



Dayanand Education Society's

**DAYANAND COLLEGE OF PHARMACY,**

Barshi Road, Latur (Maharashtra) Pin - 413531 PH-(02382)-223299, 223199

Website: [www.dayanandpharmacy.org](http://www.dayanandpharmacy.org) E-mail : [dayanandpharmacy@rediffmail.com](mailto:dayanandpharmacy@rediffmail.com)  
[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

# **CERTIFICATE COURSE ON STRUCTURAL ELUCIDATION**

## **Academic Year 2021-22**



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Shri Laxmiraman Lahoti  
President

Shri Ramesh Biyani  
Secretary

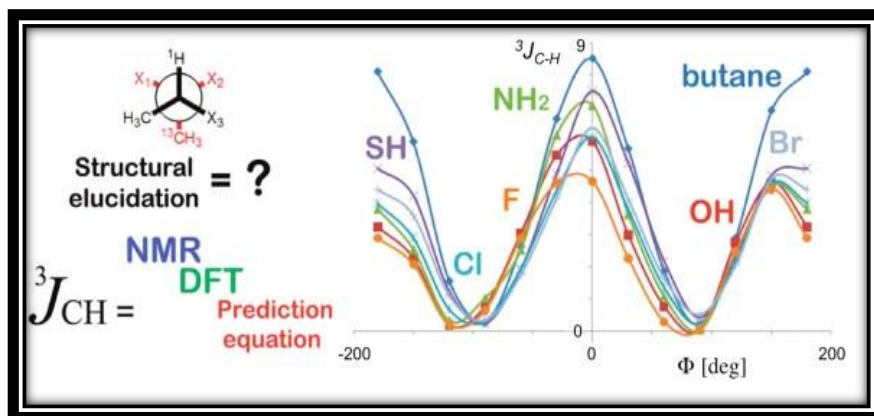
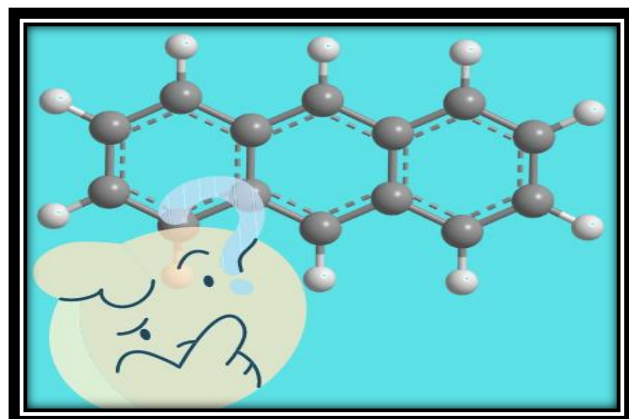
Dr. Satpute K.L.  
Principal

### CERTIFICATE COURSE ON “STRUCTURAL ELUCIDATION” (2021-22)

Time Duration 30 Hrs.

Course Duration from 27/04/2022 to 01/08/2022

Course Coordinator:- Mr. Gadgul A.B.





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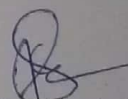
Shri Laxmiraman Lahoti  
President

Shri Ramesh Biyani  
Secretary

Dr. Satpute K.L.  
Principal

### Syllabus framing committee for certificate course on Structure Elucidation Academic Year 2021-22

| Sr. No. | Name             | Designation          | Name of College                     |
|---------|------------------|----------------------|-------------------------------------|
| 1       | Dr. Satpute K.L. | Principal            | Dayanand College of Pharmacy, Latur |
| 2       | Mr. Sonvane S.M. | Academic Incharge    | Dayanand College of Pharmacy, Latur |
| 3       | Dr. Chauhan W.N. | M. Pharm Coordinator | Dayanand College of Pharmacy, Latur |
| 4       | Mr. Gadgil A.B.  | Subject Incharge     | Dayanand College of Pharmacy, Latur |

  
Principal  
Principal  
Dayanand College of Pharmacy  
LATUR



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Shri Laxmireman Lahoti  
President

Shri Ramesh Biyani  
Secretary

Dr. Satpute K.L.  
Principal

Ref. No.: DCOP/2021-22/4146 (A)

Date: 25/04/2022

To,

Mr. Sonvane S.M.,

Academic Incharge,

Dayanand College of Pharmacy,

Latur.

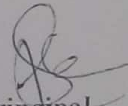
**Subject:** Invitation for syllabus framing committee of “Certificate course on Literature Review and Structural Elucidation”.

Dear Sir,

With reference to above cited subject, we are pleased to invite you as a member for syllabus framing committee of “Certificate course on Literature Review and Structural Elucidation” scheduled on dated 26/04/2022 at 04:00 pm. with this concerned, let me take pleasure in inviting you for member of our syllabus framing committee. We believed that your contribution to this certificate course will be of great benefit to our college.

