

# Program of Medical Imaging Sciences

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Coordinator and Assistant Professor:

Saade, Charbel

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*This program is run in coordination with the Department of Diagnostic Radiology at the Faculty of Medicine.*

The mission of the Medical Imaging Sciences (MIS) Program is to provide students excellence in imaging education. MIS aims to produce academically and clinically competent radiographers who will become patient advocates in their field and perform their duties with empathy and respect towards all patients.

For graduation, all students must obtain a minimum grade of 70 in each of MIMG 201, MIMG 206 and MIMG 207; and a cumulative average of 70 in the major field of study.

## Course Description

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**MIMG 201 Introduction to Medical Imaging 2.0; 2 cr.**  
 An overview of the field of radiologic technology and its role in health care delivery. Students are oriented to academic and administrative structure, and the profession as a whole. Basic principles of radiation protection are introduced. The ethical and legal responsibilities of the profession are discussed. *First term.*

**MIMG 202 Imaging Physics 3.0; 3 cr.**  
 A course that focuses on AC generators, DC motors, transformers, and rectification of AC. An introduction to modern physics, production of x-rays, x-ray interactions, radioactivity, production of radionuclides, and health physics. *Summer.*  
*Prerequisite: PHYS 205.*

**MIMG 203 Medical Imaging Equipment I 3.0; 3 cr.**  
 An introduction to various image-detecting and processing systems; description of analogue and digital detection systems. A detailed study of the x-ray tubes with methods of kV, mA, exposure time control, and control of scattered radiation. *First term. Prerequisite: MIMG 202.*

**MIMG 204 Medical Imaging Equipment II 3.0; 3 cr.**  
 A detailed study of the equipment design and function in: Image Intensification, Breast Imaging, Nuclear Medicine/PET, Computed Tomography, Ultrasonography and Magnetic Resonance Imaging. *Second term. Prerequisite: MIMG 203.*

**MIMG 205 Introduction to Principles of Diseases 3.0; 3 cr.**  
 An introduction to pathology that focuses on nature and causes of diseases, diseases of the gastrointestinal and hepato-biliary systems, genito-urinary, and endocrine systems. A study of diseases of the nervous system, skeletal system, respiratory, cardio-vascular, and hematopoietic diseases; miscellaneous diseases related to nutrition and immune system. This course offers students information on the pathologic appearance of common diseases on a variety of diagnostic imaging procedures. *First term. Prerequisite: PHYL 246.*

**MIMG 206 Principle of Imaging I 3.0; 3 cr.**  
 An introduction to radiographic procedures, radiographic nomenclature, positioning aids, and accessory equipment. This course also provides a description of radiographic procedures pertaining to upper and lower extremity, shoulder girdle, and pelvis; and a description of the radiographic procedures pertaining to the thorax, the vertebral column, the cranium, facial bones, and forensic radiography. *Prerequisite: MIMG 201 and HUMR 246.*

**MIMG 206L Principle of Imaging I Laboratory 0.4; 2 cr.**  
 A clinical training course in general and emergency radiography within controlled conditions.

**MIMG 207 Principle of Imaging II 3.0; 3 cr.**  
 An overview of contrast materials used in imaging. This course also provides a study of imaging procedures related to gastrointestinal, hepato-biliary, genitor-urinary and respiratory systems. Breast imaging techniques and interventional procedures related to different systems are discussed. *First term. Prerequisite: MIMG 206.*

**MIMG 208 Sectional Anatomy 3.0; 3 cr.**  
 A study of the sectional anatomy of the head, neck, thorax, abdomen, pelvis, and extremities. *Second term. Prerequisite: HUMR 246.*

**MIMG 209 Quality Management and Image Analysis 3.0; 3 cr.**  
 This course focuses on the quality assurance and quality control of the imaging systems. Emphasis is placed on quality assessment of diagnostic equipment/procedures. *Second term. Prerequisites: MIMG 204 and MIMG 207.*

**MIMG 210 Research Project 3.0; 3 cr.**  
**Offered as MIMG 210A: Research Project I 0 cr.**  
**and MIMG 210B: Research Project II 1.4; 3 cr.**  
 The course will help the students to effectively analyze data from various resources to evaluate and improve professional practice, and to promote growth in the profession. Students will consider in their research, amongst others, ethical issues related to clinically based research, and the importance of enquiry into issues which cross professional boundaries. *Second term. Prerequisites: EPHD 203 and EPHD 213.*

Below are descriptions of the required courses offered by the department of Diagnostic Radiology at the Faculty of Medicine.

