

APA 4314

Laboratory Schedule

- 1. Frequency Analysis of Signals**
 - Fourier series, harmonic analysis, Fast Fourier Transform (FFT)
 - BioProc3
 - Fourier series reconstruction

- 2. Data Smoothing**
 - Moving average
 - RMS
 - Digital filtering

- 3. Vicon Motion Capture**
 - Vicon Workstation
 - uOttawa Marker Set

- 4. Digitizing and Modelling**
 - Trajectory evaluation and repair
 - Body segment parameters
 - Modelling with Visual3D

- 5. Force Platform Analysis (Kistler)**
 - Force histories, centre of pressure paths and force vectors
 - Impulse analysis and impact analysis

- 6. Gait Analysis**
 - Gait characteristics
 - Mechanical Energy Analysis

- 7. Inverse Dynamics**
 - Net moments and forces
 - Moment power analysis

- 8. Electromyography: Isometric Contractions**
 - Electrode placement
 - Analog data processing (rectification, linear envelope, integration)

- 9. Electromyographic Kinesiology: Dynamic Contractions**
 - Digital data processing and analysis using BioProc3
 - Frequency analysis
 - Fatigue analysis
 - Cumulative Amplitude Probability Distribution Function (CAPDF)