

## Global Medical Physics Continuing Education Course Syllabus (subject to change)

**Course Objective:** This course will provide continuous education for practicing medical physicists. It is co-organized by the Education Global Medical Physics Education and Training Cmte (GMPETC) of the American Association of Physicists in Medicine (AAPM), and the Nigerian Association of Physicists in Medicine (NAMP). The objective is to provide a refresher on didactic material and enhance fundamental knowledge of medical physics

**Audience:** Approximately 100 currently practicing medical physicists in all disciplines in Nigeria who have a broad range of training backgrounds

**Format:** Nineteen weekly virtual lecture and discussion sessions (1.5 hours), coupled with pre-read materials (~2-3 hours per week), and graded homework assignments.

**When:** Saturdays at 11am Eastern Time, Apr 29 – Sep 30, 2023

### Lecture expectations:

- 1.5 hours of lecture and discussion via a virtual platform on the specified topic, split approximately 45 minutes of lecture and 45 minutes of discussion
- Prepare pre-reading material, utilizing either freely available resources or materials created specifically for this course
- Complete homework assignments that will be distributed after the lecture and graded
- Participate in a mid-course and final assessment

### Course Outline:

DATE	TOPIC	LECTURER
Apr 29	Concepts of image quality	
6-May	Radiography + Fluoroscopy	
13-May	Computed tomography	
20-May	SPECT + PET + Nuclear medicine	
3-Jun	Magnetic resonance imaging	
10-Jun	Ultrasound imaging	
17-Jun	Dosimetry and dosimeters for diagnostic imaging	
24-Jun	Cavity theory + Calibration of megavoltage photon and electron beams – TRS 398	
8-Jul	Calibration of megavoltage photon and electron beams – TRS 398	
15-Jul	Dosimeters + measurement of ionizing radiation for radiation therapy	
29-Jul	Radiobiology	
5-Aug	EBRT: LINACs, PDD/TMR, beam profiles	
12-Aug	Dose calculation, MUs	
19-Aug	3D dose calculation	
26-Aug	Brachytherapy	

9-Sep	Radiation Protection Part 1: Principles + Regulations and occupational dose limits + Handling radioactive material	
16-Sep	Radiation Protection Part 2: Shielding methods and requirements + Radiation survey equipment	
23-Sep	Informatics	
30-Sep	Ethics and professionalism	

Course resources:

Khan FM. The Physics of Radiation Therapy. 5th ed. Philadelphia: Wolters Kluwer; 2014.

Bushberg JT, Seibert JA, Leidholdt EM Jr., Boone JM. The Essential Physics of Medical Imaging. 3rd ed. Philadelphia: Wolters Kluwer; 2012.

Cherry SR, Sorenson JA, Phelps ME. Physics in Nuclear Medicine. 4th ed. Philadelphia: Elsevier; 2012.

AAPM Virtual Library: <https://www.aapm.org/vl/>