

Master of Science in Medical Imaging Technology
Program code: 071430

INTRODUCTION

The Department of Radiologic Sciences, Faculty of Allied Health Sciences offers a Master of Science program in Medical Imaging Technology. The Master of Science in Medical Imaging Technology (MSc-MIT) will be a 2-year full time programmed mainly for qualified & practicing imaging technologists who are currently working in or who will be able to work in CT, MRI, SPECT/CT or PET/CT imaging at their respective hospitals, however candidates can join the program on part-time basis as well. Language of instruction is English, will provide them with the knowledge and understanding necessary to become effective imaging technologists. The technologists will be expected to apply the knowledge and understanding, they acquire during the programmed, in their workplace. The programmed will also prepare the technologists to engage in a higher level of decision making associated with the advanced practices in medical imaging procedures.

According to the University Council decision dated 4/2/2007, Thesis students admitted with effect from September 2007 are exempted from the comprehensive examination.

PROGRAM REQUIREMENTS (non-thesis option in parenthesis)

37 TOTAL COURSE CREDITS

19 COMPULSORY COURSES (Credits in parenthesis)

0510-501	Biostatistics and Computer in Medicine	(2)
0714-501	Principles of Advanced Imaging with Ionising Radiation	(3)
0714-502	Advanced Cross-sectional Anatomy	(3)
0714-503	Research Methods	(2)
0714-504	Principles of Advanced Imaging with Non-ionising Radiation	(3)
0714-505	Image Interpretation and Pathology	(3)
0714-506	Advanced Digital Image Processing & Analysis	(3)

9 ELECTIVE COURSES

3 TRACK I:

0510-502	Advanced Biostatistics	(1)
0510-504	Radiotracer Methodology in Biological Research	(2)
0540-521	Basic Molecular Biology	(1)
0555-505	Radiobiology and Radiation protection	(1)
0566-540	Epidemiology I	(3)
0566-550	Biostatistics I	(3)
0566-562	Ethics in Public Health Practices and Research	(1)

0570-507	Diagnostic Cancer Research	(2)
2000-501	Scientific writing and communication skills	(3)
2000-503	Ethics and Professionalism	(2)

6 TRACK II:

0714-507	Imaging Procedures in CT	(3)
0714-508	Imaging Procedures in MRI	(3)
0714-509	Imaging Procedures in PET & SPECT	(3)

9 COMPULSORY COURSES

0714-597	Thesis	(0)
0714-598	Thesis	(0)
2000-599	Thesis	(9)

COURSE DESCRIPTION

0714-501: PRINCIPLES OF ADVANCED IMAGING WITH IONISING RADIATION
CR: 3

The course is designed to impart an understanding of the advanced physical principles and instrumentation involved in diagnostic imaging using ionising radiation. Operation of tomographic imaging systems, such as Computed tomography (CT), multi-slice CT (MSCT), SPECT/CT and PET/CT will be covered.

0714-502: ADVANCED CROSS-SECTIONAL ANATOMY
CR: 3

The course is a detailed study of gross anatomical structures, conducted systematically for location, relationship to other structures and their functions. Gross anatomical structures in axial (transverse), sagittal, coronal and orthogonal (oblique) planes will be compared using MRI, CT, SPECT/CT and PET/CT images.

0714-503: RESEARCH METHODS
CR: 2

The course introduces scientific methods in health-science research, focusing on the major steps of the research process. It covers areas like critical evaluation of research literature, basic elements of research process and will guide students to develop a research proposal.

0714-504: PRINCIPLES OF ADVANCED IMAGING WITH NON-IONISING RADIATION
CR: 3

This course provides the student with a comprehensive knowledge in the principles of advanced imaging using non-ionising radiations. Topics include the nuclear magnetic resonance imaging (MRI) and diagnostic ultrasound imaging and their associated scanning modes. Techniques of image acquisition, acquisition parameters and their effect on image quality will be covered in the course.

0714-505: IMAGE INTERPRETATION AND PATHOLOGY
CR: 3

Common diseases and conditions diagnosable via Tomographic Imaging (TI) are covered in this course. Each disease or trauma process will be examined from its description, etiology, associated symptoms and diagnosis with appearance in tomographic images.

0714-506: ADVANCED DIGITAL IMAGE PROCESSING & ANALYSIS
CR: 3

This course covers advanced digital image processing techniques used for the analysis of images. It features practical image processing tasks that are commonly performed with medical images

and covers the advantages different image processing techniques.

0714-507: IMAGING PROCEDURES IN CT
CR: 2

The course presents and demonstrates anatomical positioning and adaptation for diagnostic imaging of body systems in CT. Students will be given opportunities to practice correct anatomical positioning and image acquisition techniques.

0714-508: IMAGING PROCEDURES IN MRI
CR: 3

This course provides students with imaging techniques related to MRI and covers specific clinical application, such as coil selection, scan sequences and patient positioning. Anatomical structures and the plane that best demonstrates anatomy are discussed.

0714-509: IMAGING PROCEDURES IN PET & SPECT
CR: 3

The course covers aspects of Single Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) imaging with simultaneous registration of cross-sectional images provided by CT. This course is designed to develop the knowledge base from which graduates can develop skills in SPECT/CT and PET/CT imaging.

0714-597: THESIS
CR: 0

0714-598: THESIS
CR: 0

2000-599: THESIS
CR: 9