

## Course Syllabus

1. Course number and name: 020PP1NI2 Physics Laboratory 1
2. Credits and contact hours: 2 ECTS credits, 1x2:30 Lab. hours
3. Instructor's or course coordinator's name: Hagop Tawidian
4. Specific course information
  - a. catalog description:

Resonance in series RLC circuit, Transfer function and Bode plot, Resistance and impedance measurements, Series RC circuit and Zener diode, measuring electric fields, Measuring magnetic fields, Single degree of freedom oscillator, Stirling engine, Focometer, Prism.
  - b. prerequisites: None
  - c. Required/Elective/Selected Elective: Required
5. Specific goals for the course
  - a. specific outcomes of instruction
    - Analyze passive electric circuits.
    - Determine the transfer function, gain and phase shift.
    - Sketch Bode diagram.
    - Study impedance measurement and diodes characteristics.
    - Analyze the behavior of electric and magnetic fields.
    - Examine the mechanical properties on a single degree of freedom (SDOF) oscillator.
    - Apply thermodynamics' laws on Stirling engine.
    - Study converging, diverging lenses and the light spectrum.
    - Calculate experimental uncertainty.
  - b. KPIs addressed by the course.

<b>KPI</b>	a1	a2	b1	b2	b3
<b>Covered</b>	x		x	x	x
<b>Assessed</b>	x		x	x	x
<b>Give Feedback</b>	x		x	x	x

### **6. Brief list of topics to be covered and approximate number of lectures:**

1. Resonance in series RLC circuit (1 lecture)
2. Transfer function and Bode plot (1 lecture)
3. Resistance and impedance measurements (1 lecture)
4. Series RC circuit and Zener diode (1 lecture)
5. Measuring electric fields (1 lecture)
6. Measuring magnetic fields (1 lecture)
7. Single degree of freedom oscillator (1 lecture)
8. Stirling engine (1 lecture)
9. Focometer (1 lecture)
10. Prism. (1 lecture)