

Design of Bio-Medical Virtual Instrumentation, 336540

Syllabus

- Introduction to the design of computer-based (software) virtual instruments:
 - Introduction to LabVIEW Programming. Basic programming architecture.
 - Generalized composition of biomedical instrumentation.
 - Basic concepts of data acquisition.
 - Constraints of biomedical measurement.
 - BioSignals visualization. “Scope” mode, data processing for “trend” mode.
 - Signal (stimulus) Generation.
 - Methods of streaming acquired data to disk and off-line manipulations.
- Advanced Topics:
 - Acquiring data from different laboratory instrumentation using additional PC-Instruments interfaces (e.g., RS232, USB).
 - Error handling (hardware error, system alarms).
 - Modular programming
- Applications of programming, signal transduction, data acquisition, data analysis in the design of medical and laboratory instrumentation.

Grading:

- 20% Homework (4 HW assignments)
- 80% Project