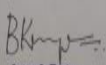


S.K.R GOVERNMENT DEGREE COLLEGE:GUDUR

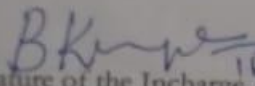
DEPARTMENT OF CHEMISTRY

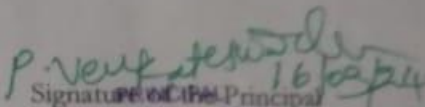
1. Name of the Activity	GUEST LECTURE
2. Name of the Lecturer	Sri.K.P.Krishana Murthy
3. Date	18.03.2024
4. Number of students participated	All MZC Students & Staff
5. Number of faculty involved	05
6. Aim & Objectives: Guest lectures are a highly useful medium to provide exceptional knowledge to students, it also adds an extra variety to the classroom routine and universities put a lot of emphasis on the importance of Guest lectures.	
7. Brief Report Our Department arranged Guest lecture programme on 18.03.2024.The Guest lecture Sri.K.P.KrishanaMurthy,Lecturerinchemistry,GovernmentDegreecollege,Rajampeta,Annamayya(D.T) he was taken a lecturer on topic Principle of spectroscopy for All MZC students in Digital class room . he was also advise the student research directions. Students felt that the session was more informative and interactive. At the end of the Guest lecturer students gave their feed back.  Lecturer In Chemistry S.K.R GOVT DEGREE COLLEGE GUDUR, ANNAMAYYA DIST SIGNATURE OF INCHARGE	

CIRCULAR

De:16.03.2024

All the teaching staff members and students are here by informed that the Department of chemistry arranged Guest lecture programme on 18.03.2024 at Digital class room-I.


Signature of the Incharge 16/3/24
Lecturer in Chemistry
S.K.R. GOVT. DEGREE COLLEGE
GUDUR, NELLORE DIST


Signature of the Principal 16/3/24
S.K.R. Govt. Degree College
GUDUR - 524 101
Tirupati Dist.

I M2 C 
II M2 C 

S.K.R GOVERNMENT DEGREE COLLEGE

Re-Accredited by NAAC with 'B' Grade
Affiliated to Vikrama Simhapuri University
Gudur, Tirupati District, Andhra Pradesh
<http://skrgdcgudur.ac.in/>

Principal: Dr. P. Venkateswarlu M.Com., M.Ed., M.Phil., Ph.D

16.03.2024

To
The Principal,
GDC RAJAMPETA
Annamayya Dist. AP.,

Sir,

In a part of academic activities the department of Chemistry is going to organize Guest Lecture Program on "*Principles of Spectroscopy*" on 18.03.2024 i.e. Monday at Chemistry Digital Class Room – I, SKR Government Degree College, Gudur for UG students. In this connection we would like to invite Sri. K. P. Krishnamurthy, Lecturer in Chemistry, Government Degree College, Rajampeta. Hence, I request you to depute the above lecturer.

Thanking you,

Yours faithfully,

P. Venkateswarlu
16/3/24
- PRINCIPAL
S.K.R. Govt. Degree College
GUDUR - 524 101.
Tirupati Dist.



Government Degree College

NAAC Accredited with 'B' Grade

Rajampeta – 516 115, Annamayya District
Andhra Pradesh

email: rajampeta.jkc@gmail.com.

Dr.B.Purushotham, M.Sc., B.Ed., Ph.D.,
Principal

Dated: 17-03-2024

RELIEVING ORDER

P.V.KRISHNA MURTHY, Lecturer in Chemistry, Govt. Degree College, Rajampeta, Annamayya Dist. is hereby relieved of his duties on **17-03-2024** AN to deliver Guest Lecture on **Spectroscopy** for the Students of **SKR GDC, GUDURU, Tirupati Dist.** as on behalf of Dept. of Chemistry the Principal, SKR GDC, GUDURU, Tirupati Dist. requested through mail (received on 16-03-2024) He is also requested to submit attendance Certificate at the time of reporting to duty in the college.

Principal

B. Purushotham
PRINCIPAL
Govt. Degree College,
RAJAMPET - 516115, Y.S.R. (Dist.)

SIGNATURE FORM FOR GUEST LECTURE

[illegible]

TOPIC:

Principles of Spectroscopy

Interaction of radiation and matter If matter is exposed to electromagnetic radiation, e.g. infrared light, the radiation can be absorbed, transmitted, reflected, scattered or undergo photoluminescence. Photoluminescence is a term used to designate a number of effects, including fluorescence, phosphorescence, and Raman scattering.

