

COURSE OUTLINE

Chapter One: Introduction to Medical Signal Processing

1. Origins of biomedical signals
2. Challenges in biomedical signal acquisition, processing and interpretation
3. Review of discrete-time signals; Fourier and Z-transforms
4. Digital Filter design and medical applications.

Chapter Two: Stationary Random Signal Modeling and Application

1. Basic concepts in probability and statistics
2. Introduction to stochastic systems; autocorrelation and power spectral density
3. Parametric and nonparametric modeling of signals
4. Higher order statistics and uses in medicine.

Chapter Three: Introduction to Non-stationary Signals and Processing techniques

Chapter Four: Adaptive Processing of Biomedical Signals

Chapter Five: Emerging techniques in Biomedical Signal Processing

Chapter Six: Application Case Studies