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**DIPLOMA IN MEDICAL RADIOGRAPHY (DMRT)**

# SYLLABUS THEORY

1. **Radiation Physics**
   * Structure of matter and atoms
   * Particle and electromagnetic radiation
   * Radioactivity and nuclear Raeations
   * Production of Xrays
   * Clinical Radiation generators.
   * Measurement of Ionizing radioation
   * Quality of X ray beams
   * Measurement of absorbed dose
   * Dose distribution and scatter analysis
   * System of dosimetric clculatins
   * Treatment planning and isodose curves
   * Brachyterpay

# Pathology

* + Molecular biology of cancer
  + Etiology of cancer
  + Epidemiology of cancer
  + Cancer Genetica and Tumour immunology
  + Grading and staging of Tumours
  + Laboraatory Diagnosis of cancer
  + Pathological features of individual cancers

# Radiotherapy

* + Cancer Statistics- world wide & India
  + Cancer Registries & National Cancer Control Programme
  + Analysis of data in cancer registries
  + Regional Cancer Centers
  + Cancer Screening & Prevention
  + Patient Care
  + Assessment & referral systems for radiotherapy
  + Care & evaluation during & after treatment
  + Emergencies in Oncology
  + Radiotherapeutic Management of different malignancies
  + Radiotherapy for non malignant conditions
  + Treatment Response & Result
  + Guidelines for treatment response assessment.
  + Complete Response, Partial Response, No response, Stable disease.

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* + Treatment related morbidity assessment
  + Radiation morbidity (early & late)
  + Morbidities of combined treatment
  + Grading of morbidity

# Cancer Chemotherapy

* + Basic Principles of chemotherapy.
  + Chemotherapy drugs.
  + Newer chemotherapeutic agents.
  + Basic for designing different chemotherapy schedules. Standard chemotherapy schedules.
  + Chemotherapy practice in various malignancies.
  + Chemotherapy practice & results/toxicities in sequential & concomitant chemoradiotherapy.
  + Supportive care for chemotherapy.
  + The basic principles underlying the use of chemotherapeutic agents.
  + Classification and mode of action of cytotoxic drugs. The principles of cell kill by chemotherapeutic agents, drug resistance, phase specific and cycle specific action.
  + Drug administration. The general principles of pharmacokinetics; factors affecting drug concentration ‘in vivo’ including route and timing of administration, drug activation, plasma concentration, metabolism and clearance.
  + Principles of combinations of therapy, dose response curves, adjuvant and neo-adjuvant chemotherapy, sanctuary sites, high dose chemotherapy, and regional chemotherapy.
  + Toxicity of drugs. Early, intermediate and late genetic and somatic effects of common classes of anticancer drugs. Precautions in the safe handling of cytotoxic drugs.
  + Endocrine manipulation and biological response modifiers. An understanding of the mode of action and side effects of common hormonal preparations used in cancer therapy (including corticosteroids).

# Diagnostic Radiology and Nuclear Medicine

* + Radiographic diagnosis of malignant and non malignant conditions.
  + Radiological Procedures with reference to Radiotherapy practices.
  + Study of Ultrasound, CT Scans, MRI Scans, PET scans, as applicable for management of cancer.
  + Other nuclear imaging and therapeutic modalities as applicable to management of cancer.