses role in diagnostic tests
- Laboratory tests using Blood: Blood specimen collection, cardiac markers, blood lipids, hematologic studies, blood cultures, Coagulation studies, arterial blood gases, Blood chemistries, cardiac enzyme studies,
 - Serum concentration of selected drugs.
 - Interpretation and role of nurse
 - **Assessment and Diagnostic measures:**
- Hemodynamic monitoring: technical aspects.

Unit V -Cardiac disorders and nursing management:

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

- Hypertension
- Coronary artery disease.
- Angina of various types.
- Cardiomegaly
- Myocardial infarction,. Congestive cardiac failure (CCF)
- Heart failure, pulmonary edema, shock.
- Rheumatic heart disease and other valvular diseases
- Inflammatory heart diseases, Infective Endocarditis, Myocarditis, Pericarditis.
- Cardio myopathy, dilated, restrictive, hypertrophic.
- Arrhythmias, heart block.
- Associated illnesses.

Unit VI -Altered pulmonary conditions:

- Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of:
- Bronchitis.
- Bronchial asthma.
- Bronchiectiasis.
- Pneumonias.
- Lung Abscess. Lung tumor
- Pulmonary tuberculosis, fibrosis, pneumoconiosis, etc.
- Pleuritis, effusion.
- Pneumo, haemo and pyothorax.
- Intestinal lung disease.
- Cystic fibrosis
- Acute and chronic obstructive pulmonary disease(conditions leading to)
- Corpulmonale.
- Acute respiratory failure.
- Adult respiratory distress syndrome.
- Pulmonary embolism.

- Pulmonary hypertension.
- FFR(function flow reserve)
- Head table tilt test

Role of nurse in hemodynamic monitoring

Unit VII -Vascular disorders and nursing management:

- Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of:
 - Disorders of arteries.
 - Disorders of the aorta.
 - Aortic aneurysms.
 - Aortic dissection.
 - Raynaud’s phenomenon.
 - Peripheral arterial disease of the lower extremities.
 - Venous thrombosis.
 - Varicose veins.
 - Chronic venous insufficiency and venous leg ulcers.
 - Pulmonary embolism.

Unit VIII -Cardiothoracic emergency interventions:

- CPR- BLS and ALS,
- Use of ventilators, defibrillations, pace maker.
- Post resuscitating care.
- Care of the critically ill patients,
- Psycho social and spiritual aspects of care,
Stress management; ICU psychosis.
- Role of nurse
- Cardioversion Role of nurse in defibrillation & cardioversion
- Cardiothoracic emergency interventions:

Unit IX -Nursing care of patient with obstructive air way:

- Assessment.
- Use of artificial air way.
- Endo tracheal intubation, tracheotomy and its care.
- Complications, minimum cuff leak, securing tubes.
 - **Oxygen delivery systems:**
 - Nasal cannula,
 - Oxygen mask, Venturi mask,
 - Partial re breathing 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 complication. Weaning off the ventilators.
- Nursing assessment and interventions of ventilated patients.

Unit X -Congenital Heart Diseases:

- Etiology, clinical manifestations, diagnosis, prognosis, related patho physiology, treatment modalities and nursing management of:
- Embryological development of heart.
- Classification – Cyanotic and acyanotic heart disease.
- Tetralogy of Fallots.
- Atrial Septal defects, 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.
- Fetal circulation

Unit XI -Review: Pharmacology:

- Pharmacokinetics.
- Analgesics/anti inflammatory agents.
- Antibiotics, antiseptics.
- Drug reaction and toxicity.
- Drug used in cardiac emergencies.
- **Blood and Blood components,**
- Anti thrombolytic agents,
- Inotropic agents
- Beta blocking agents,
- Calcium channel blockers,
- Vasoconstrictors,
- Vasodilators,
- ACE inhibitors,
- Anti coagulants,
- Anti arrhythmic drugs,
- Antihypertensives,
- Diuretics,
- Sedatives and tranquilizers,
- digitalis,
- Antilipemics.
- Principles of drug administration, role and responsibilities of nurses and care of drugs.

- Health education for patients on anti coagulants, anti hypertensive

Unit XII -Nursing Care of Patient undergoing thoracic surgery:

- Indications, selection of patient.
- Preoperative assessment and preparation;counselling.
- Intra operative care: Principles of open heart surgery, equipments, anesthesia, 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 Stents, vascular surgery, other recent advances.
- Thoracic surgery: lobectomy.Pneumonectomy, tumor 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.
- Nursing intervention: Life style modification, complimentary therapies/alternative systems of medicine.
- Intermediate and late post operative care after CABG, valve surgery, others.
- Follow up care.

