

**SUBJECTS FOR THE FOURTH MIDTERM TEST
BIOPHYSICS (DENTISTRY) 2017/2018.**

Physical methods in bio-molecular studies

Light emission, light absorption measurement
Microscopy, Abbe's principle
Confocal microscope, two-photon microscope
Scanning probe microscopy
Atomic force microscopy

Medical signal processing

Classification of the signals, signal-to-noise ratio, decreasing the noise
Signal level, concept of decibel
Fourier's theorem
High-pass and low-pass filter circuits
Amplifier (transfer characteristics, feed-back)
Digitalization of signals, Nyquist-Shannon sampling theorem
Discriminators
Displays

Transport processes

Fluid flow (Bernoulli's law, Hagen – Poiseuille law), laminar and turbulent flow

Topics from laboratory practices

ECG
Pulse generator
Isotope diagnostics
Audiometry

Chapters: *Damjanovich-Fidy-Szöllösi:* III/1, VI/2.2, VI/3.1, VI/3.3, VII/1, IX/4, IX/5, X/2, X/3.1
Lab. manual: 12, 19, 22, 24
Problems: 41, 42, 44, 56, 57, 58, 67, 68 + further calculations related to ECG, pulse generator, audiometry and isotope diagnostics