

Subject No.2
CLINICAL SPECIALITY II
MEDICAL SURGICAL NURSING
SUBSPECIALITY-ONCOLOGY NURSING

Total: 1110 Hours

Theory: 150 Hours

Practical: 960 Hours

AIM:

- This course is designed to assist students in developing expertise and in depth understanding in the field of oncology Nursing. It will help students to develop advanced skills for nursing intervention in various oncological conditions. It will enable the student to function as oncology nurse practitioner / specialist and provide quality care: It will further enable the student to function as educator, manager, and researcher in the field of oncology nursing.

OBJECTIVES:

At the end of course students are able to:

- Explain the prevention, screening and early detection of cancer.
- Describe the epidemiology, etiology, pathophysiology and diagnostic assessment of oncological disorders of various body systems.
- Describe the psychosocial effects of cancer on patients and families.
- Demonstrate skill, in administering/assisting in various treatment modalities used for patients with cancer.
- Apply nursing process in providing holistic, care to patients with cancer.
- Apply specific concepts of pain management.
- Appreciate the care of death and dying patients and value of bereavement support.
- Describe the philosophy, concept and various dimensions of palliative care.
- Appreciate the role of alternative systems of medicine in care of cancer patients.
- Appreciate the legal & ethical issues relevant to oncology nursing.
- Recognize and manage Oncological emergencies.
- Counsel the patients with cancer and their families.
- Incorporate evidence based nursing practice and identify the areas of research in the field of oncology nursing.
- Recognize the role of oncology nurse practitioner as a member of oncology team.
- Collaborate with other agencies and utilize resources in caring for cancer patients.
- Teach and supervise nurses and allied health workers.
- Design a layout and develop standards for management of oncology units/hospitals and nursing care.

CONTENTS:

Unit I -Introduction:

- Epidemiology-Incidence, Prevalence - Global, National, State and Local. Disease burden, concept of cancer, risk factors. Historical perspectives. Trends and issues. Principles of cancer management. Roles and responsibilities of oncology nurse.

Unit II -The nature of Cancer:

- Normal cell biology. The Immune system. Pathological and patho-physiological changes in tissues. Biology of the cancer cell. Clone formation Transformation Tumors stem lines. Structure of a solid tumor. Products produced by the tumor. Systemic effects of tumor growth.

Unit III -Etiology of Cancer:

- Carcinogenesis. Theories of cancer causation. Risk factors. Carcinogens - genetic factors, chemical carcinogens, radiation, viruses, Immune system failure, rapid tissue proliferation.
- Hormone changes, diet, emotional factors.

Unit IV -Diagnostic Evaluation:

- Health assessment: History taking, physical examination; Staging and grading of tumors, TNM Classification. Common diagnostic tests: Blood investigation: Hematological, Bio-chemical, Tumor markers. Hormonal assay. Cyrology: Fine needle aspiration cytology(FNAC).
- Histopathology: Biopsy. Radiological assessment: MRI, Ultrasound, Computed tomography, Mammography, Positron emission tomography (PET), Radio nuclide imaging, Functional metabolism imaging. Endoscopies. Nurses responsibilities in diagnostic measures.

Unit V -Levels of prevention and care:

- Primary prevention - Guidelines for cancer detection, general measures, Warning signs of cancer. Self examination-Oral, Breast, Testicular. Secondary prevention - early diagnosis. Screening. Tertiary prevention - disability limitation. Rehabilitation: Mobility, Speech, Bowel and bladder, Ostomies etc. Patient and family education. Discharge instruction, follow-up care and use of community resources.

Unit VI -Cancer Treatment Modalities and Nurse's Role

- **Surgery:** Principles of surgical oncology, Current surgical strategy, Determining surgical risk, Special surgical techniques, Pre-intra-postoperative nursing care, Acute and chronic surgical complications. Future directions and advances
- **Chemotherapy:** Principles and classification of chemotherapeutics, Pharmacology of antineoplastic drugs- Mechanism of action, Absorption, protein binding, Bio-transformation, excretion, common side effects, drug toxicity, Calculating drug doses. Therapeutic response to chemotherapy- Tumor variables, drug resistance and Safety precautions.
- **Radiation Therapy:** Physics of radiotherapy, Types of ionizing rays. Radiation equipments: Linear accelerator, cobalt, Implants, Isotopes. Types of therapies: Oral, Brachy therapy, tele-therapy, selectron therapy. Effects of radiation on the body tissue. Radiation biology - cell damage hypoxic cells, alteration of tumor kinetics. Approaches to radiation therapy – External radiotherapy. Internal radiotherapy - unsealed, sealed sources. Effectiveness of radiotherapy- Radio sensitivity, treatment effects Complications of radiotherapy. Radiation safety: Standards of Bhabha Atomic Research Centre(BARC)
- **Bone Marrow Transplantation /Stem Cell Transplantation:**
 - Types, indications, transplantation procedure and complications, Types and donor sources, Preparation and care of donor and recipient, Legal and ethical issues.
- **Immunotherapy (Biotherapy):** Concepts and principles, Classification of agents, Treatment and applications
- **Gene Therapy:** Current Concepts and practices.
- **Alternative and Complementary Therapies:** Current practices
- **Pain management :** Theories, types, Nature of cancer pain, Pathophysiology of pain, Pain threshold
- **Assessment of pain:** Principles of cancer pain control ,Pharmacological: Opioid and non-opioid analgesic therapy, Patient controlled analgesia(pcA), Other invasive techniques of pain control Recent developments in Cancer pain.

- **Non Pharmacological pain relief technique:** Complementary therapies (Music, massage, meditation, relaxation techniques, biofeed back etc), Psychological intervention in pain control. Alternative system of medicines. Role of nurse.