Unit XIII -Cardiac Rehabilitation:

- Process.
- Physical evaluation
- Life style modification.
- Physical conditioning for cardio vascular efficiency through exercise.
- Counseling.
- Follow up care.
- **Role of nurse in cardiac rehabilitation**

Unit XIV -Intensive Coronary Care Unit/Intensive cardio thoracic Unit:

Quality Assurance

- Standard, Protocols, Policies, Procedures.
- Infection control; standard safety measures.
- Nursing audit.
- Design of ICCU/OICTU.
- Staffing, Cardiac team.
- Burnout syndrome
- Nurses role in the management of ICCU and ICTU.
- Mobile coronary care unit.
- Planning in service educational programme and teaching.
- Role of nurse in quality assurance.

PRACTICAL:

- Clinical practice in medical surgical nursing cardio thoracic ward, intensive care units, cardio thoracic OPD, community preventive cardiology and operation theatre.
- **Essential Nursing Skills:**
- **Procedures to be observed:** Echo cardiogram, Ultrasound, Monitoring JVP, CVP, CT Scan, MRI, Per Scan, Angiography, Cardiac Catheterization, Angioplasty, Various surgeries.
- **Procedures to be Assisted:** Arterial blood gas analysis, Thoracentesis, Lung biopsy, CT scan, MRI, Pulmonary angiography, Bronchoscopy, Pulmonary function test, ET tube insertion, Trachesostomy tube insertion, Cardiac catheterization, angiogram, Defibrillation, Treadmill test, Eco Cardiography, Doppler ultrasound, Cardiac surgery, Insertion of chest tube, CUP monitory, measuring pulmonary artery pressure by Swan-Ganz catheter, Cardiac pacing.
- **Procedures to be performed:** Preparation of assessment tool for cardiac, thoracic and vascular client. ECG – Recording, Reading, Identification of abnormalities. Oxygen therapy- Cylinder, Central supply, catheter, nasal canula, mask, tent, Through ET and tracheostomy tube, manual resuscitation bag. Mechanical Ventilators, spirometer, Tuberculin skin test, Aerosal therapy, Neubilization, water seal drainage, chest physiotherapy including breathing exercises, coughing exercises., percussion and vibration, Suctioning – Oropharyngeal, nasotracheal, endotracheal,through tracheostomy tube. Artificial airway cuff maintenance. CPR. Care of client on ventilators. Identification of different arrhythmias, abnormal pulse, respiration, B.P. variations, heart sounds, breath sounds. Pulse oxymetry. Introduction of intracath. Bolus I.v. injection, life line. Maintenance of ‘Heplock’. Subcutaneous Heparin injection. Obtaining leg measurements to detect early swelling in thrombophlebitis. Identification of Homans signs. Buerger – Allen exercises.

CLINICAL SPECIALITY II
MEDICAL SURGICAL NURSING
SUB SPECIALITY – CARDIO VASCULAR AND THORACIC NURSING

<i>Unit No. & Hours</i>	<i>Objectives</i>	<i>Contents with distributed hours</i>
I (5Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Know the historical development, trends and issues related to CVTS nursing.</p> <p>Skill: Identify major and render care to client.</p> <p>Attitude: Provide evidence based nursing care to clients.</p>	<p>Introduction:</p> <ul style="list-style-type: none"> • Historical development, trends and issues in the field of cardiology.(1 hour) • Cardiovascular and thoracic conditions – major health problem. • Evidence based nursing and its application in cardio vascular and thoracic nursing.(to be incorporated in all the units (3 hours) • Concepts, principles and nursing perspectives. • Ethical and legal issue • Role of nurse in Ethical and legal issues.(1 hour)

Unit-I- Introduction

Course outcome	Program outcome						
	Clinician/ Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
CO-1: Introduce and describe the Historical development, trends and issues in the field of cardiology	3	3	2	3	3	3	3
CO-2: Determine Cardiovascular and thoracic conditions.	3	3	2	3	3	3	3
CO-3: Explain the major health problem related to cardiothoracic conditions.	3	3	2	3	3	3	3

CO-4: Explain the Evidence based nursing and its application in cardio vascular and thoracic nursing.	3	3	3	3	3	3	3
CO-5: Describe the Concepts, principles and nursing perspectives.	3	3	2	3	3	3	3
CO-6: Explain the Ethical and legal issues	3	3	2	3	3	3	3
CO-7: Illustrate the Role of nurse in Ethical and legal issues.	3	3	2	3	3	3	3
II (5Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Understand and Identify risk factors associated with cardiovascular problems.</p> <p>Skill: Educate & motivate people in modifying their life style & promoting their health.</p> <p>Attitude: Contribute in National Health programme.</p> <p>Epidemiology:</p> <ul style="list-style-type: none"> • Risk factors: Heredity, psychosocial factors, hypertension, smoking, obesity, diabetic mellitus. etc. • Health promotion, disease prevention, life style modification.(3hours) • National health programmed related to cardio vascular and thoracic conditions.(1 hour) • Alternate system of medicine. Complementary therapies.(1 hour) 						
Unit-II- Epidemiology							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
CO-1: Explain the risk factors causing cardiovascular diseases	3	3	2	3	3	3	3
CO-2: Determine Health promotion disease prevention, life style modification.	3	3	2	3	3	3	3

