PROPOSAL OF THESIS TOPIC FOR MGR INŻ. (MSE) PROGRAMME IN TELECOMMUNICATIONS AND COMPUTER SCIENCE

1. Topic: DSP Based System for Measuring Frequency Response of Electronic Circuits

2. Supervisor: Paweł Pełczyński, PhD

3. Auxiliary supervisor:

4. Goals and scope of the work:

The goal of the project is development of software application for frequency response measurement. This application will be uploaded to DSP development board with audio codec. Test signal will be produced by sweeping sinusoidal signal through the specified bandwidth. The response of device under test (electronic, analogue filter) will be captured and analysed to obtain its magnitude and phase. The project assumes digital synthesis of test signal and its D/A conversion. Filter response will be A/D converted and captured in DSP memory for further analysis. Obtained frequency response will be presented as Bode or Nyquist plot. Measurements of known filter types will verify developed technique.

5. Prerequisites (e.g. experience in writing programs in a computer language or knowledge of a foreign language):

Knowledge of C programming language, basics of DSP and audio signal conversion.

6. Literature:

[1] Julius O. III Smith, "Introduction to Digital Filters: with Audio Applications", Stanford University, 2007 (available online: http://ccrma.stanford.edu/~jos/filters/).

[2] Andrzej Materka, "Analog Electronics, Lecture Notes", Technical University of Lodz, 1998.

[3] R. Chassaing, Digital Signal Processing and Applications with the C6713 and C6416 DSK, Wiley Publishers 2005.

Łódź, 2009-06-01   *Supervisor's signature*

THESIS TOPIC SELECTION ACKNOWLEDGMENT

Student's name:_____ Student's ID_____

Faculty: _____

Main subject/major/module: _____

Date and student's signature   Supervisor's signature