CHRIST
COLLEGE (AUTONOMOUS)
IRINJALAKUDA, KERALA
Reaccredited by NAAC with 'A' grade

DEPARTMENT OF PHYSICS
CERTIFICATE COURSE DETAILS

NAME OF THE COURSE

Introduction to biomedical imaging techniques

COURSE CODE

CPCC22

OFFERED BY

Department of Physics

COURSE COORDINATOR

Dr. Sudheer Sebastian K

COURSE DETAILS

40 hr course (30 hrs theory+ 10 hrs of lab visit) 15 week course.
Two hrs per week. Course fee: Rs. 2500

ABOUT COLLEGE

Chirst College (Autonomous), Irinjalakuda established in the year 1956 by CMI fathers has always been aplace where young generations are moulded towards a bright future. College has excellent infrastructure, with state of the art laboratories, seminar rooms and lecture halls. The campus is Wi-Fi enabled. Presently Collge is house for 4500+ students, 200 teaching staff and 45 supporting staff. The strength of the College lies in its hardworking and tech savvy teachers who are eager to involve in all matters of students. The lush green campus with gardens and open gym is moving towards the next phase on education both offline and online.

WHAT IS THE COURSE?

The course introduces students to various medical imaging techniques and physics and technology behind working of equipment used for this purpose. The course also contrasts advantages and drawbacks of various imaging techniques.

WHAT IS THE COURSE?

Students completing this course can go for higher studies in medical imaging technology related subjects.
Can work in diagnostic labs as assistants.
Can guide family members and others in choosing appropriate diagnostic tool.

LEARNING OUTCOMES

To understand Projection X-ray Imaging
To understand Computed Tomography(CT) Imaging
To understand Ultra sound Imaging
To understand Magnetic resonance Imaging
To understand other Imaging techniques

COURSE OUTLINE

Various imaging technologies used in medical diagnostics. Physics and technology behind X-ray imaging, CT imaging, Ultra sound imaging, magnetic resonance imaging and various other imaging tools are discussed. Pros and corns and hazards related with imaging are also discussed.

COURSE MODULES

Module 1: Projection X-ray Imaging (5hrs) Radiation, Electrons and ionization, Equipment, examples and adverse effects, Detecting and diagnosing bone fractures.

Module 2: Computed Tomography(CT) Imaging(5hrs) Terminology and Equipments, Sinograms, Image building exercise, Image reconstruction, Artifacts, Pros & Cons.

Module 3: Ultra sound Imaging(5 hrs) System architecture, Components and terminology, Refraction and Sound speed, Image formation and typical uses, Artifacts , Advanced methods, Pros & Cons

Module 4: Magnetic resonance Imaging(10 hrs) System overview, Magnet properties and precession, Coils, flipping protons, larmor frequency , Farady induction, Obtaining contrast,Examples, Artifacts, Pros & Cons.

Module 5: Other Imaging techniques(5 hrs) Nuclear medicine functional imaging techniques positron emission tomography (PET) and Single-photon emission computed tomography (SPECT) and endoscopy Course also includes 10 hrs of medical imaging lab visit to familiarize with various imaging techniques.

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VALUE ADDED - CHRIST COLLEGE (AUTONOMOUS), IRINJALAKUDA