Unit VII -Pain management: Theories, types and Management modalities:

- Nature of cancer pain, Pathophysiology of pain, Assessment of pain
Principles of cancer pain control, Pharmacological: Opioid and non-opioid analgesic therapy, Patient controlled analgesia (PCA)
Non Pharmacological pain relief technique: Psychological intervention in pain control, Role of nurse, Pain threshold
Recent developments in Cancer pain relief, Alternative system of medicines, other invasive techniques of pain control.
Non Pharmacological pain relief technique: Complementary therapies (Music, massage, meditation, relaxation techniques, biofeedback, etc.)

Unit VIII -Palliative care:

- Definition and scope, philosophy, Concept and elements of palliative care, Global and Indian perspective of palliative care, Quality of life issues, Communication skill ,Nursing perspective of palliative care and its elements, Home care , Hospice care.
- Role of nurse in palliative care.

Unit IX -Infection control: Process of infection, risk of hospitalization, nosocomial infections- prevention and control of infection in acute, long term care facility and community based care, Standard safety measures.

Unit X -Nursing Care of Patients With specific Malignant Disorders:

- Malignancies of G.I. system-oral, oesophagus, stomach, rectal, liver & pancreas, care of ostomies / stoma. Respiratory malignancies. Genito-urinary system malignancies- prostate Bladder, renal, testicular malignancies. Gynecological malignancies-cervix, uterus, ovary.
Hematological malignancies-Lymphomas, Leukemia. Malignancies of musculoskeletal system. Endocrine malignancies. Skin. Head and Neck-brain tumors. Other malignancies - Breast cancer.

Unit XI -Pediatric malignancies:

- Leukemia, Lymphoma, Neuro-blastoma. Wilm's tumor, Soft tissue sarcoma, Retinoblastoma.
- Nursing Management of children with Paediatric Malignancies.

Unit XII -Nursing Management of Physiological conditions and Symptoms of Cancer Patient:

- Nutrition: - effects of cancer on nutritional Status and its consequences:-Anemia, Cachexia, Xerostomia, mucositis, Dysphagia, nausea and vomiting, constipation, diarrhea, electrolyte imbalance, taste alterations.
- Impaired mobility: Decubitus ulcer, pathologic fractul thrombophlebitis, pulmonary embolism, contractures, footdrop.
- **Other symptoms:** Dyspepsia & hiccup, dyspnoea. Intestinal obstruction, Fungating wounds. Anxiety & depression, insomnia .Lymph edema.
- **Impact of cancer on sexuality:** Effects of radiotherapy / chemotherapy/surgery on sexuality of the cancer patient. Nursing management of cancer patients experiencing sexual dysfunction. Sexual counseling.

Unit XIII -Cancer Emergencies:

- Disseminated intravascular coagulation (DIC). Malignant pleural effusion. Neoplastic cardiac tamponade and septic shock spinal cord Compression. Superior venacava syndrome. Metabolic emergency: hyper and hypo calcemia. Surgical emergency, Urological emergency, Hemorrhage,

Organ obstruction. Brain metastasis. Nurses role in managing oncologic emergencies.

Unit XIV -Psycho-Social Aspects of Nursing Care:

- Psychological responses of patients with cancer, psychosocial assessment.
- Crisis intervention, coping mechanisms, Stress management, spiritual/ cultural care and needs, Counseling: individual and family. Maximizing quality of life of patient and family.

Ethical, moral and legal issues:Care of dying patient, Grief and grieving process, Bereavement support.Care of Nurses who care for the dying.

Unit XV - Layout and Design of an oncology institution / ward, OPD, chemotherapy unit, Bone marrow, transplantation unit, Pain clinic etc.

- Practice Standards of oncology nursing, Policies and Procedures. Establishing Standing orders and Protocols.Quality Assurance Programme in oncology units. Nursing audit.

PRACTICALS:

- Clinical practice in the care of patients with various malignant disorders, Assessment of client suffering with various malignant disorders, Applying nursing theories and process in the management of patients suffering from various malignancies, Provide care to patients with ostomies and other appliances, Assisting for implantation of radioisotopes, Clinical case presentation, Projects, Clinical and classroom teaching, Health education on related diseases conditions.
- Field visits – Regional cancer centers/cancer speciality hospital/units, Hospice, mobile palliative care, community oncology centers, home care units, cancer registry, cancer detection centers, etc.
- **Procedures to be observed:**CT Scan, MRI, Ultra sound, Mammography, Radio Nuclear Imaging, Bone Scan, Thyroid function Test, Functional and metabolic Imaging, Transportation of radioactive material, others.
- **Procedures to be assisted:** I. V cannulation – open method, Chemotherapy, Radiotherapy – Brachytherapy – Low density radiation, High density radiation, interstitial implantation, Tele therapy – treatment planning, bone marrow aspiration and biopsy, Tissue Biopsy, FNAC and biopsy, Advance cardiac life support, Endotracheal intubation, De fibrillation, Ventilation, Trachesostomy,Thoracentesis, Lumbar Puncture, Arterial Blood Gasses, Nerve Block,l Chest tube insertion, Inter costal drainage, CVP monitoring,
- **Procedures to be performed:** Screening for cancer, Assessment of pain, Assessment of Nutritional status, Care of Tracheostomy, Endotracheal intubation, Gastric gavage, Pap Smear, I. V cannulation, Care of surgical flaps, care of ostomies, Blood transfusion and component therapy, counseling, Practice Standard Safety measures, Care of dead body and mortuary formalities.
- **Other procedures:** As per the institutional protocol; Alternative therapies.

