King Faisal Specialist Hospital & Research Centre
5th Annual Radiological Physics Review Course

Date
From: Saturday June 13th, 2009
To: Wednesday June 24th, 2009

Contact Information
Mr. Abdulraheem Al-Malki
Phone: (1) 464-7272 x 38499
Fax: (1) 442-7793
Email: aamalki@kfshrc.edu.sa

Organized by
Department of Radiology & Biomedical Physics Department
King Faisal Specialist Hospital & Research Centre

CME accreditation by
Saudi Council for Health Specialties

Course sponsored by
GE HealthCare

Venue
Radiology Conference Room
Department of Radiology

Registration Fees
Early Registration: 1,400 (full), 140 (day session) SAR
Late Registration: 1,600 (full), 160 (day session) SAR

Early Registration Deadline
13 Jumada Al-Thani 1430 (June 6th, 2009)
Radiology is arguably the most technology dependent specialty in medicine, and it has seen monumental changes over the past decade. Computer integration with constant technical innovations has changed the workplace and influenced the role Radiology plays in the diagnosis and treatment of disease. Radiologists and technologists need to understand the technology and the physical principles that constitute the advantages, govern the limitations, and determine the risks of the imaging equipment being use.

Radiologic physics is not an esoteric subject of abstract equations and memorized definitions but rather the total process of creating and viewing a diagnostic image. This process is influenced by a range of physical principles that need to be comprehended to better understand their clinical applications.

This radiological physics review course will cover the medical imaging modalities of: conventional and digital radiography (DR), conventional and digital fluoroscopy, computed radiography (CR), conventional and digital mammography, multi-slice computed tomography (CT), ultrasound (US), magnetic resonance imaging (MRI), positron emission tomography (PET), PET/CT, nuclear medicine (NM), SPECT/CT and bone densitometry. In addition to the above, modality specific image processing techniques will also be reviewed. Because most of these imaging modalities employ ionizing radiation, radiation exposure to patients and staff is of concern, so radiobiology and radiation protection principles must also be reviewed.

The course has been designed to help prepare Radiology residents for the radiologic physics portion of their board and registry examinations. It provides a source for comprehensive self-study in the area of diagnostic radiologic physics. The material presented assumes a background of instruction in radiologic physics and is not intended to replace a standard radiologic physics textbook. This course provides a concise yet complete source of review to refresh and reinforce the concepts of radiological physics expected of residents and fellows in Radiology.

Even though this course is primarily targeting Radiology residents; technologists, medical & health physicists and vendor engineers can also attend pending on seat availability. Radiology residents will be given seating priority.

**EDUCATIONAL OBJECTIVES**

- To review radiologic physics concepts
- To understand modality specific imaging chains and associated technology
- To review the technical parameters that can affect image quality and radiation dose
- To understand the differences between conventional and digital mammography
- To review digital radiography (DR) and computed radiography (CR)
- To review digital image processing techniques
- To review modality specific image artifacts
- To review new coming terminologies
- To review radiobiology and radiation protection principles
- To use gained knowledge to solve RAPHEX examination questions

**WHO SHOULD ATTEND?**

The course has been designed to help prepare Radiology residents for the radiologic physics portion of their board and registry examinations. It provides a source for comprehensive self-study in the area of diagnostic radiologic physics. The material presented assumes a background of instruction in radiologic physics and is not intended to replace a standard radiologic physics textbook. This course provides a concise yet complete source of review to refresh and reinforce the concepts of radiological physics expected of residents and fellows in Radiology.

Even though this course is primarily targeting Radiology residents; technologists, medical & health physicists and vendor engineers can also attend pending on seat availability. Radiology residents will be given seating priority.

**APPLICATION & INQUIRES**

Applications and inquires should be directed to the course secretary at the following address:

Attention: Mr. Abdulraheem Al-Malki
King Faisal Specialist Hospital & Research Centre
Department of Radiology, MBC #28
P.O. Box 3354
Riyadh, 11211, Kingdom of Saudi Arabia

