

## Course Syllabus

1. Course number and name: 020PP2CI3 Physics Laboratory 2
2. Credits and contact hours: 2 ECTS credits, 1x2:30 Lab. hours
3. Instructor's or course coordinator's name: Sami YOUSSEF
4. Specific course information
  - a. Catalog description  
Summing/differential amplifiers, Linear filter, Fourier analysis, Thomson tube, Acoustic waves, heat transfer, Stefan-Boltzmann's law, Two degrees of freedom oscillator, Diffraction and interferences, Light polarization.
  - b. Prerequisites: 020PP1NI2 Physics Laboratory 1
  - c. Required/Elective/Selected Elective: Required
5. Specific goals for the course
  - a. specific outcomes of instruction
    - Study electric circuits with operational amplifiers.
    - Analyze high-pass and low-pass filters.
    - Sketch Bode diagrams.
    - Analyze Fourier series.
    - Study acoustic waves.
    - Compare thermal conductivity for different materials.
    - Verify Stefan-Boltzmann law.
    - Examine the mechanical properties on a two degree of freedom (2DOF) oscillator.
    - Analyze light diffraction, interference and polarization.
    - Calculate experimental uncertainty.
  - b. KPIs addressed by the course.

<b>KPI</b>	<b>a1</b>	<b>a2</b>	<b>b1</b>	<b>b2</b>	<b>b3</b>
<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. Summing/differential amplifiers (1 lecture)
2. Linear filter (1 lecture)
3. Fourier analysis (1 lecture)
4. Thomson tube (1 lecture)
5. Acoustic waves (1 lecture)
6. heat transfer (1 lecture)
7. Stefan-Boltzmann's law (1 lecture)
8. Two degrees of freedom oscillator (1 lecture)
9. Diffraction and interferences (1 lecture)
10. Light polarization. (1 lecture)