Biomedical Physics Department

"Course on Quality Control of Gamma Cameras and Dose Calibrators Systems"

3 – 7 November 2024

Day One: Sunday 3 Nov. 2024

0900 – 1000 Registration
1000 – 1020 Opening and Introduction to the Course
1020 – 1050 Pre-Test
1050 – 1120 Lecture 1: The Role of Medical Physicist in Nuclear Medicine **(Mr. AlMazrou)**
1120 – 1200 Lecture 2: Dose Calibrators and their Quality Control **(Ms. Razan Al-Fakhranee)**
1200 – 1330 Prayer and Lunch Break
1330 – 1410 Lecture 3: Introduction to the Gamma Camera (**Mr. Alanazi**)
1410 – 1450 Lecture 4: Quality Assurance in Nuclear Medicine (**Mr. AlMazrou**)
1450 – 1530 Lecture 5: Description of the Precision, Accuracy, Constancy, Linearity, Geometry and Relative Response Tests **(Mr. Shadei Alanazi)**
1530 – 1600 Prayer and Break
1600 – 1900 **Practical 1**: Precision, Accuracy, Constancy, Linearity, Geometry and Relative Response Tests **(Mr. AlMazrou, Mr. Alanazi and Ms. Al-Fakhranee)**

Day Two: Monday 4 Nov. 2024

1000 – 1040 Lecture 6: Results and Presentations of **Practical 1 (Mr. Alanazi)**
1040 – 1120 Lecture 7: SPECT and SPECT/CT Systems **(Mr. AlMazrou)**
1120 – 1200 Lecture 8: ImageJ and IAEA-NMQC toolkit **(Mr. Alanazi)**
1200 – 1330 Prayer and Lunch Break
1330 – 1430 Lecture 9: Gamma Camera and SPECT Performance Characteristics (**Mr. AlMazrou)**
1430 – 1530 Lecture 10: Description of Energy Windowing, Intrinsic Energy Resolution, Intrinsic Uniformity, Intrinsic Resolution (Bar Phantom), Spatial Linearity, Extrinsic Uniformity, Extrinsic Resolution (Bar Phantom), Whole Body Resolution (Bar Phantom) and Collimator Hole-Angulation Tests **(Mr. AlMazrou)**
1530 – 1600 Prayer and Break
1600 – 1900 **Practical 2**: Energy Windowing, Intrinsic Energy Resolution, Intrinsic Uniformity, Intrinsic Resolution (Bar Phantom), Spatial Linearity, Extrinsic Uniformity, Extrinsic Resolution (Bar Phantom), Whole Body Resolution (Bar Phantom) and Collimator Hole-Angulation Tests **(Mr. AlMazrou, Mr. Alanazi and Ms. Al-Fakhranee)**

Day Three: Tuesday 5 Nov. 2024

1000 – 1100 Lecture 11: Results and Presentations of **Practical 2 (Mr. Alanazi)**
1100 – 1200 Lecture 12: Purchasing and Acquisition Procedures of a Gamma Camera System **(Mr. AlMazrou)**
1200 – 1330 Prayer and Lunch Break
1330 – 1430 Lecture 13: CT Physics and Quality Control **(Mr. Alanazi)**
1430 – 1530 Lecture 14: Description of Extrinsic Resolution, Input, Observed and Maximum Count Rates, Sensitivity, Centre of Rotation and SPECT Resolution in Air Tests **(Mr. AlMazrou)**
1530 – 1600 Prayer and Break
1600 – 1900 **Practical 3**: Extrinsic Resolution, Input, Observed and Maximum Count Rates, Sensitivity, Centre Of Rotation and SPECT Resolution in Air Tests **(Mr. AlMazrou, Mr. Alanazi and Ms. Al-Fakhranee)**

Day Four: Wednesday 6 Nov. 2024

1000 – 1100 Lecture 15: Results and Presentations of **Practical 3, (Mr. AlMazrou)**
1100 – 1200 Lecture 16: Gamma Camera Image Artifacts **(Mr. AlMazrou)**
1200 – 1330 Prayer and Lunch Break
1330 – 1430 Lecture 17: Radiation Protection in Nuclear Medicine **(Mr. Omar Noor)**
1430 – 1530 Lecture 18: Description of Total Performance, Detector-Detector Count Variation, Accuracy of Image Registration and Accuracy of Attenuation Correction Tests **(Mr. AlMazrou)**
1530 – 1600 Prayer and Break
1600 – 1900 **Practical 4**: Total Performance, Detector-Detector Count Variation, Accuracy of Image Registration and Accuracy of Attenuation Correction Tests **(Mr. AlMazrou, Mr. Alanazi and Ms. Al-Fakhranee)**

Day Five: Thursday 7 Nov. 2024

0900 – 1000 Lecture 19: Results and Presentations of **Practical 4, (Mr. AlMazrou)**
1000 – 1100 Lecture 20: Suggested Quality Control Program for the Kingdom **(Mr. Alanazi)**
1100 – 1130 Post-Test
1130 – 1200 Course Evaluation and Certificate Handling

End of Course