CLINICAL SPECIALITY II
MEDICAL SURGICAL NURSING
SUB SPECIALITY – ONCOLOGY NURSING

<i>Unit No. & Hours</i>	<i>Objectives</i>	<i>Contents with Distributed Hours</i>						
I (4 Hrs)	<p>At the end of the unit the students are able to –</p> <p>Knowledge: Understand and explain the concept of cancer, related risk factors & principles of cancer management.</p> <p>Skill: Practice principles of cancer management.</p> <p>Attitude: Adapt to the roles and take appropriate responsibilities while caring.</p>	<p>Introduction:</p> <ul style="list-style-type: none"> • Epidemiology-Incidence, Prevalence - Global, National, State and Local Disease burden, concept of cancer, risk factors. (1 hr) • Historical perspectives Trends and issues (1 hr) • Principles of cancer management. Role and responsibilities of oncology nurse (2 hrs) 						
<p>CO-1- Interpret epidemiology: incidence, prevalence- global, national, state and local. CO-2-Explain disease burden, concept of cancer. CO-3- Explain risk factors. CO-4- Explain historical perspectives CO-5 Explain trends and issues in oncology CO-6- Describe principles of cancer management. CO7- Describe role and responsibilities of oncology nurse.</p>								
Course outcome		Program outcome						
		Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
		PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Interpret epidemiology: incidence, prevalence- global, national, state and local		3	3	2	3	2	3	3
CO-2-Explain disease burden, concept of cancer		3	3	2	3	2	3	3

CO-3- Explain risk factors	3	3	2	3	2	3	3
CO-4- Explain historical perspectives	3	3	2	3	2	3	3
CO-5 Explain trends and issues in oncology	3	3	2	3	2	3	3
CO-6- Describe principles of cancer management.	3	3	2	3	2	3	3
CO7- Describe role and responsibilities of oncology nurse.	3	3	2	3	2	3	3
II (5 Hrs)	At the end of the unit the students are able to – Knowledge: Understand the pathological and pathophysiological changes in tissues due to cancer. Skill: Recognize the structural and functional processes of tumours. Attitude: Appreciate systemic effects of tumour growth.		The nature of Cancer: <ul style="list-style-type: none"> • Normal cell biology • The Immune system. (1 hr) Pathological and pathophysiological changes in tissues: <ul style="list-style-type: none"> • Biology of the cancer cell (1 hr) • Clone formation Transformation • Tumors stem lines. structure of a solid tumor • Products produced by the tumor. Systemic effects of tumor growth. (3 hrs)				
CO-1- Explain pathological and pathophysiological changes in tissues in cancer. CO-2-Explain biology of the cancer cell. CO-3- Describe clone formation, transformation. CO-4- Describe tumors stem lines, products produced by the tumor. CO-5- Explain systemic effects of tumor growth CO-6- Explain normal cell biology. CO-7- Explain the immune system. CO-8-Describe structure of a solid tumor							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain pathological and pathophysiological changes in tissues in cancer. CO-2-Explain biology of the cancer	3	3	2	3	2	3	3

cell.							
CO-3- Describe clone formation, transformation.	3	3	2	3	2	3	3
CO-4- Describe tumors stem lines, products produced by the tumor.	3	3	2	3	2	3	3
CO-5- Explain systemic effects of tumor growth	3	3	2	3	2	3	3
CO-6- Explain normal cell biology.	3	3	2	3	2	3	3
CO-7- Explain the immune system.	3	3	2	3	2	3	3
CO-8-Describe structure of a solid tumor	3	3	2	3	2	3	3
III (4 Hrs)	At the end of the unit the students are able to – Knowledge: Describe the etiology of cancers. Skill: Identify the risk factors in patients with cancer. Attitude: Determine hormonal, dietetic and emotional factors in the etiology of tumors.		Etiology of Cancer: <ul style="list-style-type: none"> • Carcinogenesis • Theories of cancer causation.(1 hr) • Risk factors. • Carcinogens - genetic factors, chemical carcinogens, radiation, viruses, Immune system failure, rapid tissue proliferation. Hormone changes, diet, emotional factors. (3 hrs) 				
CO-1- Explain risk factors of cancer. CO-2-Explain carcinogens-genetics factors, chemical, radiation, virus, immune system failure. CO-3- Describe hormone changes, diet and emotional factors in cancer CO-4- Describe tumors stem lines, products produced by the tumor. CO-5- Explain theories of cancer causation.							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain risk factors of cancer.	3	3	2	3	2	3	3
CO-2-Explain carcinogens-genetics factors, chemical, radiation, virus, immune system failure. CO-3- Describe hormone changes,	3	3	2	3	2	3	3

