DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT)

DURATION -2 YEAR, ELIGIBITY-12 PASS.

DIPLOMA IN MEDICAL RADIOTHERAPY (DMRT)

SYLLABUS

THEORY

A. 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

B. 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

C.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.

• 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.