CO-3: Explain the disease prevention and life style modification.		3	3	2	3	3	3	3
CO-4: Explain the national health programmed related to cardio vascular and thoracic conditions		3	3	3	3	3	3	3
CO-5: Identify the alternate system of medicine.		3	3	3	3	3	3	3
CO-6: Describe the various complementary therapies.		3	3	3	3	3	3	3
III (5Hrs)	At the end of unit students are able to: Knowledge: Explain anatomy and physiology of cardiovascular and respiratory system. Skill: Assess the cardiopulmonary function based on the blood biochemistry. Attitude: Appreciate other conditions altering cardiopulmonary functions.	Review of Anatomy and Physiology of cardio vascular and respiratory system: <ul style="list-style-type: none"> • Review of anatomy and physiology of heart, lung, thoracic cavity and blood vessels. (1 hour) • Embryology of heart and lung. (1 hour) • Coronary circulation. • Hemodynamic and electro physiology of heart. • Biochemistry of blood in relation to cardio pulmonary function.(3 hours) 						
Unit-III- Review of Anatomy and Physiology of cardio vascular and respiratory system								
Course outcome		Program outcome						
		Clinician/ Nurse educator	Profession al	Communica tor	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
CO-1: Describe the anatomy and physiology of heart, lung, thoracic cavity and blood vessels.		3	3	3	3	3	3	3
CO-2: Identify the Embryology of heart and		3	3	3	3	3	3	3

lung.							
CO-3: Determine the Coronary circulation.	3	3	3	3	3	3	3
CO-4: Illustrate the Hemodynamic and electro physiology of heart.	3	3	3	3	3	3	3
CO-5: Identify the Biochemistry of blood in relation to cardio pulmonary function.	3	3	3	3	3	3	3

<p>IV (20Hrs)</p>	<p>At the end of unit students are able to:</p> <p>Knowledge: Understand and explain importance of history taking and other diagnostic tests in confirming diagnosis of cardiovascular conditions.</p> <p>Skill: Collect samples for various tests correctly and assist in conducting diagnostic tests.</p> <p>Attitude: Recognize the apprehension of client and relatives undergoing various tests and educate and prepare both for the tests and results of the tests.</p>	<p>Assessment and Diagnostic measures:</p> <ul style="list-style-type: none"> • History taking • Physical assessment: Heart rate variability: Mechanism, measurements, pattern, factors, impact of interventions on HRV. • Electrocardiography(ECG): electrical conduction through the heart, basic electrocardiography, 12 lead electrocardiogram, axis determination <ul style="list-style-type: none"> - ECG changes in :intraventricular conduction abnormalities-arrhythmias, ischemia, injury and infarction, atrial and ventricular enlargement, electrolyte imbalance, • Electrocardiography: technical aspects, special techniques, echocardiography of cardiac structures in health and disease, newer techniques. Cardio electro physiology procedures: Diagnostic studies, interventional and catheter ablation, nursing care. • Exercise testing; indication and objectives, safety and personnel, pre test considerations, selection, interpretation, tests termination, recovery period.. • Pulmonary function test: Broncho scopy and graphsies. • Interpretation of diagnostic measures. • Nurses role in diagnostic tests. • Laboratory tests using Blood: Blood specimen collection, cardiac markers, blood lipids, hematologic studies, blood cultures, Coagulation studies, arterial blood gases, Blood chemistries, cardiac enzyme studies, <ul style="list-style-type: none"> • Interpretation and role of nurse (10 hours) • Output measurements (Arterial and swan Ganz monitoring), Blood gases and its significance, oxygen supply and demand. • Radiologic examination of the chest: interpretation, chest film findings. • Cardiac catheterization: indications, contraindications, patient preparation, procedure, interpretation of data. <ul style="list-style-type: none"> • Serum concentration of selected drugs.(7 hours) <p>Assessment and Diagnostic measures:</p> <p>Diagnostic Tests: Hemodynamic monitoring: technical aspects. monitoring, functional hemodynamic indices</p> <ul style="list-style-type: none"> • Nuclear and other imaging studies of the heart; Magnetic resonance imaging (3 hours)
<p>Unit-IV-Assessment and Diagnostic measures</p>		
<p>Course outcome</p>	<p>Program outcome</p>	