diet and emotional factors in cancer							
CO-4- Describe tumors stem lines, products produced by the tumor.	3	3	2	3	2	3	3
CO-5- Explain theories of cancer causation.	3	3	2	3	2	3	3
IV (10 Hrs)	<p>At the end of the unit the students are able to –</p> <p>Knowledge: Understand and explain the diagnostic procedures for various cancer conditions.</p> <p>Skill: Prepare the clients with cancer for different diagnostic procedures.</p> <p>Read the results of diagnostic procedures.</p> <p>Classify various stages of cancer.</p> <p>Attitude: Adapt to the roles and take appropriate responsibilities while caring for patients with cancer.</p>		<p>Diagnostic Evaluation:</p> <ul style="list-style-type: none"> • Common diagnostic tests. <ul style="list-style-type: none"> ○ Blood investigation: Hematological, Biochemical, Tumor markers, Hormonal assay ○ Cytology : Fine needle aspiration cytology (FNAC) (1hr) • Histopathology: Biopsy <p>Radiological assessment: MRI, Ultrasound, Computed tomography, Positron emission tomography, Radio nuclide imaging, Functional metabolism imaging.</p> <ul style="list-style-type: none"> • Mammography, Endoscopies. • Nurses responsibilities in diagnostic measures.(6 Hrs) • Health assessment : History taking, physical examination; Staging and grading of tumors, TNM Classification. (3 hrs) 				
<p>CO-1- Explain blood investigation: hematological, biochemical, tumor markers, hormonal assay in cancer.</p> <p>CO-2-Explain cytology: fine needle aspiration cytology (FNAC), histopathology: biopsy in cancer.</p> <p>CO-3- Describe different radiological investigations: MRI, Ultrasound, Computed tomography, Mammography, Endoscopies in cancer.</p> <p>CO-4- Describe nurses responsibilities in diagnostic measures in cancer.</p> <p>CO-5- Explain health assessment includes history taking and physical examination.</p> <p>CO-6- Differentiate between staging and grading in cancer.</p> <p>CO-7- ExplainTNM classification.</p> <p>CO-8-Describe diagnostic evaluation: positron emission tomography, radio nuclide imaging, functional metabolism imaging</p>							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain blood investigation: hematological, biochemical, tumor markers, hormonal assay in cancer.	3	3	2	3	2	3	3
CO-2-Explain cytology: fine	3	3	2	3	2	3	3

needle aspiration cytology (FNAC), histopathology: biopsy in cancer.							
CO-3- Describe different radiological investigations: MRI, Ultrasound, Computed tomography, Mammography, Endoscopies in cancer.	3	3	2	3	2	3	3
CO-4- Describe nurses responsibilities in diagnostic measures in cancer.	3	3	2	3	2	3	3
CO-5- Explain health assessment includes history taking and physical examination.	3	3	2	3	2	3	3
CO-6- Differentiate between staging and grading in cancer.	3	3	2	3	2	3	3
CO-7- Explain TNM classification	3	3	2	3	2	3	3
CO-8-Describe diagnostic evaluation: positron emission tomography, radio nuclide imaging, functional metabolism imaging	3	3	2	3	2	3	3
V (10 Hrs)	At the end of the unit the students are able to – Knowledge: Explain the preventive aspects of cancer. Skill: Aid in early diagnosis and treatment of the cancer patients. Attitude: Participate in the rehabilitation of the patients with cancer.			Levels of prevention and care : <ul style="list-style-type: none"> • Primary prevention - Guidelines for cancer detection, general measures, Warning signs of cancer, • Self examination-Oral, Breast, Testicular • Secondary prevention - early diagnosis. • Screening. • Tertiary prevention - disability limitation (6 Hrs) • Rehabilitation: Mobility , Speech, Bowel and bladder, Ostomies, etc • Patient and family education.(1 Hr) Discharge instruction, follow-up care and use of community resources. (3 Hrs) 			

CO-1- Explain Primary prevention, Guidelines for cancer detection, and general measures							
CO-2-Interprete warning signs of cancer.							
CO-3- Describe Self-examination: Oral, Breast, Testicular for detection of cancer.							
CO-4- Describe Secondary prevention and early diagnosis in cancer.							
CO-5- Explain Rehabilitation in cancer.							
CO-6-Explain patient and family education in cancer.							
CO-7-Discuss discharge instruction, follow-up care and use of community resources.							
CO-8-Describe Tertiary prevention - disability limitation in cancer.							
Course outcome	Program outcome						
	Clinician/Nurse educator	Profes sional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain Primary prevention Guidelines for cancer detection, and general measures	3	3	2	3	2	3	3
CO-2-Interprete warning signs of cancer.	3	3	2	3	2	3	3
CO-3- Describe Self-examination: Oral, Breast, Testicular for detection of cancer.	3	3	2	3	2	3	3
CO-4- DescribeSecondary prevention and early diagnosis in cancer.	3	3	2	3	2	3	3
CO-5- Explain Rehabilitation in cancer.	3	3	2	3	2	3	3
CO-6-Explain patient and family education in cancer.	3	3	2	3	2	3	3
CO-7-Discuss discharge instruction, follow-up care and use of community resources.	3	3	2	3	2	3	3
CO-8-Describe Tertiary prevention - disability limitation in cancer.	3	3	2	3	2	3	3

<p>VI (25 Hrs)</p>	<p>At the end of the unit the students are able to –</p> <p>Knowledge: Understand and explain various modalities of treatment for cancer clients.</p> <p>Skill: Prepare clients with cancer for various therapies.</p> <p>Participate in the therapeutic procedures.</p> <p>Observe the response of different therapies in cancer clients.</p> <p>Discuss the ethical and legal issues in various therapies for cancer clients.</p> <p>Attitude: Develop mind set to use different alternative and complimentary therapies.</p>	<p>Cancer Treatment Modalities and Nurse’s Role:</p> <p>Surgery-</p> <ul style="list-style-type: none"> • Principles of surgical oncology. • Current surgical strategy. • Determining surgical risk • Special surgical techniques • Pre-intra-postoperative nursing. • Acute & chronic surgical complications. Future directions and advances (5 hrs) <p>Chemotherapy:</p> <ul style="list-style-type: none"> • Principles and classification of chemotherapeutics. • Pharmacology of anti neoplastic drugs- Mechanism of action, Absorption, protein binding, Bio-transformation, excretion, common side effects, drug toxicity. • Calculating drug doses, • Therapeutic response to chemotherapy – tumor variables, drug resistance • Safety precautions (5 hrs) <p>Radiation Therapy:</p> <ul style="list-style-type: none"> • Physics of radiotherapy. • Types of ionizing rays. • Radiation equipments: Linear accelerator, cobalt, Implants, Isotopes. • Types of therapies: Oral, Brachytherapy, teletherapy, selectron therapy. • Effects of radiation on the body tissue, • Radiation biology- cell damage hypoxic cells, alteration of tumor kinetics. <p>Approaches to radiation –</p> <ul style="list-style-type: none"> • External radiotherapy • Internal radiotherapy- unsealed, • Sealed sources. • Effectiveness of radiotherapy- Radio-sensitivity, treatment effects. Complications of radiotherapy. <ul style="list-style-type: none"> • Radiation safety : Standards of Bhabha Atomic Research Centre (BARC) (5 hr) <p>Bone Marrow Transplantation /Stem Cell Transplantation</p> <ul style="list-style-type: none"> • Types, indications, transplantation procedure and complications and nursing management, • Types and donor sources. • Preparation and care of donor and recipient.
------------------------	--	--

