

DEPARTMENT OF CHEMISTRY

**CERTIFICATE COURSE
ON
SPECTROSCOPIC TECHNIQUES
2021-22**

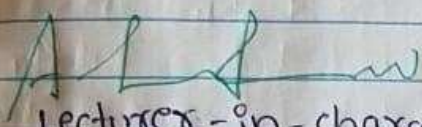


Circular

Date : ~~01/08~~ 26/01/2022

The department of chemistry is planning to conduct a certificate course on "spectroscopic techniques" for B.S.C students. Hence the interested candidates are advised to meet the incharge of the Dept. of chemistry (or) other faculty members of the Dept. of chemistry on or before 29-01-2022 and registered their names.

The course will be starts from i.e. monday and the duration of the course is 30 days. Participation / merit certificate will be issued after the successful completion of course.

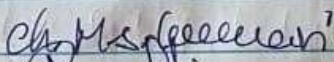
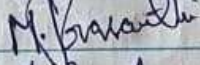


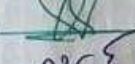
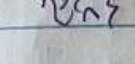


Lecturer-in-charge
Department of chemistry



Principal
Principal
Govt Degree College
Palakonda-532 440

circulated to:

- | | | |
|--------------|-------|--|
| 1. I B.S.C | M.P.C |  |
| 2. I B.S.C | C.B.2 |  |
| 3. II B.S.C | M.P.C |  |
| 4. II B.S.C | C.B.2 |  |
| 5. III B.S.C | M.P.C |  |
| 6. III B.S.C | C.B.2 |  |

Registration

27

S.NO	NAME OF THE STUDENT	COURSE YEAR/ COURSE/ GROUP	DATE OF REGISTRATION	SIGNATURE OF THE CANDIDATE
1.	Botta Sailaja	(B.Sc) MPC	27/01/2022	B. Sailaja
2.	BUDUMURU. RAJYALAKSHMI	(B.Sc) MPC	27/01/2022	B. Rajyalakshmi
3.	Dasari Uma	(B.Sc) MPC	27/01/2022	D. Uma
4.	Vammala. Geethanjali	(B.Sc) MPC	27/01/2022	V. Geethanjali
5.	Mallavarapu. Teiveni	(B.Sc) M.P.C	27-01-2022	M. Teiveni
6.	Addasari Mamatha	B.Sc (M.P.C)	27-1-2022	A. Mamatha
7.	Panduranki Hasiika	B.Sc (M.P.C)	27-1-2022	P. Hasiika
8.	Hinjarapu parani	B.Sc (M.P.C)	27-1-2022	H. parani
9.	perubothula. dhanabrami	B.Sc (M.P.C)	28-1-2022	P. dhanabrami
10.	Alubilli Lokesh	B.Sc (M.P.C)	28-1-2022	A. Lokesh
11.	BEJJIPURAM Srinu	B.Sc (M.P.C)	28-1-2022	B. Srinu
12.	Laveti. Janardhanarao	B.Sc (M.P.C)	28-1-2022	L. Janardhanarao
13.	Gurara Venkataramana	B.Sc (M.P.C)	28-1-2022	G. Venkataramana
14.	KOPPILETA Mahesh	B.Sc (M.P.C)	28-1-2022	K. Mahesh
15.	Grudivada Koteswararao	B.Sc (M.P.C)	28-1-2022	G. Koteswararao
16.	Nimmakuri. Sudheer	B.Sc (C.B.Z)	28-1-2022	N. Sudheer
17.	Karantada. prasad	B.Sc (CBZ)	29-1-2022	K. prasad
18.	P. Bharathi	B.Sc (CBZ)	29-1-2022	P. Bharathi
19.	B. chandra kida	B.Sc (C.B.Z)	29-1-2022	B. chandra kida
20.	S. chander	B.Sc (C.B.Z)	29-1-2022	S. chander
21.	S. Murthygani	B.Sc (C.B.Z)	29-1-2022	S. Murthygani
22.	R. Gowri	B.Sc (C.B.Z)	29-1-2022	R. Gowri
23.	Be. Kallanaya G. Lavanya	B.Sc (CBZ)	29-1-2022	G. Lavanya
24.	V. mahidula	B.Sc (CB.Z)	29/01/2022	V. mahidula
25.	G. Deepika	B.Sc (CB.Z)	29/01/2022	G. Deepika
26.	S. Haritha	B.Sc (CB.Z)	29/01/2022	S. Haritha
27.	A. Mamatha	B.Sc (MPC)	29-1-2022	A. Mamatha