	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Recognize the History taking	3	3	2	3	3	3	3
Co-2: Demonstrate the Physical assessment: Heart rate variability	3	3	2	3	3	3	3
Co-3: Interpret the procedure of Electrocardiography(ECG): 12 lead elctrocardiogram,axis determination	3	3	2	3	3	3	3
Co-4: Identify the ECG changes in intraventricular conduction abnormalities- arrhythmias, ischemia, injury and infarction, trial and ventricular enlargement, electrolyte imbalance	3	3	3	3	3	3	3
Co-5: Demonstrate the Nursing care in electrocardiography	3	3	2	3	3	3	3
Co-6: Demonstrate the Exercise testing; indication and objectives, safety and personnel	3	3	2	3	3	3	3
Co-7: Interpret the Pulmonary function test, Broncho scopy and graphies.	3	3	2	3	3	3	3
Co-8: Illustrate the Nurses role in diagnostic tests.	3	3	2	3	3	3	3
Co-9: Identify Blood Laboratory test including Blood specimen collection, cardiac markers, blood lipids, hematologic studies, blood cultures, Coagulation studies, arterial blood gases, Blood chemistries, cardiac enzyme studies	3	3	3	3	3	3	3
Co-10: Illustrate the Interpretation and role of	3	3	3	3	3	3	3

nurse in blood laboratory test							
Co-11: Demonstrate the Output measurements (Arterial and swan Ganz monitoring),	3	3	3	3	3	3	3
Co-12: Interpret the Radiologic examination of the chest like interpretation, chest film findings.	3	3	3	3	3	3	3
Co-13: Demonstrate the Cardiac catheterization and illustrate the nurses role.	3	3	3	3	3	3	3
Co-14: Analyze the Serum concentration of selected drugs	3	3	3	3	3	3	3
Co-15: Demonstrate the Assessment and Diagnostic measures like hemodynamic monitoring	3	3	3	3	3	3	3
Co-16: Infer the nuclear and other imaging studies of the heart; Magnetic resonance imaging	3	3	3	3	3	3	3

<p>V (25Hrs)</p>	<p>At the end of unit students are able to: Knowledge: Discuss the etiology, clinical manifestation, pathophysiology and management of cardiovascular conditions. Skill: Demonstrate competence in interpreting test results and management of client. Attitude: Appreciate client's problems with various cardiovascular conditions and provide nursing care accordingly.</p>	<p>Cardiac disorders and nursing management: Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of:</p> <ul style="list-style-type: none"> • Hypertension • Coronary artery disease. • Angina of various types. • Cardiomegaly • Myocardial infarction,. Congestive cardiac failure (CCF). • Heart failure, pulmonary edema, shock. • Rheumatic heart disease (16 hours) • other valvular diseases • Arrhythmias, heart block. • Associated illnesses. (6 hours) • Inflammatory heart diseases, Infective Endocarditis, Myocarditis, Pericarditis. • Cardio myopathy, dilated, restrictive, hypertrophic.(3 hours)
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Unit-V-Cardiac disorders and nursing management

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1:Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of Hypertension	3	3	3	3	3	3	2
Co-2:Describe the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of Coronary artery disease	3	3	3	3	3	3	3
Co-3: Illustrate the Etiology, clinical manifestations, diagnosis, prognosis, related	3	3	3	3	3	3	3

pathophysiology and nursing management of Angina of various types							
Co-4: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of Cardiomegaly	3	3	3	3	3	3	3
Co-5: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology and nursing management of Myocardial infarction,. Congestive cardiac failure (CCF),Heart failure and pulmonary edema	3	3	2	2	3	2	2
Co-6: Summarize the Rheumatic heart disease and other valvular diseases	3	3	3	3	3	3	3
Co-7: Evaluate the inflammatory heart diseases, Infective Endocarditis, Myocarditis and Pericarditis.	3	3	2	2	3	2	2
Co-8: Summarize the Cardio myopathy, dilated, restrictive and hypertrophic.	3	3	2	2	3	2	2

<p>VI (10Hrs)</p>	<p>At the end of unit students are able to: Knowledge: Understand and explain the etiology, clinical manifestation, pathophysiology and management of pulmonary conditions and its association & impact on cardiovascular conditions. Skill: Recognize association of pulmonary problem with cardiovascular condition and demonstrate confidence and competence while caring such clients. Attitude: Know the health need of the client having cardiovascular problem in association of pulmonary problems and provide need based quality care.</p>	<p>Altered pulmonary conditions:</p> <ul style="list-style-type: none"> • Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of: • Bronchitis. • Bronchieal asthma. • Bronchiectiasis. • Pneumonias. • Lung Abscess. • Pulmonary tuberculosis, fibrosis, pneumoconiosis, etc. • Pleuritis, effusion. • Pneumo, haemo and pyothorax. • Intestinal lung disease. • Cystic fibrosis • Acute and chronic obstructive pulmonary disease(conditions leading to) • Corpulmonale. • Acute respiratory failure. • Adult respiratory distress syndrome. • Pulmonary embolism. • Pulmonary hypertension. (8 hours) • FFR(function flow reserve) • Head table tilt test • Role of nurse in hemodynamic monitoring • Altered pulmonary conditions:Lung tumor(2 hours)
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Unit-VI-Altered pulmonary conditions