Contact Information

Phone: 966-1-442-7272 ext. 38499
Fax: 966-1-442-7793
Email: aamalki@kfshrc.edu.sa
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<thead>
<tr>
<th>Time</th>
<th>DAY 1</th>
<th>DAY 2</th>
<th>DAY 3</th>
<th>DAY 4</th>
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<tbody>
<tr>
<td>08:00 – 08:30</td>
<td>Registration</td>
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<tr>
<td>08:30 – 09:00</td>
<td>Course Opening</td>
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<td>09:00 – 09:45</td>
<td>Basic Atomic Physics</td>
<td>F/S Radiography &amp; Film Processing</td>
<td>Fluoroscopy</td>
<td>Ultrasound Physics</td>
<td>CT Technology (Part 1)</td>
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<td>09:45 – 10:30</td>
<td>X-ray Production</td>
<td>Image Quality (Contrast)</td>
<td>Conventional Mammography</td>
<td>Ultrasound Transducers</td>
<td>CT Technology (Part 2)</td>
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<td>10:30 – 10:45</td>
<td>Coffee Break</td>
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<tr>
<td>10:45 – 11:30</td>
<td>X-ray Tube Output Characteristics</td>
<td>Image Quality (Noise)</td>
<td>Digital Mammography (Part 1)</td>
<td>Ultrasound Instrumentation</td>
<td>Multi-slice CT Technology</td>
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<tr>
<td>11:30 – 12:15</td>
<td>X-ray Interactions (Part 1)</td>
<td>Image Quality (Resolution)</td>
<td>Digital Mammography (Part 2)</td>
<td>Clinical Ultrasound</td>
<td>CT Dose Parameters</td>
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<td>12:15 – 13:00</td>
<td>Lunch Break</td>
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<tr>
<td>13:00 – 13:45</td>
<td>X-ray Interactions (Part 2)</td>
<td>Digital &amp; Computed Radiography</td>
<td>Mamography Quality Assurance</td>
<td>Doppler Ultrasound</td>
<td>Image Reconstruction</td>
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<td>13:45 – 14:30</td>
<td>X-ray Radiography Scatter Control</td>
<td>Digital Fundamentals &amp; Image Processing</td>
<td>Mamography Artifacts</td>
<td>Ultrasound Artifacts</td>
<td>CT Artifacts</td>
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<td>14:30 – 14:45</td>
<td>Coffee Break</td>
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<th>Time</th>
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<tr>
<td>09:00 – 09:45</td>
<td>MR Introduction (Part 1)</td>
<td>Pulse Sequences (Part 3)</td>
<td>Basic Nuclear Physics</td>
<td>Radiation Protection (Part 1)</td>
<td>GE LightSpeed CT750 HD Update with New AW Workstation Demonstration</td>
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<tr>
<td>09:45 – 10:30</td>
<td>MR Introduction (Part 2)</td>
<td>Pulse Sequences (Part 4)</td>
<td>Gamma Cameras</td>
<td>Radiation Protection (Part 2)</td>
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<td>10:30 – 10:45</td>
<td>Coffee Break</td>
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<td>11:30 – 12:15</td>
<td>Image Parameters</td>
<td>MRI Advanced Techniques (Part 2)</td>
<td>Introduction to PET</td>
<td>RAPHEX Question Review</td>
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<td>12:15 – 13:00</td>
<td>Lunch Break</td>
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<td>Lunch (GE Provided)</td>
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<td>13:00 – 13:45</td>
<td>Instrumentation</td>
<td>MRI Spectroscopy</td>
<td>PET/CT &amp; Artifacts (Technical)</td>
<td>Radiobiology (Part 1)</td>
<td>General Topics of Discussion</td>
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<td>13:45 – 14:30</td>
<td>MRI Safety &amp; Hazards</td>
<td>MRI Artifacts</td>
<td>PET Artifacts (Clinical)</td>
<td>Radiobiology (Part 2)</td>
<td>Certificate Distribution &amp; Official Closure</td>
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<td>Coffee Break</td>
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<td>14:45 – 15:30</td>
<td>Pulse Sequences (Part 1)</td>
<td>RAPHEX Question Review</td>
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<td>15:30 – 16:15</td>
<td>Pulse Sequences (Part 2)</td>
<td>RAPHEX Question Review</td>
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**FACULTY**

**KFSH&RC SPEAKERS**

Biomedical Physics Department
- Abdalla Al-Haj, PhD
- Adnan Al-Watban, PhD
- Ghazi AlSbeih, MD PhD
- Costas Chantziantoniou, MSc DABR
- Nabil I’Qilan, MSc
- Omer Demirkaya, PhD

Radiology Department
- Moheieldin Abouzeid, MD
- Rita Pant, MD

**LOCAL SPEAKERS**

- Abdullah Abu Jamea, PhD
- MRI Unit Supervisor & Physicist
- King Khalid University Hospital, Riyadh
It is the responsibility of the participant to make local hotel accommodations. Please note single females will need to provide a letter from their employer to hotel management concerning their stay in Riyadh.

To advance register for the course, please complete the attached registration form and fax/mail it to:

5th Annual Radiological Physics Review Course
King Faisal Specialist Hospital & Research Centre
Department of Radiology
P.O. Box 3354, MBC #28
Riyadh, 11211, Kingdom of Saudi Arabia

Attention: Mr. Abdulraheem Al-Malki

The registration fee to attend the full physics refresher course is 1,600 SAR (1,400 SAR prior to early registration deadline), whereas, the registration fee for any one-day session of attendance is 160 SAR (140 SAR prior to early registration deadline).

Registration fees are to be paid in cash on site on Saturday June 13th 2009 during the course registration period 08:00 – 08:30 am. Registration fees for one-day sessions are due at the beginning of each session.

Interested attendees are urged to advance register so that seating is guaranteed; only the first 72 registrants will be accepted.

Refresher course early registration deadline is on:

13 Jumada Al-Thani 1430 (June 6th, 2009)

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Application will be made to have the course material approved for Saudi Council for Health Specialties CME credits. The total number of accredited hours will be announced at the end of the course.

All participants will be provided with a CD-ROM consisting of all course material (lectures and RAPHEX examination questions/answers). ONLY participants that have registered in advance will be given the option (must indicate on registration form) to also receive a hardcopy binder at an added cost of 100 SAR. This provision has been added to allow the institution sufficient time to prepare the hardcopy binders prior to course commencement.

We gratefully acknowledge support of this program by the following organization(s):

Saudi Council for Health Specialties
GE HealthCare

We would like to thank GE HealthCare for being this years’ course sponsor and for also contributing to the course educational content.

GE LightSpeed CT750 HD

Non – HDCT

HDCT