**DGRG 220 Clinical Practicum I 0.12; 2 cr.**  
Clinical training in General Radiography, Mobile Radiography and Emergency Radiography within the Department of Diagnostic Radiology. *Summer (6 weeks).*  
*Prerequisite: MIMG 201.*

**DGRG 230 Clinical Practicum II 0.12; 4 cr.**  
Clinical training in General Radiography, Mobile Radiography, Emergency Radiography and General Fluoroscopy within the Department of Diagnostic Radiology. *First term (12 weeks).*  
*Prerequisite: DGRG 220.*

**DGRG 240 Clinical Practicum III 1.8; 2 cr.**  
Clinical training in General Radiography, General Fluoroscopy, Digital Subtraction Angiography/Interventional (DSA), Breast Imaging, Operating Theatre, Computed Tomography, General Ultrasound, Nuclear Medicine, Magnetic Resonance Imaging within the Department of Diagnostic Radiology. *Second term (12 weeks).*  
*Prerequisite: DGRG 230.*

**DGRG 250 Clinical Practicum IV 0.12; 2 cr.**  
Clinical training in DSA/interventional (Digital Subtraction Angiography/Interventional), Breast Imaging, CT (Computed Tomography), U/S (Ultrasonography) and Imaging in the operating theatre. *Summer (6 weeks).*  
*Prerequisite: DGRG 240.*

**DGRG 260 Clinical Practicum V 1.12; 4 cr.**  
Clinical training in Breast Imaging, CT (Computed Tomography), U/S (Ultrasonography) and MRI (Magnetic Resonance Imaging). *First term (12 weeks).*  
*Prerequisite: DGRG 250.*

**DGRG 270 Clinical Practicum VI 1.12; 4 cr.**  
Clinical training in CT (Computed Tomography), MRI (Magnetic Resonance Imaging) and NM/PET (Nuclear Medicine/Positron Emission Tomography). *Second term (12 weeks).*  
*Prerequisite: DGRG 260.*

Modes of Analysis	Languages (9)	Humanities (12)	Social Sciences (12)	Natural Sciences (7)	Quantitative Thought (5)	Major Courses (29+18)	Other required courses
Lecture Course (9+12+12+7+5+29+8)	<ul style="list-style-type: none"> <li>Required Arabic Course: (3)</li> <li>Required English Courses: ENGL 203(3), 204(3)</li> </ul>	<ul style="list-style-type: none"> <li>PHIL 205(3)</li> <li>3 Electives(9)</li> </ul>	<ul style="list-style-type: none"> <li>PSYC 201(3)</li> <li>HMPD 204(3)</li> <li>HPCH 203(3)</li> <li>Elective(3)</li> </ul>	<ul style="list-style-type: none"> <li>PHYL 246(4)</li> <li>PHYS 205(3)</li> </ul>	<ul style="list-style-type: none"> <li>EPHD 203(3)</li> <li>EPHD 213(2)</li> </ul>	<ul style="list-style-type: none"> <li>MIMG 201(2), 202(3), 203(3), 204(3), 205(3), 206(3), 207(3), 208(3), 209(3), 210(3)</li> </ul>	<ul style="list-style-type: none"> <li>HUMR 246(3)</li> <li>NURS 201(2)</li> <li>Free Elective(3)</li> </ul>
Lab (2)					<ul style="list-style-type: none"> <li>EPHD 203(3)</li> <li>MIMG 206L(2)</li> </ul>		
Research Project (1)					<ul style="list-style-type: none"> <li>EPHD 213(2)</li> </ul>		
Practical Training (18)						<ul style="list-style-type: none"> <li>DGRG 220(2), 230(4), 240(2), 250(2), 260(4), 270(4)</li> </ul>	