

KIDWAI MEMORIAL INSTITUTE OF ONCOLOGY

(Government of Karnataka – Autonomous Institute)

Dr.M.H.Marigowda Road, Bangalore 560 029

PROSPECTUS

M.Sc. (Radiation Physics)

Kidwai Memorial Institute of Oncology is an Autonomous Institute under Government of Karnataka, situated in a vast area of about 20 acres on M.H.Marigowda road, Bangalore. It is a premier 550 bedded Institute for the treatment of Cancers. It has been accorded 'Regional Cancer Centre' status by Government of India. The Institute is affiliated to Rajiv Gandhi University of Health Sciences, Karnataka. The Institute is actively involved in cancer treatment, Research and Teaching. The institute has full-fledged Radiation Oncology, Surgical Oncology and Medical Oncology divisions catering the needs of the cancer patients. The supporting departments such as Radiation Physics, Microbiology, Pathology, Biochemistry etc. are also well equipped and performing with extensive research work. Some of the important post graduate courses that are been conducted in the Institute are M.Ch. (Surgical Oncology), D.M., (Medical Oncology), M.D., (Radiotherapy), and DNB programmes. M.Sc. (Oncology Nursing) course will be conducted from the current academic year. The Institute also offers Ph.D. programmes in most of the departments. The under graduate programmes in Medical Lab Technology, Radiotherapy, Radiodiagnosis, OT Technology, Anaesthesia Technology were also conducted in the Institute.

Department of Radiation Physics:

The Radiation Physics Department is a well equipped department of Kidwai Memorial Institute of Oncology with qualified teaching faculty and supporting staff. The department provides medical physics support to Radiation Oncology, Nuclear Medicine, Radio-diagnosis departments of KMIO and Regional centre for Radiopharmaceuticals, BRIT, KMIO campus. The department is recognized to carry out research in the field of medical physics by Rajiv Gandhi University of Health Sciences. The department conducts Medical Physics classes for M.D. (Radiotherapy), B.Sc. Radiotherapy Technology and Radio-Diagnosis technology programmes. At present about 5 candidates are pursuing their Ph.D degree in the department. Students from Babha Atomic Research Centre- Mumbai, Anna University - Chennai, Bharathiar University- Coimbatore undertake their field training programme in the department. The M.Sc. (Radiation Physics) programme will be conducted by the expert faculties of the Radiation Physics department. The M.Sc. Programme is recognized by the Atomic Energy Regulatory Board, Mumbai.

Master of Science M.Sc. (Radiation Physics) degree:

Scope of the Programme:

Medical physicists are concerned with three areas of activity: clinical service and consultation, research and development, and teaching. On the average their time is distributed equally among these three areas.

Many medical physicists are heavily involved with responsibilities in areas of diagnosis and treatment, often with specific patients. These activities take the form of consultations with physician colleagues. In radiation oncology departments, one important example is the planning of radiation treatments for cancer patients, using either external radiation beams or internal radioactive sources. An indispensable service is the accurate measurement of the radiation output from radiation sources employed in cancer therapy. In the specialty of nuclear medicine, physicists collaborate with physicians in procedures utilizing radionuclides for delineating internal organs and determining important physiological variables, such as metabolic rates and blood flow. Other important services are rendered through investigation of equipment performance, organization of quality control in imaging systems, design of radiation installations, and control of radiation hazards. The medical physicist is called upon to contribute clinical and scientific advice and resources to solve the numerous and diverse physical problems that arise continually in many specialized medical areas.

Medical physicists play a vital and often leading role on the medical research team. Their activities cover wide frontiers, including such key areas as cancer, heart disease, and mental illness. In cancer, they work primarily on issues involving radiation, such as the basic mechanisms of biological change after irradiation, the application of new high-energy machines to patient treatment, and the development of new techniques for precise measurement of radiation. Significant computer developments continue in the area of dose calculation for patient treatment and video display of this treatment information. Particle irradiation is an area of active research with promising biological advantages over traditional photon treatment. In heart

disease, physicists work on the measurement of blood flow and oxygenation. In mental illness, they work on the recording, correlation, and interpretation of bioelectric potentials.