Kindly accept our Invitation and oblige us with confirmation.

Thanking you.

  
Principal

Received  
Sonvane  
25/4/22.

## STRUCTURAL ELUCIDATION

### Scope:

This subject deals with the application of instrumental methods in qualitative and quantitative analysis of drugs. Elucidation of structure by UV, IR, NMR and MASS spectroscopy.

### UNIT-I: UV Spectroscopy [03 hrs]

Study of range of EMR and their parameter, Wavelength, frequency, velocity, different types of electronics transition and Woodward fisher rule for conjugated compounds.

### UNIT-II: Infrared Spectroscopy [03 hrs]

Studies of different wave number of functional group, mode of vibration in linear compound and non linear compound

### UNIT-III: Nuclear Magnetic Resonance Spectroscopy ( $^1\text{H}$ NMR) [05 hrs]

Elementary ideas (Recapitulation); Spin-spin couplings, Different types of couplings, factors affecting on coupling constants,

### UNIT-IV: Mass Spectroscopy [05 hrs]

Introduction, factors affecting on fragmentation, fragmentation of different functional groups, molecular ion peak, isotopic peaks, metastable peak, Nitrogen rule, McLafferty rearrangement and ring rule.

### UNIT-V: Thermal Analysis [05 hrs]

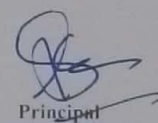
Introduction and Spectral predication of thermal analysis

### UNIT-VI: Problems based on joint applications of UV, IR, $^1\text{H}$ NMR, $^{13}\text{C}$ NMR and Mass spectroscopy.

[09 hrs]

### Reference Books:

1. Introduction to Spectroscopy: D. L. Pavia, G. M. Lampman, G. S. Kriz
2. Spectrometric Identification of Organic Compounds: R. M. Silverstein & F. X. Webster
3.  $^{13}\text{C}$  NMR Spectroscopy: G. C. Levy, R. L. Lichter, G. L. Nelson 63
4. Spectroscopic Methods in Organic Chemistry: D. H. Williams & I. Fleming
5. Absorption Spectroscopy of Organic Compounds: V. M. Parikh
6. Mass Spectrometry: K. G. Das & James
7. Coordination Chemistry by Experimental Methods: K. Barger
8. Coordination Chemistry vol. I: E. Martell
9. Physical Methods for Chemistry: R. S. Drago
10. Structural Methods in Inorganic Chemistry: E. A. V. Ebsworth & D. W. H. Rankin



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President

Shri Ramesh Biyani  
Secretary

Dr. Satpute K.L.  
Principal

Ref. No.: DCOP/2021-22/4145(A)

Date: 25/04/2022

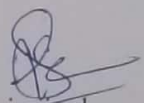
To,  
Mr. Gadgul A.B.  
Dayanand College of Pharmacy,  
Latur.

Subject: Appointment as a faculty for “**Certificate course on Structural Elucidation**”.

Dear Sir,

With the reference to above cited subject, you are appointed as a faculty for “**Certificate course on Structural Elucidation**”. College is going to start this certificate course from 27/04/2022. We will share a copy of Certificate course time-table with this letter. kindly accept it and do the needful.

With warm regards.

  
Principal  
**Principal**  
Dayanand College of Pharmacy  
Latur



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[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

Date: 25/04/2022

**NOTICE**

All the students of M. Pharmacy first year are hereby informed that college is going to start certificate course on "Structural Elucidation" so interested students enroll their name towards Mr. Gadgul A.B. on or before 27/04/2022.

Take a note of the same.

Principal

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[principaldeop@gmail.com](mailto:principaldeop@gmail.com)



**Time -Table for M.Pharm.-I [Pharmaceutics]**

Academic Year: 2021-22

Pattern: - PCI

Class: M. Pharm-I (Sem-II)

