PARVATHANENI BRAHMAYYA
SIDDHARTHA COLLEGE OF ARTS & SCIENCE
Autonomous
Siddhartha Nagar, Vijayawada–520010
Re-accredited at 'A+' by the NAAC

ADVANCEDPHYSICS&OPTICS

Offered to : M.Sc.(PHYSICS)	Course Code : 22PH3L1
Course Type: Core(P)	Course: ADVANCEDPHYSICS&OPTICS
Year of Introduction : 2004	Year of offering : 2022
Year of Revision : 2022	Percentage of Revision : Nil
Semester : III	Credits : 4
Hours Taught: 60 hrs. per Semester	Max.Time : 3 Hours

Course Description:
In this course student do different experiments based on optical phenomena and some advanced concepts.

CourseObjectives:
1. Tounderstandthevariousmagneticmaterialproperties.
2. Tolearntheelectricaland opticalpropertiesofthesemiconductormaterials.
3. Toobservetheprocessofnucleardisintegrationofradioactivematerials.
4. Tounderstandthethermalpropertiesofdifferentmaterials.
5. Tolearnthethe formationofdifferent spectra.

Course Outcomes: At the end of this course, students should be able to:

CO1: Understand the different concepts of physics through experiments.
CO2: To apply the concepts of condensed mater physics to understand the properties of different materials
CO3: Determine the value of g using the concept of ESR
CO4: Determine the operating voltage of GM counter and dead time of a nuclear sample.
CO5: To analyse the results obtained from different experiments through graphical analysis.

CO-POMATRIX								
	CO-PO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**
22PH3L1	**CO1**	H					L	M
	CO2		H				L	M
	CO3			H	L		L	M
	CO4			H	L		L	M
	CO5			H	L		L	M

Syllabus

PRACTICAL–V

ADVANCEDPHYSICS&OPTICS(22PH3L1)

(Minimum10experimentsaretobedone)

1. DeterminationofRydbergconstantusingmercuryspectrum.
2. Determinationofwavelengthsofthespectrallinesofmercury spectrum usingHartmann'sdispersionformula-Prism.
3. Electronsspinresonances.
4. DeterminationofCauchy'sconstantsusingPrism.
5. Viscosity ofaliquidby oscillatingdiscmethod.
6. CharacteristiccurveofGMcounter.
7. DeterminationofCurietemperature.
8. StudyofLaserdiffraction.
9. Coefficientoflinearexpansions
10. Fourieranalysis.
11. Non-DestructiveTesting–Ultrasonic
12. Comparison ofthe experimental and Theoretical frequencies of band gaps of mono-atomicand diatomiclattices.
13. Opticalabsorptioncoefficientofsolutions
14. AnalysisofRamanspectrum.
15. Studyofinterferenceoflight(biprismorwedgefilm)
16. Anytwoonlinevirtuallabexperimentswithinthesyllabushavetobecarriedout(usingMHRDwebresource).

Reference Books:

1. Advanced practical physics Vol – I Dr. S. P. Singh
2. Advanced practical physics Vol II : DR. S.P. Singh
3. Practical Physics : Gupta, Kumar, Sharma
4. Practical Physics: P. R. Sasi Kumar
5. University Practical physics by D. C. Tayal
6. Viva – Voce in advanced physics : Gupta , Kumar, Sharma