		<ul style="list-style-type: none"> • Bone marrow bank • Legal and ethical issues.(4 hrs) <p>Immunotherapy (Biotherapy): Concepts and principles. Classification of agents. Treatment and applications (2 hrs)</p> <ul style="list-style-type: none"> • Gene Therapy: Current Concepts and practices.(2hrs) <p>Alternative & Complementary Therapies: Current practices (2 hrs)</p>
--	--	--

CO-1- Explain principles of surgical oncology and current surgical strategy.
CO-2- Describe pre-intra-postoperative nursing.
CO-3- Evaluate acute & chronic surgical complications in cancer surgery.
CO-4- Discuss future directions and advances in cancer surgery
CO-5- Describe Principles and classification of chemotherapeutics.
CO-6-Explain pharmacology of anti-neoplastic drugs its mechanism of action, Absorption, protein binding, Bio-transformation, excretion, common side effects, drug toxicity.
CO-7- Describe calculating drug doses and safety precautions.
CO-8 - Describe physics of radiotherapy and types of ionizing rays,radiation equipments
CO- 9-Explain types of radiation therapies: Oral, Brachytherapy, teletherapy, selectron therapy.
CO-10- Describe effects of radiation on the body tissue, Scaled sources. Effectiveness of radiotherapy- Radio-sensitivity, treatment effects.
CO-11- Discuss complications of radiotherapy
CO-12- Explain gene therapy in cancer.
CO-13-Explain alternative and complementary therapies in cancer.
CO-14-Discuss immunotherapy in cancer.
CO-15- Explain Radiation safety : Standards of Bhabha Atomic Research Centre (BARC)
CO-16- Describe bone marrow transplantation /stem cell transplantation, its type, indications, transplantation procedure, and types and donor sources,preparation and care of donor and recipient, nursing management and legal and ethical issues.
CO-17-Explain therapeutic response to chemotherapy-Tumor variables, drug resistance.

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain principles of surgical oncology and current surgical strategy	3	3	2	3	2	3	3
CO-2- Describe pre-intra-postoperative nursing.	3	3	2	3	2	3	3
CO-3- Evaluate acute &	3	3	2	3	2	3	3

chronic surgical complications in cancer surgery.							
CO-4- Discuss future directions and advances in cancer surgery	3	3	2	3	2	3	3
CO-5- Describe Principles and classification of chemotherapeutics.	3	3	2	3	2	3	3
CO-6-Explain pharmacology of anti-neoplastic drugs its mechanism of action, Absorption, protein binding, Bio-transformation, excretion, common side effects, drug toxicity.	3	3	2	3	2	3	3
CO-7- Describe calculating drug doses and safety precautions.	3	3	2	3	2	3	3
CO-8 - Describe physics of radiotherapy and types of ionizing rays and radiation equipments	3	3	2	3	2	3	3
CO- 9-Explain types of radiation therapies: Oral, Brachytherapy, teletherapy, selectron therapy.	3	3	2	3	2	3	3
CO-10- Describe effects of radiation on the body tissue, Scaled sources. Effectiveness of radiotherapy- Radio-sensitivity, treatment effects.	3	3	2	3	2	3	3
CO-11- Discuss complications of radiotherapy	3	3	2	3	2	3	3
CO-12- Explain gene therapy in cancer.	3	3	2	3	2	3	3
CO-13Explain alternative and complementary therapies in cancer.	3	3	2	3	2	3	3

CO-14-Discuss immunotherapy in cancer.	3	3	2	3	2	3	3
CO-15- Explain Radiation safety : Standards of Bhabha Atomic Research Centre (BARC)	3	3	2	3	2	3	3
CO-16 Describe bone marrow transplantation /stem cell transplantation, its type, indications, transplantation procedure, and types and donor sources, preparation and care of donor and recipient and legal and ethical issues.	3	3	2	3	2	3	3
CO-17-Explain therapeutic response to chemotherapy- Tumor variables, drug resistance.	3	3	2	3	2	3	3
VII (10 Hrs)	At the end of the unit the students are able to – Knowledge: Describe theories of pain, types of cancer pain and management modalities for cancer patients. Skill: Practice principles of cancer pain control. Administer pain medications as prescribed. Provide psychological support to the clients with cancer pain Attitude: Demonstrate competence in management of pain by using various complementary therapies.			Pain management: Theories, types and Management modalities: <ul style="list-style-type: none"> ○ Nature of cancer pain. ○ Pathophysiology of pain. ● Pain threshold (3 hrs) Assessment of pain. ● Principles of cancer pain control. ● Pharmacological: Opioid and non-opioid analgesic therapy. ● Patient controlled analgesia (PCA) (3 hrs) ● Other invasive techniques of pain control ● Recent developments in Cancer pain relief Non Pharmacological pain relief technique: <ul style="list-style-type: none"> ○ Complementary therapies (Music, massage, meditation, relaxation techniques, biofeedback, etc.) ○ Psychological intervention in pain control. ● Alternative system of medicines. Role of nurse. (4 Hr)			

CO-1- Explain nature of cancer pain, Pathophysiology of pain.
 CO-2-Interprete assessment of pain.
 CO-3- Describe Principles of cancer pain control. Pharmacological: Opioid and non-opioid analgesic therapy, patient controlled analgesia.
 CO-4- Explain Non Pharmacological pain relief technique: Psychological intervention in pain control
 CO-5-Explain role of nurse in cancer pain management.
 CO-6-Discuss Alternative system of medicines in cancer pain management. .
 CO-7-Describe Other invasive techniques of pain control
 CO-8- Explain non pharmacological pain relief technique in cancer.