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Describe the Etiology, clinical manifestations, diagnosis, prognosis, related	3	3	2	2	3	2	2

pathophysiology,treatment modalities and nursing management of Bronchitis							
Co-2: Memorize the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of bronchial asthma	3	3	2	2	3	2	2
Co-3: Identify the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Bronchiectiasis.	3	3	2	2	3	2	2
Co-4: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Pneumonias	3	3	3	3	3	3	3
Co-5: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Lung Abscess	3	3	3	3	3	3	3
Co-6: Recognize the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Pulmonary tuberculosis, fibrosis, pneumoconiosis and Pleuritis, effusion.	3	3	3	3	3	3	3
Co-7: Paraphrase the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Pneumo, haemo ,pyothorax and Intestinal lung disease.	3	3	3	3	3	3	3

Co-8: Describe the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Cystic fibrosis Acute and chronic obstructive pulmonary disease and Corpulmonale	3	3	3	3	3	3	3
Co-9: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Acute respiratory failure and Adult respiratory distress syndrome	3	3	3	3	3	3	3
Co-10: Identify the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology, treatment modalities and nursing management of Pulmonary embolism.and Pulmonary hypertension	3	3	3	3	3	3	3
Co-11: Demonstrate the technique of FFR(function flow reserve) and Head table tilt test	3	3	3	3	3	3	3
Co-12: Interpret the Role of nurse in hemodynamic monitoring	3	3	3	3	3	3	3
Co-13: Summarize the Altered pulmonary conditions: Lung tumor	3	3	3	3	3	3	3

nursing management of the Aortic aneurysms and Aortic dissection							
Co-3: Explain the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of the Peripheral arterial disease of the lower extremities	3	3	3	3	3	3	3
Co-4: Identify the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of the Venous thrombosis and Varicose veins	3	3	3	3	3	3	3
Co-5: Interpret the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of the Chronic venous insufficiency and venous leg ulcers	3	3	3	3	3	3	3
Co-6: Summarize the Etiology, clinical manifestations, diagnosis, prognosis, related pathophysiology,treatment modalities and nursing management of the Pulmonary embolism and Raynaud's phenomenon	3	3	3	3	3	3	3

VIII (10Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Understand and explain treatment modalities in cardiovascular emergencies.</p> <p>Skill: Handle cardiac emergencies promptly and confidently, contribute in reducing disease specific mortality rate.</p> <p>Attitude: Be accountable for decisions taken while handling cardiac emergencies.</p>	<p>Cardiothoracic emergency interventions:</p> <ul style="list-style-type: none"> • CPR- BLS and ALS, • Use of ventilators, defibrillations, pace maker. • Post resuscitating care. • Care of the critically ill patients, • Psycho social and spiritual aspects of care, Stress management(6 hours) • Role of nurse • Cardioversion Role of nurse in defibrillation & cardioversion(3hours) • Cardiothoracic emergency interventions ICU psychosis. (1 hour)
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Unit-VIII-Cardiothoracic emergency interventions

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Demonstrate the technique of CPR- BLS and ALS	3	3	3	3	3	3	3
Co-2: Illustrate the use of ventilators, defibrillations and pace maker	3	3	3	3	3	3	3
Co-3: Interpret the Post resuscitating care and care of the critically ill patients	3	3	3	3	3	3	3
Co-4: Demonstrate the Care of the critically ill patients	3	3	3	3	3	3	3
Co-5: Illustrate the role of nurse in Psycho social and spiritual aspects of care and Stress management	3	3	3	3	3	3	3

Co-6: Illustrate the nurses role in defibrillation , cardio version and Cardiothoracic emergency interventions	3	3	3	3	3	3	3
Co-7: Identify the nurses role in ICU psychosis	3	3	3	3	3	3	3

IX (10Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Discuss various obstructive air way conditions, its clinical manifestations and nursing management.</p> <p>Skill: Handle various mechanical devises used for client with obstructive air way disease and make the client comfortable without or minimize complications.</p> <p>Attitude: Appreciate the apprehension of client and family members while putting on support system for client with obstructive air way conditions.</p>	<ul style="list-style-type: none"> ● Nursing care of patient with obstructive air way: ● Assessment. ● Use of artificial air way. ● Endo tracheal intubation, treacheostomy and its care. Complications, minimum cuff leak, securing tubes. <p>Oxygen delivery systems:</p> <ul style="list-style-type: none"> ● Nasal cannula, ● Oxygen mask, Venturi mask, ● Partial re breathing bag. ● Bi –PAP and C- PAP masks, ● Uses, advantages, disadvantages, nursing implications of each. (5 hours) <p>Mechanical Ventilation:</p> <ul style="list-style-type: none"> ● Principles of mechanical ventilation. ● Types of mechanical ventilation and ventilators. <ul style="list-style-type: none"> ● Modes of ventilation, advantage, disadvantage, complications. ● PEEP therapy, indications, physiology and complication. Weaning off the ventilators. ● Nursing assessment and interventions of ventilated patients. (5 hours)
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Unit-IX-Nursing care of patient with obstructive air way

