

In the last decade, computed tomography technology has progressed significantly. Multi-detector row CT (MDCT) scanners are becoming commonly available and are fast replacing single detector row CT (SDCT) scanners. Some of the advantages of MDCT over SDCT include faster acquisition speeds, isotropic resolution, improved 3D images and potential decrease in radiation dose. More and more exams are being done with CT now than ever before. MDCT is also becoming used in many instances as a screening tool.

MDCT has given rise to several new applications some of which are becoming increasingly popular such as cardiac CT. With MDCT, it is now possible to scan the heart in fine detail with short scan times. There are various ways in which the exam can be conducted either to get functional information or anatomical information which have tradeoffs with radiation dose.

This lecture will review the history of CT, multi-detector technology, its advantages and disadvantages, overview of automatic tube current modulation as well as aspects of cardiac CT application.

Educational objectives:

1. Understand the physics of MDC Technology
2. Appreciate the advantages and disadvantages of MDCT
3. Understand how automatic tube current modulation works
4. Comprehend how CT is used for cardiac scanning
5. Recognize the advantages and disadvantages of cardiac CT