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain nature of cancer pain, Pathophysiology of pain.	3	3	2	3	2	3	3
CO-2-Interprete assessment of pain.	3	3	2	3	2	3	3
CO-3- Describe Principles of cancer pain control. Pharmacological: Opioid and non-opioid analgesic therapy, patient controlled analgesia.	3	3	2	3	2	3	3
CO-4- Explain Non Pharmacological pain relief technique: Psychological intervention in pain control	3	3	2	3	2	3	3
CO-5-Explain role of nurse in cancer pain management.	3	3	2	3	2	3	3
CO-6-Discuss Alternative system of medicines in cancer pain management. .	3	3	2	3	2	3	3
CO7-Describe Other invasive techniques of pain control	3	3	2	3	2	3	3
CO-8- Explain non	3	3	2	3	2	3	3

pharmacological pain relief technique in cancer.							
VIII (5 Hrs)	At the end of the unit the students are able to – Knowledge: Explain concepts and elements of palliative care and nurses' role in it. Skill: Identify quality of life issues. Attitude: Render palliative care in home and hospice setting.	Palliative care: <ul style="list-style-type: none"> • Definition and scope, philosophy • Concept and elements of palliative care. • Global and Indian perspective of palliative care • Quality of life issues. • Communication skill. • Nursing perspective of palliative care and its elements. Role of nurse in palliative care. (4 hrs) • Home care Hospice care.(1 hr) 					
CO-1- Explain definition and scope, philosophy, concept and elements of palliative care. CO2- Describe quality of life issues, communication skill, nursing perspective of palliative care and its elements. CO3- Describe role of nurse in palliative care. CO-4- Explain global and Indian perspective of palliative care CO-5- Explain role of nurse in cancer pain management. CO-6- Discuss home care and hospice care.							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain definition and scope, philosophy, concept and elements of palliative care	3	3	2	3	2	3	3
CO-2- Describe quality of life issues, communication skill, nursing perspective of palliative care and its elements.	3	3	2	3	2	3	3
CO-3- Describe role of nurse in palliative care.	3	3	2	3	2	3	3
CO-4- Explain global and Indian perspective of palliative care	3	3	2	3	2	3	3
CO5- Explain role of nurse in cancer pain management.	3	3	2	3	2	3	3

CO6-Discuss home care and hospice care.	3	3	2	3	2	3	3
IX (2 Hrs)	At the end of the unit the students are able to – Knowledge: Explain the importance of infection control in cancer care. Skill: Practice standard safety measures while caring for cancer patients. Attitude: Illustrate the risk of infections in hospitalized clients.			Infection control : <ul style="list-style-type: none"> • Process of infection, risk of hospitalization, Nosocomial infections- prevention and control of infection in acute, long term care facility and community based care (1 hr) • Standard safety measures (1 hr) 			
CO-1- Explain nosocomial infections- prevention and control of infection in acute, long term care facility and community based care in cancer. CO-2-Explain Standard safety measures CO-3- Describe process of infection. CO-4- Describe risk of hospitalization.							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain nosocomial infections- prevention and control of infection in acute, long term care facility and community based care in cancer	3	3	2	3	2	3	3
CO-2-Explain Standard safety measures	3	3	2	3	2	3	3
CO-3- Describe process of infection.	3	3	2	3	2	3	3
CO-4- Describe risk of hospitalization	3	3	2	3	2	3	3
X (30Hrs)	At the end of the unit the students are able to – Knowledge: Explain the nursing care of clients with specific			Nursing Care of Patients With specific Malignant Disorders: <ul style="list-style-type: none"> • Malignancies of G.I. system-oral, oesophagus, stomach, rectal, liver & pancreas, care of ostomies / stoma (3 hrs) • Respiratory malignancies (3 hrs) 			

<p>malignant disorders.</p> <p>Skill: Render culturally congruent and competent comprehensive care to the cancer patients</p> <p>Attitude: Educate clients and families about nutrition, exercises and other health promotion activities in cancer.</p>		<ul style="list-style-type: none"> • Genitourinary system malignancies- prostate Bladder, renal, testicular malignancies, (4 hrs) • Gynecological malignancies-cervix, uterus, ovary (3 hrs) • Hematological malignancies Lymphomas, Leukemias (2 hrs) • Malignancies of musculoskeletal system (3 hrs) • Endocrine malignancies (3 hrs) • Skin (2 hrs) • Head and Neck-brain tumors. (4 hr) <p>Other malignancies, Breast cancer, AIDS related malignancies (Kaposi's)(3 hr)</p>
---	--	--

CO-1- Explain nursing care of patients with malignancies of G.I. system-oral, oesophagus, stomach, rectal, liver & pancreas and care of ostomies / stoma

CO-2-Explain nursing care of patients with respiratory malignancies.

CO-3- Describe nursing care of patients with Genitourinary system malignancies- prostate Bladder, renal, testicular malignancies.