Types of Spectroscopy

Here, a few important types of spectroscopy with their properties and applications are explained below.

IR Spectroscopy

Infrared spectroscopy will mainly deal with the electromagnetic spectrum lying in the infrared region. They mainly work on absorption spectroscopy. IR spectroscopy is mainly used for identifying the chemical composition of the material. Fourier transform infrared (FTIR) spectrometers mainly use IR spectroscopy techniques. The electromagnetic spectrum of infrared is mainly classified into three types namely, near-infrared, far-infrared and mid-infrared. The near-infrared ranges between $14000\text{--}4000\text{ cm}^{-1}$, which will help to study overtone or harmonic vibrations. The mid-infrared ranges from $4000\text{--}400\text{ cm}^{-1}$, which will help to study the fundamental vibrations and associated rotational-vibrational structure. The far-infrared ranges from $400\text{--}10\text{ cm}^{-1}$, which will help to study microwave regions that have low energy and may be used for rotational spectroscopy.

UV Spectroscopy

Ultraviolet spectroscopy is also known as absorption spectroscopy or reflectance spectroscopy. The electromagnetic spectrum of the ultraviolet region lies adjacent to the infrared region. UV spectroscopy is mainly used for bacteria culture, drug identification and to check nucleic acid purity.

Mass Spectroscopy

Mass spectroscopy is mainly useful for studying the protein-protein interaction. So, Mass spectroscopy can be used for identifying biomolecules or proteins present in biological samples. The detector of these mass spectroscopy will analyse the substance based on mass and charge ratio. Here, ion deflection is mainly based on mass, velocity and charge.

Raman Spectroscopy

Usually, Raman spectroscopy works based on the absorption of photons. The Raman spectroscopy will analyze the material based on the scattering of photons at a higher or lower frequency. While photons incident the molecules or atoms, they may either gain energy or lose energy based on the vibration or rotation of the molecules. If most of the incident photons get scattered by the sample without the changes in frequency, then the scattering process is known as Rayleigh scattering. Usually, the Raman spectra will be the monochromatic visible laser. The scanning optical monochromator with a phototube is used as a detector for analysing the radiation.

Fluorescence Spectroscopy

Fluorescence Spectroscopy is one of the important types of electromagnetic spectroscopy. They are mainly used for the fluorescence of a sample. Usually, UV lights are used in fluorescence spectroscopy. Fluorescence spectroscopy is mainly used for analysing organic components in biochemical, medical, and chemical research fields. By using microfluorimetry, fluorescence spectroscopy can be adopted for the microscopic level. By using the Atomic Fluorescence Spectroscopy (AFS) techniques, we can find the compound present in air or water, or other media.

FTIR Spectroscopy

FTIR Spectroscopy is also known as Fourier-transform infrared spectroscopy. This technique is obtained by an infrared spectrum of absorption or emission of a solid, liquid or gas. FTIR spectroscopy is widely used for analysing nano and biological materials, water content determination in plastics and compositions, detectors in chromatography...etc.

Application of Spectroscopy

Spectroscopy is mainly used for studying the structure of molecules and atoms. Spectroscopy will use a large wavelength to investigate the structure and electron configurations of atoms and molecules.

Spectroscopy can also be used for finding the unknown chemical composition of materials. Spectroscopy's emission spectrum will help to concentrate on a few parts per million of a trace element in a material.

The study of the spectral emission lines will help astronomers to study distant galaxies. This will help to analyse the universe in all directions. Astronomers will also use the doppler shift of spectral lines for observations. Usually, a doppler shift will occur when the source of radiation like stars, nebula moves relative to an observer.

This article explains the principle of spectroscopy, a few important types of spectroscopy and their applications and a list of the important applications of spectroscopy in various fields are given in detail.

Examples of Spectroscopy Applications

- Monitoring diffused oxygen content in freshwater and aquatic ecosystems.
- Determining the atomic structure of a sample.
- Determining the metabolic structure of a muscle.
- Studying spectral emission lines of distant galaxies.
- Altering the structure of drugs to improve the effectiveness.