DEPARTMENT OF CHEMISTRY

CERRTIFICATE COURSE

ON

SPECTROSCOPIC TECHNIQUES

2021-22

Circular

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

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

The course will be starts from i.e. mondgy 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
Degree College
Palakonda-532 440

circulated to:

1. I B.S.C M.P.C
2. I B.S.C C.B.Z M. Bharathi
3. II B.S.C M.P.C
4. II B.S.C C.B.Z
5. III B.S.C M.P.C
6. III B.SC C.B.Z

Registration

S.NO	NAME OF THE STUDENT	COURSE YEAR/ COURSE/ GROUP	DATE OF REGISTRATION	SIGNATURE OF THE CANDIDATE
1.	Botta. Sailaja	(BSc) MPC	27/01/2022	B. Sailaja
2.	BUDUMURU. RAJYALAKSHMI	(BSc) MPC	27/01/2022	B. Rajyalakshmi
3	Dasari Uma	(BSC) mPC	27/01/2022	D. Uma
4.	Vannala. Geethanjali	(B.Sc) MPC	27/01/2022	V. Geethanjali
5.	Mallavarapu. Triveni	(B.Sc) M.P.C	27-01-2022	M. Triveni
6.	Addasani Mamatha	B.Sc (M.P.C)	27-1-2022	A. Mamatha.
7.	Pandranki Harika	B.Sc (M.P.C)	27-1-2022	P. Harika
8.	Kinjarapu pavani	B.SC (M.P.C)	27-1-2022	K. pavani
9.	penubothula. Dhanalaxmi	B.SC (MPC)	28-1-2022	P Dhanalaxmi
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.S.C (M.P.C)	28-1-2022	L. Janardhanarao
13.	Gurana Venkataramana	B.Sc (M.P.C)	28-1-2022	G. Venkataramana
14.	KOPPISETTI Mahesh	B.SC (M.P.C)	28-1-2022	K. Mahesh
15.	Gudivada koteswararao	B.SC (MPC)	28-1-2022	G. koteswararao
16.	Nimmaka. Sudheer	B.Sc (C.B.Z)	28-1-2022	N. Sudheer
17.	Kanuda. prasad	BSc (CBZ)	29-1-2022	K. Prasad.
18	P. Bharathi	BSC (CBZ)	29-1-2022	P. Bharathi
19	B. chandanala	BSc (C.B.Z	29-1-2022	B. chandanala
20.	S. chandu	BSC (C.B.Z)	29-1-2022	S. chandu
21.	S. Murthyamma	BSc (C.B.Z)	29-1-2022	S. Murthyamma
22.	R. Gowri	BSc (C.B.Z)	29-1-2022	R. Gowri
23.	G. Lavanya	BSc (CBZ)	29-1-2022	G. Lavanya
24.	V. Mahilla	BSC (CB.Z)	29/01/2022	V. Mahilla
25	G. Deepika	BSC (CB.Z)	29/01/2022	G. Deepika
26	S. Harithx	BSC (CB.Z)	29/01/2022	S. Haritha
27.	A. Mamatha	BSc (MPC)	29-1-2022	A. Mamatha

S.NO	REGD. Number	NAME OF THE STUDENT	CLASS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	TOTAL NO. OF PERIODS ATTENDED
1	CHEMSPD001	Addakula Mamatha	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
2	CHEMSPD002	Alubilli Lokesh	B.Sc (MPC)	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	28
3	CHEMSD003	Bejjipuram. Isaiah	B.Sc (MPC)	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
4	CHEMSD004	Boddupalli. Rajyalakshmi	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
5	CHEMSD005	B. chandra kala	B.Sc (CBZ)	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	27
6	CHEMSD006	Dalasi uma	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
7	CHEMSD007	Gusana Venkatasamma	B.Sc (MPC)	P	P	P	P	A	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	27
8	CHEMSD008	Gudivada. Kalakumari	B.Sc (MPC)	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
9	CHEMSD009	G. Lavanya	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
10	CHEMSD010	G. Deepika	B.Sc (CBZ)	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
11	CHEMSD011	Koppala Mahesh	B.Sc (MPC)	P	P	P	P	P	A	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	27
12	CHEMSD012	Kosanjada. Prasad	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
13	CHEMSD013	Lakshi. Tanmadhara Reddy	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
14	CHEMSD014	Mallavarapu Tejaswi	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
15	CHEMSD015	Nimmaka. Sudheer	B.Sc (CBZ)	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
16	CHEMSD016	pandranki Harika	B.Sc (MPC)	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
17	CHEMSD017	penubothula chandrani	B.Sc (MPC)	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
18	CHEMSD018	P. Bhargavi	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
19	CHEMSD019	R. Gayathri	B.Sc (CBZ)	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	27
20	CHEMSD020	Ranjasapu pavani	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
21	CHEMSD021	S. chandu	B.Sc (CBZ)	P	P	P	P	A	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	27
22	CHEMSD022	S. Haritha	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
23	CHEMSD023	S. Mahitha	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	29
24	CHEMSD024	Vamala. Geethanjali	B.Sc (MPC)	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	27
25	CHEMSD025	V. Manjula	B.Sc (CBZ)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
26	CHEMSD026	Bala Lalitha	B.Sc (MPC)	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	28
27																																		

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 ad 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 potenial applications
1HNMR 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

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Certificate of Appreciation

This is to certify that Sri/ Smt/ kum V. Manjula,
III BSc (BZ), Government Degree College, Palakonda has successfully completed
Certificate course on "Spectroscopic Techniques" conducted
by Department of Chemistry on 08/03/22 with _____

certificate ID: CHEM SD 025

H/c of Chemistry
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