Course outcome	Program outcome
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	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Describe the assessment of patient with obstructive air way disease and use of artificial air way	3	3	2	3	3	3	3
Co-2: Demonstrate the Endo tracheal intubation, tracheostomy and its care	3	3	2	3	3	3	3
Co-3: Illustrate the various modes of oxygen administration like Nasal cannula, Oxygen mask, Venturi mask, Partial re breathing bag. Bi -PAP and C- PAP masks	3	3	2	3	3	3	3
Co-4: Interpret the role of nurse in various modes of oxygen administration	3	3	3	3	3	3	3
Co-5: Illustrate the Principles of mechanical ventilation ,its types of mechanical ventilation and ventilators,modes of ventilation, advantage, disadvantage and complications.	3	3	2	3	3	3	3
Co-6: Interpret the role of nurse in assessment and interventions of ventilated patients	3	3	2	3	3	3	3

<p>X (10Hrs)</p>	<p>At the end of unit students are able to: Knowledge: Understand and explain the etiology, pathophysiology, diagnosis, treatment modalities and prognosis of client with congenital heart diseases. Skill: Incorporate knowledge of pediatric nursing while providing quality care. Attitude: Involve parents and family members in nursing care of children having congenital heart diseases.</p>	<p>Congenital Heart Diseases:</p> <ul style="list-style-type: none"> • Etiology, clinical manifestations, diagnosis, prognosis, related patho physiology, treatment modalities and nursing management of: • Classification – Cyniotic and acynotic heart disease. • Atrial Septal defects, Ventricular septal defect, Eisenmenger’s complex. • Patent Ductus arteriosis, AP window, • Truncus Arteriosis. Pulmonary stenosis, atresia. • Coarctation of aorta. (5 hours) • Tetralogy of Fallots. • Transposition of great arteries • Total anomaly of pulmonary venous connection. • Ebstein’s anomaly. • Fetal circulation(3 hours) • Embryological development of heart. • Double outlet right ventricle, Single ventricle, hypoplastic left heart syndrome. (2 hours)
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Unit-X-Congenital Heart Diseases							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Describe the Etiology, clinical manifestations, diagnosis, prognosis, related patho physiology, treatment modalities and nursing management of congenital heart disease its Classification – Cyniotic and acynotic heart disease	3	3	2	3	3	3	3
Co-2: Explain the Atrial Septal defects, Ventricular septal defect and Eisenmenger’s complex.	3	3	2	3	3	3	3

Patent Ductus arteriosus, AP window							
Co-3: Summarize the Patent Ductus arteriosus, AP window, Truncus Arteriosus. Pulmonary stenosis and atresia		3	3	2	3	3	3
Co-4: Identify the Coarctation of aorta		3	3	3	3	3	3
Co-5: Summarize the Tetralogy of Fallots.		3	3	2	3	3	3
Co-6: Predict the Total anomaly of pulmonary venous connection including Ebstein's anomaly		3	3	2	3	3	3
Co-7: Paraphrase the Fetal circulation, Embryological development of heart, Double outlet right ventricle, Single ventricle,		3	3	2	3	3	3
Co-8: Summarize the hypoplastic left heart syndrome		3	3	2	3	3	3
XI (10Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Illustrate various drugs used in cardiovascular condition along with its effects, side effects and adverse effects.</p> <p>Skill: Evaluate the condition of patient for the desired effects, side effects and adverse effects of prescribed drugs and calculate the dosages & administer drugs accurately.</p> <p>Attitude: Follow the principles of drug administration and educate client & family members</p>	<p>Pharmacology.</p> <p>Review:</p> <ul style="list-style-type: none"> • Pharmacokinetics. • Analgesics/anti inflammatory agents. • Antibiotics, antiseptics. • Drug used in cardiac emergencies. • Blood and Blood components, (3 hours) • Beta blocking agents, • Calcium channel blockers, • Vasoconstrictors, • Vasodilators, • ACE inhibitors, • Anti coagulants, • Anti arrhythmic drugs, • Antihypertensives, • Diuretics, • Sedatives and tranquilizers, 					

	<p>about importance of following prescribed regime and observing and reporting probable side effects of drugs.</p>	<ul style="list-style-type: none"> • digitalis, • Antilipemics. • Beta blocking agents, • Principles of drug administration, role and responsibilities of nurses and care of drugs. (6 hours) • Drug reaction and toxicity. • Anti thrombolytic agents, lipemics • Inotropic agents (3 hours) • Health education for patients on anti coagulants, anti hypertensive(1hour)
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Unit-XI-Pharmacology

