SEM-3

VRM-301 Principles and Components of CT

Objective - The objective is to find out the Working principle, construction & clinical application of Computed Tomography. CT instrumentation – gantry system, console system, recording and display system. Image reconstruction technique – pre and post processing technique.

UNIT - 1 Description of CT, its Working Mechanism & Physical Principles, Limitations of radiography and conventional tomography, Data acquisition geometry and data processing, CT numbers and the linear attenuation coefficient. High kVp CT

UNIT - 2

- CT numbers and the gray scale of the CT image.
- Window Width (WW)
- Window Level (WL)
- Format of the CT image.
- Field of view (FOV), pixel size and matrix size.
- Identify the equipment components that make up a CT

UNIT - 3 Types of CT scan Equipment, Conventional CT Scanning (CCT), Spiral/Helical CT Multi Slice CT, Electron Beam Computed Tomography, Mobile Computed Tomography, Importance of various types of CT, Differences between various types, Indication of a particular type

UNIT - 4 Major systems of a CT scanner, Instrumentation, Image Display, Room Layout for CT Equipment, CT gantry (including the x-ray tube and generator, as well as the data acquisitions system), and the basic features of the patient table., CT computer and image processing system, Image display, storage, and recording in CT.

Recommended Books:

- Step by step CT Karthikeyan D
- Seeram E. Computed Tomography-E-Book: Physical Principles, Clinical Applications, and Quality Control. Elsevier Health Sciences; 2015 Sep 2.
- Seeram E. Computed tomography: physical principles and recent technical advances.
- Journal of Medical Imaging and Radiation Sciences. 2010.