INTRODUCTION

This course will give an introduction to modern spectroscopic techniques including time-resolved laser methods. It is target towards BSc students in chemistry, materials science, electrical engineering, and bioscience. Theory and application to chemical research problems on will be discussed, including mass spectrometry, ultraviolet and visible spectroscopy, infrared spectroscopy, Raman, fluorescence, nuclear magnetic resonance spectroscopy, time-resolved spectra including lifetime measurements, etc. Emphasis will be placed on training the students to interpret spectra and to design experiments to address questions related to selectivity, reactivity, kinetics, etc. One NMR laboratories session will allow the students to be familiar with standard operations to acquire 1D and 2D spectra. It also provides detailed information about many photo- physical processes and every possible deactivation pathways of the excited systems including organic, inorganic and nanoscales materials.

OBJECTIVIES

- Students will be able to compost in a limited space and describe the decomposing process.
- The interested students will get the knowledge of composting.
- Students will get the employment.
- They can generate employments.
- They will also turn towards quality control skills enhancement way.
- Students will be able to solve the chemical problems

- OUT COMES
- Working process: Person may establish small scale industry or a domestic business/generate employment for others
- Professional knowledge: Basic facts, process and principles applied
- Professional Skill: Demonstrate practical skill
- Core skill: Communication with oral and written mode

GENERAL INFORMATION AND COURSE STRUCTURE

1. Duration of module Training: 30 hrs
2. Entry Qualification: UG students
3. Language: English/ Telugu
4. Teaching mode: Offline and online

Distribution of training on hourly basis:

S. No	Broad theory and Practical components to be covered	Duration	Theory	Days
1	Introduction of spectroscopy and interaction of matter with wave	2	2	2
2	Rotational spectroscopy and applications	4	4	4
3	Vibrational spectroscopy and applications	12	12	12
4	NMR spectroscopy and applications	4	4	4
5	Problem solving based on UV,IR and NMR data	8	8	8
	Total	30	30	30

SYLLABUS CONTENT Detailed syllabus

Theory
Introduction to spectroscopy, Interaction of wave and radiation. Types of radiation.
Rotational spectroscopy: Selection rules, Rigid rotor, micro wave radiation, energy levels
Infrared Spectroscopy: Steady-state and time-resolved Infrared spectroscopy: from overview to potential applications
¹ H NMR study and selection rules. Magnetically active molecules. NMR problems.

INSTRUCTION METHODS

Some of the following method of delivery may be adopted

1. Lecture
2. PDF/ Video lesson
3. Demonstrations
4. Group discussions

ASSESSMENT

1. Assignments
2. Course End Examination.

Assessment Mode: Descriptive and multiple-choice answers

Examination conduction: Offline

Question paper.

1. Write the following blanks. (5X2=10M)
 - a) The radiation which used for NMR spectroscopy.....
 - b) Spin quantum number for ^1H nucleus:.....
 - c) The chemical shift value for carboxylic acid proton:.....
 - d) The units for chemical shift value: ?
 - e) Units for Coupling Constant.....?
2. Explain the following terms with simple word. (5X2=10 M)
 - 1) Spin-Spin relaxation
 - 2) Principle of NMR spectroscopy
 - 3) Magnically active numcli
 - 4) Spin-Spin coupling
 - 5) Chemical shift



GOVERNMENT DEGREE COLLEGE PALAKONDA

Affiliated to Dr BR AMBEDKAR UNIVERSITY, SRIKAKULAM

Accredited by NAAC with GRADE B



Certificate of Appreciation



This is to certify that Sri/ Smt/ kum V. Manjula,
III BSc (CZ), Government Degree College, Palakonda has successfully completed
Certificate course on "Spectroscopic Techniques" conducted
by Department of Chemistry on 08/02/22 with _____

certificate ID: CHEM SD 025

[Signature]
H/o of Chemistry
GDC - Palakonda

[Signature]
IQAC
GDC PALAKONDA

[Signature]
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