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Describe the Pharmacokinetics. Analgesics/anti inflammatory agents	3	3	2	3	3	3	3
Co-2: Explain the Drug used in cardiac emergencies	3	3	2	3	3	3	3
Co-3: Summarize the Blood and Blood components	3	3	2	3	3	3	3
Co-5: Classify the Beta blocking agents, Calcium channel blockers, ACE inhibitors, Anti coagulants, Anti arrhythmic drugs and Antihypertensives	3	3	3	3	3	3	3
Co-6: Estimate the Diuretics, Sedatives and tranquilizers,	3	3	2	3	3	3	3
Co-7: Summarize the digitalis and Antilipemics	3	3	2	3	3	3	3
Co-8: Identify the Beta blocking agents	3	3	2	3	3	3	3

Co-9: Demonstrate the Principles of drug administration, role and responsibilities of nurses and care of drugs		3	3	2	3	3	3	3
Co-10: Predict the Drug reaction and toxicity		3	3	2	3	3	3	3
Co-11: Identify the Anti thrombolytic agents, lipemics and Inotropic agents		3	3	2	3	3	3	3
Co-12: Memorize the Health education for patients on anti coagulants and anti hypertensive		3	3	2	3	3	3	3
XII (20Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Understand and discuss various surgical modalities of management.</p> <p>Skill: Render quality care to the client during preoperative, intra operative and post operative period.</p> <p>Attitude: Recognize the importance of team work in dealing with cardiovascular and thoracic conditions.</p>	<p>Nursing Care of Patient undergoing thoracic surgery:</p> <ul style="list-style-type: none"> • Indications, selection of patient. • Preoperative assessment and preparation; counselling. • Intra operative care: Principles of open heart surgery, equipments, anesthesia, cardiopulmonary bypass. • 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. • Nursing intervention: Life style modification, complimentary therapies/alternative systems of medicine. • Intermediate and late post operative care after CABG, valve surgery, others. • Follow up care. (11 hour s) • Surgical procedures for coronary Artery bypass Grafting, recent advances and types of grafts, Valve replacement or reconstruction, cardiac transplant.(8 hours) • Palliative surgery and different Stents, vascular surgery, other recent advances. • Thoracic surgery: lobectomy.Pneumonectomy, tumor excision, etc(2 hours) 						
Unit-XII-Nursing Care of Patient undergoing thoracic surgery								
Course outcome		Program outcome						

	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Explain the Indications, selection of patient, Preoperative assessment, preparation and counseling	3	3	2	3	3	3	3
Co-2: Demonstrate the Intra operative care including Principles of open heart surgery, equipments, anesthesia, cardiopulmonary bypass etc	3	3	2	3	3	3	3
Co-3: Demonstrate the Intra operative care including Principles of open heart surgery, equipments, anesthesia, cardiopulmonary bypass etc	3	3	2	3	3	3	3
Co-4: Identify the Immediate post operative care	3	3	3	3	3	3	3
Co-5: Demonstrate the procedure of Chest physiotherapy	3	3	2	3	3	3	3
Co-6: Interpret the Nursing intervention of Life style modification, complimentary therapies/alternative systems of medicine	3	3	2	3	3	3	3
Co-7: Categorize the Intermediate and late post operative care after CABG, valve surgery, others including Follow up care	3	3	2	3	3	3	3
Co-8: Interpret the Surgical procedures for coronary Artery bypass Grafting, recent advances and types of grafts, Valve replacement or reconstruction and cardiac transplant	3	3	2	3	3	3	3
Co-9: Describe about Palliative surgery and different Stents, vascular surgery and other recent advances	3	3	2	3	3	3	3
Co-10: Identify the Thoracic surgery including	3	3	2	3	3	3	3

lobectomy.Pneumonectomy, tumor excision, etc								
XIII (5Hrs)	<p>At the end of unit students are able to:</p> <p>Knowledge: Discuss the life style modifications and rehabilitation process of client.</p> <p>Skill: Participate effectively and efficiently in rehabilitation of client.</p> <p>Attitude: Educate and motivate client and family members to understand the process of rehabilitation & to cooperate.</p>	<p>Cardiac Rehabilitation:</p> <ul style="list-style-type: none"> • Process. • Counseling. • Follow up care. (2 hours) • Physical evaluation • Life style modification. • Physical conditioning for cardio vascular efficiency through exercise. • Role of nurse in cardiac rehabilitation. (3 hours) 						
UNIT-XIII-Cardiac Rehabilitation								
Course outcome		Program outcome						
		Clinician/ Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1: Describe the Cardiac Rehabilitation its Process, Counseling and Follow up care		3	3	2	3	3	3	3
Co-2: Explain the Life style modification		3	3	2	3	3	3	3
Co-3: Identify the Physical conditioning for cardio vascular efficiency through exercise		3	3	2	3	3	3	3
Co-4: Interpret the Role of nurse in cardiac rehabilitation		3	3	3	3	3	3	3

