

TOPICS FOR LABORATORY COLLOQUIUM

Lab no. 1: DATA ACQUISITION AND PROCESSING

- Defining and verifying the accuracy class using the standard instrument method;
- Estimation of partial random errors (Gauss and Student Distribution);
- Calculating and expressing the measurement result; The histogram ;

Lab no. 2: ELECTRICAL MEASUREMENT METHODS: BRIDGE AND COMPENSATION METHODS

- The Wheatstone bridge: the bridge ratio, the bridge factor, the transfer law, the nominal resistance, the measuring range and the bridge errors: construction errors and sensitivity errors;
- Constant current compensation methods: the Feussner compensator; the Kelvin-Varley compensator;
- Voltage measurement using the Feussner compensator.

Lab no. 3: STUDY AND EVALUATION OF PERFORMANCES OF THE DIGITAL MULTIMETER

- Dual slope digital voltmeter;
- Verification of the accuracy class using the standard signal method;
- Measuring the series rejection ratio (SMRR).

Lab no. 4: THE OSCILLOSCOPE

- About the oscilloscope: block diagram, operation;
 - Probes for oscilloscopes;
 - Using the oscilloscope in measurements;
- A. Using Oscilloscope for Voltage Measurements;
- B. Frequency, phase shift and modulation degree measurement.

Lab no. 5: VECTOR MEASUREMENTS

- Impedance measurement using the resonance: the Q-meter
- Impedance measurement using the vector impedance meter
- Impedance measurement using the vector voltmeter