CO-4- Describe nursing care of patients with Gynecological malignancies-cervix, uterus, ovary

CO-5- Explain nursing care of patients with Hematological malignancies Lymphomas, Leukemias

CO-6-Explain nursing care of patients with Malignancies of musculoskeletal system

CO-7-Discuss nursing care of patients with Endocrine malignancies, Head and Neck-brain tumors, Breast cancer

Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain nursing care of patients with malignancies of G.I. system-oral, oesophagus, stomach, rectal, liver & pancreas and care of ostomies / stoma	3	3	2	3	2	3	3

CO-2-Explain nursing care of patients withrespiratory malignancies.	3	3	2	3	2	3	3
CO-3- Describenursing care of patients withGenitourinary system malignancies- prostate Bladder, renal, testicular malignancies.	3	3	2	3	2	3	3
CO-4- Describe nursing care of patients withGynecological malignancies-cervix, uterus, ovary	3	3	2	3	2	3	3
CO-5- Explain nursing care of patients withHematological malignancies Lymphomas, Leukemias	3	3	2	3	2	3	3
CO-6-Explain nursing care of patients withMalignancies of musculoskeletal system	3	3	2	3	2	3	3
CO-7-Discussnursing care of patients withEndocrine malignancies.Head and Neck-brain tumors, Breast cancer.	3	3	2	3	2	3	3
XI (10 Hrs)	At the end of the unit the students are able to –			Pediatric malignancies: <ul style="list-style-type: none"> • Leukemia, Lymphoma, Neuro-blastoma. (4 hrs) • Wilm's tumor, Soft tissue sarcoma, Retinoblastoma. (3 hrs) • Nursing Management of children with Pediatric Malignancies. (3 hrs) 			
	Knowledge: Describe common malignancies in pediatric clients. Skill: Identify need of children with various malignancies and render them effective care. Attitude: Provide relevant health education to the parents.						
CO-1- Explain Pediatric malignancies: Leukemia, Lymphoma, Neuro-blastoma							
CO-2-Explain Nursing Management of children with Pediatric Malignancies.							
CO-3- DescribePediatric malignancies: Wilm's tumor, Soft tissue sarcoma, Retinoblastoma.							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7

CP-1-Explain Pediatric malignancies: Leukemia, Lymphoma, Neuroblastoma	3	3	2	3	2	3	3
CO-2-Explain Nursing Management of children with Pediatric Malignancies	3	3	2	3	2	3	3
CO-3- Describe Pediatric malignancies: Wilm's tumor, Soft tissue sarcoma, Retinoblastoma	3	3	2	3	2	3	3
XII (13 Hrs)	At the end of the unit the students are able to – Knowledge: Understand the symptomatic treatment modalities for the cancer clients. Skill: Plan and arrange for appropriate diet for cancer clients. Render effective and efficient care for bed ridden cancer clients. Manage physiological symptoms in cancer clients. Attitude: Understand the impact of cancer on sexuality and provide sexual counseling to the cancer clients.			Nursing Management of Physiological conditions and Symptoms of Cancer Patient: <ul style="list-style-type: none"> • Nutrition: - effects of cancer on nutritional Status and its consequences:-Anemia, Cachexia, Xerostomia, mucositis, Dysphagia, nausea and vomiting, constipation, diarrhea, electrolyte imbalance, taste alterations. • Impaired mobility: Decubitus ulcer, pathologic fractures, thrombophlebitis, pulmonary embolism, contractures, foot drop. (5 Hrs) Other symptoms: Dyspepsia & hiccup, dyspnoea, Intestinal obstruction, Fungating wounds. Anxiety, depression, insomnia, Lymph edema (5 hr) Impact of cancer on sexuality: <ul style="list-style-type: none"> • Nursing management of cancer patients experiencing sexual dysfunction. (2 hrs) • Effects of radiotherapy / chemotherapy/surgery on sexuality of the cancer patient. (2 hrs) Sexual counseling (1 hrs)			
CO-1- Explain Nursing Management of Physiological conditions and Symptoms of Cancer Patient: Anemia, Cachexia, Xerostomia, mucositis, Dysphagia, nausea and vomiting, constipation, diarrhea, electrolyte imbalance, taste alterations.							
CO-2-Explain Nursing Management of Physiological conditions and Symptoms of Cancer Patient. Impaired mobility: Decubitus ulcer, pathologic fractures, thrombophlebitis, pulmonary embolism, contractures, foot drop							
CO-3- Describe nursing care of patients with Dyspepsia & hiccup, dyspnoea, Intestinal obstruction, Fungating wounds. Anxiety, depression, insomnia.							
CO-4- Describe Nursing management of cancer patients experiencing sexual dysfunction							
CO-5- Explain Effects of radiotherapy / chemotherapy/surgery on sexuality of the cancer patient and counselling.							

CO-6-Explain nursing care of patients withLymph edema							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain Nursing Management of Physiological conditions and Symptoms of Cancer Patient: Anemia, Cachexia, Xerostomia, mucositis, Dysphagia, nausea and vomiting, constipation, diarrhea, electrolyte imbalance, taste alterations.	3	3	2	3	2	3	3
CO-2-Explain Nursing Management of Physiological conditions and Symptoms of Cancer Patient. Impaired mobility: Decubitus ulcer, pathologic fractures, thrombophlebitis, pulmonary embolism, contractures, foot drop	3	3	2	3	2	3	3
CO-3- Describenursing care of patients withDyspepsia & hiccup, dyspnoea, Intestinal obstruction, Fumigating wounds. Anxiety, depression, insomnia.	3	3	2	3	2	3	3
CO-4- Describe Nursing management of cancer patients experiencing sexual dysfunction	3	3	2	3	2	3	3
CO-5- Explain Effects of radiotherapy / chemotherapy/surgery on sexuality of the cancer patient sand counselling.	3	3	2	3	2	3	3
CO-6-Explain nursing care of patients	3	3	2	3	2	3	3