Medical physicists are also concerned with research of general medical significance, including the applications of digital computers in medicine and applications of information theory to diagnostic problems; processing, storing, and retrieving medical images; measuring the amount of radioactivity in the human body and foodstuffs; and studying the anatomical and temporal distribution of radioactive substances in the body.

Medical physicists are also involved in the development of new instrumentation and technology for use in diagnostic radiology. These include the use of magnetic and electro-optical storage devices for the manipulation of x-ray images, quantitative analysis of both static and dynamic images using digital computer techniques, radiation methods for the analysis of tissue characteristics and composition, and the exciting new areas of computerized tomography and magnetic resonance imaging for displaying detailed cross-sectional images of the anatomy. Medical physicists are also engaged in research and development on imaging procedures utilizing infrared and ultrasound sources.

Often medical physicists have faculty appointments at universities and colleges, where they help train future medical physicists, resident physicians, medical students, and technologists who operate the various types of equipment used to perform diagnosis and treatment. They also conduct courses in medical physics and aspects of biophysics and radiobiology for a variety of graduate and undergraduate students.

Intake capacity: 5 students per year

Duration of study:

The duration of the course shall be on full time basis for a period of three years from the commencement of the academic term (two years of degree programme with one year compulsory internship). The internship should be carried out in Kidwai Memorial Institute of Oncology or its associated Institutes. The degree will be conferred by Rajiv Gandhi University of Health Sciences, Karnataka.

Eligibility for Admission:

Candidates who have passed final year of B.Sc., Science stream examination in first class with Physics as major subject by a recognized university within India and the candidates who are in their final year/semester also may apply, subject to the condition that they have to produce the course completion certificate with first class at the time of admission to the course.

Selection Criteria:

The short listed candidates will have to appear for a personal interview in the Institute. The selection procedure would be carried out by the selection committee constituted by the Director. The final selection list will be displayed in the academic cell notice board of the Institute.

Eligibility certificate:

No candidate shall be admitted for the postgraduate degree course unless the candidate has obtained and produced the eligibility certificate issued by the university. The candidate has to make the application to the university with the following documents along with the prescribed fee.

Pass/Degree certificate issued by the parent university.

Marks card of all the university examinations passed.

Migration certificate.

Certificate of conduct.

Proof of SC/ST or category-I as the case may be.

Candidate should obtain the eligibility certificate before the last date of admission as notified by the university.

Medium of instruction:

English shall be the medium of instruction for the subjects of study as well as for the examination.

Certification by Regulatory Agency:

The candidates passing the degree are eligible to work as a Medical Physicist in any of the medical institutions. However to discharge the duties of Radiological Safety Officer (RSO) in addition to the responsibilities of a Medical Physicist the candidate need to get **RSO certification** from Atomic Energy

Regulatory Board (AERB), Mumbai, after successful completion of M.Sc. (Radiation Physics) degree programme.

Application:

Application form with the prospectus can be obtained in person on payment of Rs.500/- (Rupees five hundred only) by way of Demand Draft favoring "The Director, KMIO" payable at Bangalore. However if the candidates wish to take the application through post, the candidates shall submit the Demand Draft for Rs.500/- along with a self addressed envelope of 25cm x 31 cm size with postage stamp of Rs.35/- (Rupees thirty five only).

Fee Structure:

The annual course fee of Rs.60,000.00 (Rupees sixty thousand per year) for the course is to be paid at the beginning of each academic year. The other fee such as University Examination fee has to be paid separately as per Rajiv Gandhi University of Health Sciences Regulations. The hostel accommodation charges are to be paid separately as per KMIO norms.

Hostel facility:

Limited hostel facility is available with nominal rates in the P.G.Hostel situated in the campus; hostel will be allotted subject to the availability and vacancy prevailing at the time of admission. However hostel facility is not guaranteed for all the candidates admitted under the programme.



DIRECTOR

**Karnal Memorial Institute of Oncology
Bangalore - 560 028**