<p>XIV (5Hrs)</p>	<p>At the end of unit students are able to: Knowledge: Know the ideal design of cardiovascular & thoracic unit and its importance in rendering quality services. Skill: Identify learning needs of staff working in the unit, plan and implement in service educational programmers. Conduct nursing audit & strive for improving quality of care. Attitude: Identify the problems of staff, help them to overcome the burn out syndrome and maintains cordial interpersonal relationship in the unit.</p>	<p>Intensive Coronary Care Unit/Intensive cardio thoracic Unit: Quality Assurance</p> <ul style="list-style-type: none"> • Standard, Protocols, Policies, Procedures. • Infection control; standard safety measures. • Nursing audit. • Staffing, Cardiac team. • Burnout syndrome <ul style="list-style-type: none"> • Nurses role in the management of ICCU and ICTU. • Mobile coronary care unit, • Role of nurse in quality assurance(3 hours) • Planning in service educational programme and teaching. (1 Hrs) • Design of ICCU/OICTU(1 hour)
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Unit-XIV-Intensive Coronary Care Unit/Intensive cardio thoracic Unit

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
Co-1:Describe the Standard, Protocols, Policies, Procedures of Intensive Coronary Care Unit	3	3	2	3	3	3	3
Co-2: Interpret the Infection control and standard safety measures.	3	3	2	3	3	3	3
Co-3: Identify the Nursing audit.	3	3	2	3	3	3	3

Staffing, and Cardiac team							
Co-4: Infer the Burnout syndrome	3	3	3	3	3	3	3
Co-5: Interpret the Nurses role in the management of ICCU and ICTU	3	3	2	3	3	3	3
Co-6: Explain the Mobile coronary care unit	3	3	2	3	3	3	3
Co-7: Illustrate the Role of nurse in quality assurance	3	3	2	3	3	3	3
Co-8: Illustrate the Role of nurse in Planning in service educational programme and teaching	3	3	2	3	3	3	3
Co-9:Compose the Design of ICCU/OICTU	3	3	2	3	3	3	3

AREA AND DISTRIBUTION OF CLINICAL HOURS:

<i>Sr. No.</i>	<i>Dept / Unit</i>	<i>No. of weeks</i>	<i>Total hours</i>
1	Cardiothoracic – Medical	4	120
2	Surgical	4	120
3	OTs (cardiac and thoracic)	4	120
4	Casualty	2	60
5	Diagnostic labs including cath lab	2	60
6	ICCU	4	120
7	ICU	4	120
8	CCU	4	120
9	Pediatric Intensive	2	60
10	OPD	2	60
Total		32 weeks	960 hours

TEACHING STRATEGY:

Total Hours: 1110

Theory Hours: 150

Clinical Hours: 960

TEACHING METHOD:

- Lectures, Seminars, Case presentation & discussion, Clinical observation , [SISA](#), [IDCD](#) and [Syndicate Journal Club](#)

A.V. AIDS:

- OHP, LCD, Posters, Blackboard, Video Assisted Teaching / Learning ,

ASSIGNMENTS:**Theory:**

Sr. No.	Assignment	No./Quantity	Marks per Assignment	Total Marks
1	Seminar	Four	1X50	200
Total Marks				200

Practical:

Sr. No.	Assignment	No./Quantity	Marks per Assignment	Total Marks
1	Teaching learning module preparation (Group work)	One	1X25	25
2	Case study	One	1X25	25
3	Case Presentation	One	1X50	50
4	Nursing Care Plans	Two	1X25	50

5	Speciality Drugs Study (Minimum 20 drugs)	One	1X50	50
6	Speciality Procedure Evaluation	Two	1X25	50
7	Clinical Performance Evaluation	One	1X100	100
8	Specific Day celebrations (group work)	One	1X25	25
Total Marks				375

RECOMMENDED BOOKS:

- Text Book of Medical Surgical Nursing – Brunner and Suddarth.
- Medical Surgical Nursing – Clinical Positive Out – Joyce and Black.
- Medical Surgical Assessment and Management of clinical problems – Lewis, Colliner.
- Medical Surgical Nursing – A psychopathologic approach- Luckmann and Sorenson.
- Medical Surgical Nursing – A Nursing Process Approach.
- Medical Surgical Nursing B.T. Basvanthappa.
- Medical Surgical Nursing an integrated approach – Write L. and Delmar.
- Moroneys Surgery for Nurses – Colmer.
- API Text Book Medicine- Shah N.S.
- Pharmacology and Pharmacotherapeutics – Satoskat and Bhandarkar.
- Fundamentals of Operation Theatre Services – Datta T.K.
- Fundamentals of orthopedics – Maheshwari.
- Illustrated Textbook of Dermatology – Parischa J.S. , Gupta.
- Davidson principles and practice of Medicine.
- The Lippincott Manual of Nursing Practice – Nettina, Sandra.
- A reference manual for nurses on coronary care nursing, Sr. Nancy, Jaypee publisher
- Text book of medical surgical nursing, S.N. Chugh, Avichal Publishing Company.
- Textbook Of Cardiovascular & Thoracic Nursing As Per The Inc Syllabus For Msc Students, P.Hari Prasad, Jaypee publication