בס"ד

עקרונות הדמיה ברפואה

Principles of Medical Imaging

336502

Updated: Sept. 16 2020

Instructor: Assoc. Prof. Haim Azhari
TA: Gadi mendel
TA – Homework: Noam Freundlich

Consultation Hours will be determined later

Scope: 2 Hours lecture,
1 Hour Frontal Exercise

Credit: 2.5 Points

Course TOPICS

1. **Introduction –** *Basic definitions.*
2. **X-rays –** *Physical background, Scatter mechanisms, Applications.*
3. **Introduction to Tomography- Back projection.**
4. **Algebraic Reconstruction Tomography (ART).**
5. **Computerized Tomography (CT) –** *Slice Theorem, FBP.*
6. **Gamma Camera –** *Nuclear Medicine, Eng. Principles.*
7. **Single Photon Emission Computerized Tomography (SPECT).**
8. **Positron Emission Tomography (PET).**
9. **Magnetic Resonance Imaging (MRI).**
10. **Ultrasonic Imaging.**

Bibliography:

1. Haim Azhari; John A Kennedy; Noam Weiss; Lana Volokh: "From Signals to Image: A Basic Course on Medical Imaging". Springer, 2020

– Electronic version available at the Technion Library

2. Kak and Slaney

Pre-requisites:

104223 – Partial Differential Equations and Fourier Series
044130 - Signals and Systems

Mark

90% Final Exam
10% Homework assignments – Submission is Mandatory!

Important Note: Homework mark will be included only for those passing the exam!
i.e.:
55% Mark for undergrads
65% Mark For Graduate students