

TKB213202

Biomedical Imaging

Teknik Pencitraan Biomedis

BASIC INFORMATION

Course Credit [sks]	2 / 100 minutes per Week
Course Type	Required
Course Classification	Engineering Topics
Prerequisites	-

STUDENT AND LEARNING OUTCOMES

Covered Student Outcomes

Fundamental and Engineering Knowledge (a)	-
Modern Tools Utilization (e)	Choose Student Outcome

Learning Outcomes

- LO1** Students are able to understand the fundamentals of biomedical imaging technique. [CPMK 1: Mahasiswa mampu memahami konsep dasar teknik pencitraan biomedis].
- LO2** Students are able to understand the basics of signal processing, linear systems, and Fourier theory. [CPMK 2: Mahasiswa mampu memahami konsep dasar pengolahan isyarat, sistem linear, dan teori Fourier].
- LO3** Students are able to understand the concepts of physics and biomedical imaging instrumentation. [CPMK 3: Mahasiswa mampu memahami konsep fisik dan instrumentasi pencitraan biomedis].
- LO4** Students are able to understand characteristics of biomedical image. [CPMK 4: Mahasiswa mampu memahami karakteristik citra biomedis].

COURSE DESCRIPTION

This course does not have any prerequisites. It introduces signal processing methods, instrumentations, the physics principles of imaging engineering methods used in the medical imaging, and characteristic of biomedical image.

DESKRIPSI MATAKULIAH

Matakuliah ini tidak memiliki prasyarat. Ini memperkenalkan metode pengolahan sinyal, instrumentasi, prinsip fisika metode rekayasa pencitraan yang digunakan dalam pencitraan medis, dan karakteristik citra biomedis.

TOPICS

1. History of biomedical imaging techniques. (Sejarah Teknik Pencitraan Biomedis)
2. Basics of signal processing, linear systems, and Fourier theory. (Konsep Dasar Pengolahan Isyarat, Sistem Linear, dan Teori Fourier).
3. Basic digital image (Dasar Citra Digital)
4. Biomedical Imaging techniques and concepts. (Teknik dan Konsep Pencitraan Biomedis).
5. X-Ray Imaging (Pencitraan X-Ray)
6. CT-Scan Imaging (Pencitraan CT-Scan)
7. Nuclear Imaging (Pencitraan Nuklir)
8. Ultrasound Imaging (Pencitraan Ultrasound)
9. MRI and fMRI Imaging (Pencitraan MRI dan fMRI)
10. Microscopic Imaging (Pencitraan Mikroskopis)

REFERENCES

1. Prince, J. L., & Links, J. M. (2015). Medical imaging signals and systems. Boston: Pearson.