الكلية التقنية الهندسية
قسم هندسة تقنيات الأجهزة الطبية

DIGITAL X-RAY SYSTEM

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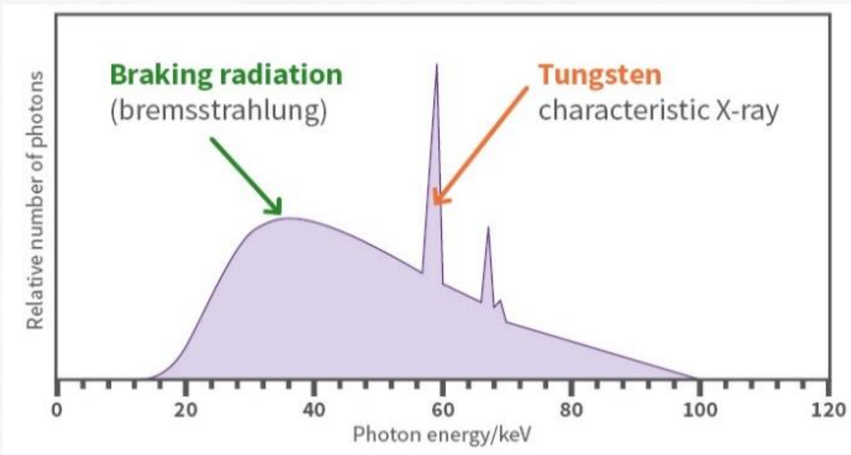
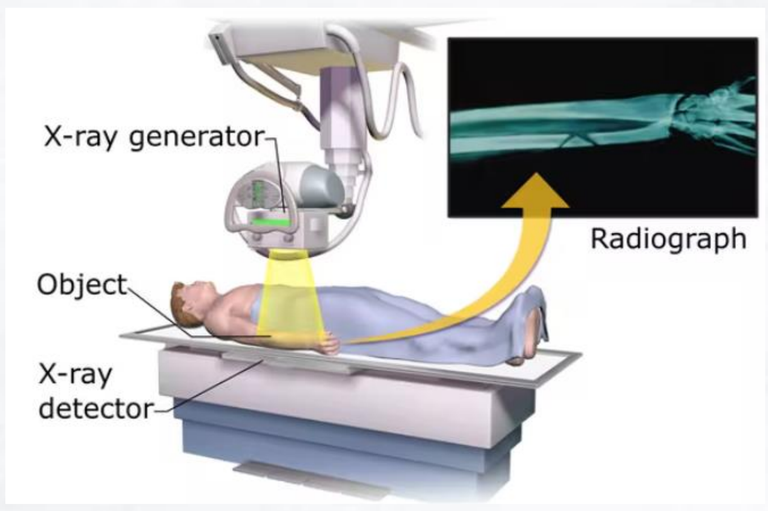
INTRODUCTION :

X-rays are a type of electromagnetic wave radiation. X-ray images show the parts of your body in different shades of black and white. This is because different tissues absorb different amounts of radiation. Calcium in bones absorbs x-rays the most, so bones look white. Fat and other soft tissues absorb less and look gray. Air absorbs the least, so the lungs look black.



X-RAY OPERATION :

X-ray imaging exams are recognized as a valuable medical tool for a wide variety of examinations and procedures. They are used to: noninvasively and painlessly help to diagnose disease and monitor therapy; support medical and surgical treatment planning; and guide medical personnel as they insert catheters, stents, or other devices inside the body, treat tumors, or remove blood clots or other blockages.



To create a radiograph, a patient is positioned so that the part of the body being imaged is located between an x-ray source and an x-ray detector. When the machine is turned on, x-rays travel through the body and are absorbed in different amounts by different tissues, depending on the radiological density of the tissues they pass through.

X-RAY COMPONENTS :

1. X-Ray Tube
2. High-Voltage Generator
3. Control console
4. Cooling system
5. Collimator
6. Bucky
7. Chest Stand
8. AEC (Automatic Exposure Control)
9. Image Receptor
10. Detector

X-RAY APPLICATIONS :

1. Medical Diagnostics
2. Pharma Quality
3. Material inspection
4. Security
5. Medical Treatment
6. Electronics Inspection
7. Heavy Industry
8. Food Safety