with Lymph edema								
XIII (10Hrs)	At the end of the unit the students are able to –	Cancer Emergencies:						
	<p>Knowledge: Describe the emergency conditions in cancer clients.</p> <p>Skill: Demonstrate competence in identifying emergency situations in cancer clients.</p> <p>Report and intervene promptly and effectively to manage the cancer emergencies.</p> <p>Attitude: Recognizes the signs of brain metastasis and vital organ involvement in cancer and render efficient care to relieve discomfort.</p>	<ul style="list-style-type: none"> • Disseminated intravascular coagulation (DIC) • Malignant pleural effusion. • Neoplastic cardiac tamponade, septic shock, spinal cord Compression. • Superior vena cava syndrome. • Metabolic emergency: hyper and hypo calcemia. • Surgical emergency. • Urological emergency • Hemorrhage, Organ obstruction. • Brain metastasis. (8 hrs) <p>Nurses role in managing oncologic emergencies. (2 hrs)</p>						
<p>CO-1- Explain Nursing Management of Cancer Emergencies: Disseminated intravascular coagulation (DIC), Malignant pleural effusion., Neoplastic cardiac tamponade, septic shock, spinal cord Compression. Superior vena cava syndrome.</p> <p>CO-2- Explain Nursing Management of Metabolic emergency: hyper and hypo calcemia. Surgical emergency and Hemorrhage, Organ obstruction.</p> <p>CO-3- Describe Nurses role in managing oncologic emergencies</p> <p>CO-4- Describe Nursing management of Urological emergency and Brain metastasis</p>								
Course outcome		Program outcome						
		Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
		PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain Nursing Management of Cancer Emergencies: Disseminated intravascular coagulation (DIC), Malignant pleural effusion., Neoplastic cardiac tamponade, septic shock, spinal cord Compression. Superior vena cava syndrome		3	3	2	3	2	3	3

CO-2-Explain Nursing Management of Metabolic emergency: hyper and hypo calcemia. Surgical emergency and Hemorrhage, Organ obstruction	3	3	2	3	2	3	3
CO-3- Describe Nurses role in managing oncologic emergencies	3	3	2	3	2	3	3
CO-4- Describe Nursing management of Urological emergency and Brain metastasis	3	3	2	3	2	3	3
XIV (08Hrs)	At the end of the unit the students are able to – Knowledge: Understand the need for and explain the techniques involved in crisis intervention and stress management for the clients with cancer. Skill: Practices various spiritual and alternative treatment modalities for management of stress in cancer case. Participates in crisis interventions for cancer clients. Attitude: Provide culturally congruent care to the dying cancer client.		Psycho-Social Aspects of Nursing Care: <ul style="list-style-type: none"> Psychological responses of patients with cancer. Psychosocial assessment. Crisis intervention, coping. Stress management, spiritual/cultural care and needs. Counseling: individual and family. Maximizing quality of life of patient and family. (3 hrs) Ethical, moral and legal issues: (3 Hrs) <ul style="list-style-type: none"> End of life care Grief and grieving process Bereavement support. Care of Nurses who care for the dying. (2 hrs)				
CO-1- Explain Psychosocial assessment. Crisis intervention, coping. Stress management, spiritual/cultural care and needs. CO-2-Explain Maximizing quality of life of patient and family in cancer CO-3- Describe nursing care of dying patient and Bereavement support. CO-4- Describe Care of Nurses who care for the dying CO-5- Explain Grief and grieving process, Counseling: individual and family and psychological responses of patients with cancer							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7

CO-1- Explain Psychosocial assessment. Crisis intervention, coping. Stress management, spiritual/cultural care and needs.	3	3	2	3	2	3	3
CO-2-ExplainMaximizing quality of life of patient and family in cancer	3	3	2	3	2	3	3
CO-3- Describenursing care of dying patient and Bereavement support.	3	3	2	3	2	3	3
CO-4- Describe Care of Nurses who care for the dying	3	3	2	3	2	3	3
CO-5- Explain Grief and grieving process, Counseling: individual and family and psychological responses of patients with cancer	3	3	2	3	2	3	3
XV (2Hrs)	At the end of the unit the students are able to – Knowledge: Understand the significance of practice standards, policies and protocols. Skill: Frame policies and protocols for the oncology nursing unit. Attitude: Provide suggestions for the improvement of functioning of oncology unit.			Layout & Design of an oncology institution / ward, OPD, chemotherapy unit, Bone marrow, transplantation unit, Pain clinic etc. (1Hr) <ul style="list-style-type: none"> Practice Standards of oncology nursing. Policies and Procedures Establishing Standing orders and Protocols. Quality Assurance Programme in oncology units Nursing audit (1 hr) 			
CO-1- Explain Practice Standards of oncology nursing, Policies and Procedures and Quality Assurance Programme in oncology							
CO-2-ExplainLayout & Design of an oncology institution / ward, OPD, chemotherapy unit, Bone marrow, transplantation unit, Pain clinic							
CO-3- DescribeEstablishing Standing orders and Protocolsin oncology							
Course outcome	Program outcome						
	Clinician/Nurse educator	Professional	Communicator	Leader and member of the health care team and system	Lifelong learner	Critical thinker	Researcher
	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO-1- Explain Practice Standards of oncology nursing, Policies and Procedures and Quality Assurance Programme in oncology	3	3	3	3	2	3	3
CO-2-Explain Layout & Design of	3	3	2	2	2	3	3

an oncology institution / ward, OPD, chemotherapy unit, Bone marrow, transplantation unit, Pain clinic							
CO-3- Describe Establishing Standing orders and Protocols in oncology	3	3	2	3	2	3	3

