



**JAWAHARLAL NEHRUTECHNOLOGICALUNIVERSITY: KAKINADA**  
**KAKINADA–533003, Andhra Pradesh, India**  
R-16 Syllabus for ECE .JNTUK

<b>I Year-I Semester</b>		<b>L</b>	<b>T</b>	<b>P</b>	<b>C</b>
		<b>0</b>	<b>0</b>	<b>3</b>	<b>2</b>
<b>APPLIED/ENGINEERING PHYSICS LAB (R161115)</b>					

**Prerequisite Course: Fundamental Concepts of Physics Lab**

**Description and Objectives:**

Training field oriented Engineering graduates to handle instruments and their design methods to improve the accuracy of measurements.

**Course Outcomes:**

Upon completion of the course, the student will be able to achieve the following outcomes

<b>COs</b>	<b>Course Outcomes</b>	<b>POs</b>
1	Fundamental understanding of design of an instrument with targeted accuracy for physical measurements.	2
2	Investigate the properties of Thin Films and Light sources.	2
3	Analyse the Elastic nature of materials.	2
4	Understand the phenomenon of Resonance and its effects in Electronic Circuits.	2
5	Gain the Knowledge of electrical properties of Semiconductors.	2
6	Identify the magnetic field behavior.	2

**LIST OF EXPERIMENTS:**

1. Determination of wavelength of a source-Diffraction Grating-Normal incidence.
2. Newton's rings – Radius of Curvature of Plano - Convex Lens.
3. Determination of thickness of a spacer using wedge film and parallel interference fringes.
4. Determination of Rigidity modulus of a material- Torsional Pendulum.
5. Determination of Acceleration due to Gravity and Radius of Gyration- Compound Pendulum.
6. Melde's experiment – Transverse and Longitudinal modes.
7. Verification of laws of vibrations in stretched strings – Sonometer.
8. Determination of velocity of sound – Volume Resonator.
9. L- C- R Series Resonance Circuit.
10. Study of I/V Characteristics of Semiconductor diode.
11. I/V characteristics of Zener diode.
12. Characteristics of Thermistor – Temperature Coefficients.
13. Magnetic field along the axis of a current carrying coil – Stewart and Gee's apparatus.



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14. Energy Band gap of a Semiconductor p - n junction.
15. Hall Effect in semiconductors.
16. Time constant of CR circuit.
17. Determination of wavelength of laser source using diffraction grating.
18. Determination of Young's modulus by method of single cantilever oscillations.
19. Determination of lattice constant – lattice dimensions kit.
20. Determination of Planck's constant using photocell.
21. Determination of surface tension of liquid by capillary rise method.

**REFERENCE BOOKS:**

1. Applied/Engineering Physics Lab Manual by C.V.Madhusudhan Rao & V.Vasanth Kumar, Scitech publications.
2. Applied/Engineering physics Lab Manual by M.Sri Ramarao, Mityanand Choudary & Daruka Prasad, Acme Learning Private Limited.
3. Applied/Engineering physics Lab Manual by Dr. Y.APARNA & Dr. K.VENKATESWARARAO, VGS TECHNO SERIES.