Hall No:-01

W.E.F:- 27/04/2022

| Day/ Time | 09:00am-10:00am   | 10:00am-11:00am | 11:00am-12:00pm | 12:00pm-1:00pm | 01:00-02:00 | 2:00-6:00pm  |                   |                 |
|-----------|-------------------|-----------------|-----------------|----------------|-------------|--------------|-------------------|-----------------|
| Monday    | C&C<br>SRR(S/A)   | MP<br>TSS       | ABP<br>CWN      | CADDS<br>YAA   |             | CADDS<br>YAA | C&C<br>SRR        | MP<br>TSS(S/A)  |
| Tuesday   | ABP<br>CWN(S/A)   | LR<br>TSS       | CADDS<br>YAA    | ABP<br>CWN     |             | MP<br>TSS    | C&C<br>SRR        | MP<br>TSS(S/A)  |
| Wednesday | SE<br>GAB         | ABP<br>CWN      | LR<br>TSS       | MP<br>TSS      |             | C&C<br>SRR   | CADDS<br>YAA(S/A) | ABP<br>CWN(S/A) |
| Thursday  | CADDS<br>YAA(S/A) | ABP<br>CWN      | CADDS<br>YAA    | C&C<br>SRR     |             | SE<br>GAB    | MP<br>TSS         | C&C<br>SRR(S/A) |
| Friday    | PP-II (TSS)       |                 |                 |                |             | PP-II (TSS)  |                   |                 |
| Saturday  | PP-II (TSS)       |                 |                 |                |             | Activity day |                   |                 |

| Sr. No | Name of faculty        | Subject Name                                      |
|--------|------------------------|---|
| 01     | Dr. Tiwari S.S. [TSS]  | Molecular Pharmaceutics [MP]                      |
| 02     | Dr. Chauhan W.N. [CWN] | Advance biopharmaceutics & pharmacokinetics [ABP] |
| 03     | Dr. Yelmate A.A. [YAA] | Computer aided drug delivery system [CADDS]       |
| 04     | Mr. Sarda R.R. [SRR]   | Cosmetic & Cosmeceuticals [C&C]                   |
| 05     | Dr. Tiwari S.S. [TSS]  | Pharmaceutics Practical-II [PP-II]                |
| 06     | Dr. Tiwari S.S. [TSS]  | Literature review & Preclinical studies [LR]      |
| 07     | Mr. Gadgul A.B. [GAB]  | Structural Elucidation [SE]                       |

*Donvan*  
Academic Incharge

*W.S.*  
M.Pharm C-ordinator

*[Signature]*  
Principal  
Dayanand College of Pharmacy  
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CERTIFICATE COURSE ON "STRUCTURAL ELUCIDATION" 2021-22

### REGISTRATION FORM

Name of Student - Chavan Pavan Bhaeat  
Class - M. Pharmacy (Pharmaceuticals)  
E-mail - Pavanbc801@gmail.com  
City - Latur  
Contact no- 8484843494  
Career Aim- achieve job as Research scientist.

**Undertaking** - I hereby undertake that I shall attend the classes regularly without fail and participate in all activities conducted during sessions.

*Pavane*

Candidate Signature

*[Signature]*

Signature  
College Co-Ordinator

*[Signature]*

Signature  
Principal

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[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

List of student enrolled for certificate course on “Structural Elucidation”  
2021-22

### M. Pharmacy First Year (Pharmaceutics / Pharmaceutical Quality Assurance)

| Sr. No. | Name of the Student        |
|---------|----------------------------|
| 1       | Chavan Pavan Bharat        |
| 2       | Dalal Pramod Shivanand     |
| 3       | Eklinge Shweta Shivraj     |
| 4       | Gaikwad Megha Virsen       |
| 5       | Gutte Vaishali Pundlik     |
| 6       | Hole Ajay Ramdasrao        |
| 7       | Kadam Krishna Baliram      |
| 8       | Kote Narayan Rajaram       |
| 9       | Mane Sayali Dadasaheb      |
| 10      | Mujawar Muskan Dildar      |
| 11      | Pande Bhagyashree Nagorao  |
| 12      | Sabane Anjali Ambadas      |
| 13      | Shaikh Muskan Ajaz         |
| 14      | Solat Shraddha Adinath     |
| 15      | Surwase Pratiksha Suresh   |
| 16      | Swami Deepali Mallikarjun  |
| 17      | Delmade Swapnali Shivaji   |
| 18      | Gatate Mayuri Satishappa   |
| 19      | Ghotmukle Rohini Ashokrao  |
| 20      | Kale Pooja Prabhakar       |
| 21      | Kauthekar Pranav Venkat    |
| 22      | Palskar Bhushan Anandrao   |
| 23      | Rahatkar Saurabh Sainath   |
| 24      | Rudrawar Aishwarya Santosh |
| 25      | Sakhare Sushant Digambar   |
| 26      | Shinde Dipak Narsing       |
| 27      | Thengil Bhushan Tukaram    |



Principal

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## Attendance Sheet

### " Certificate course on Structural Elucidation "

| Sr. No. | Name                       | Date | 27/10/24 | 28/10/24 | 29/10/24 | 30/10/24 | 31/10/24 | 01/11/24 | 02/11/24 | 03/11/24 | 04/11/24 | 05/11/24 | 06/11/24 | 07/11/24 | 08/11/24 | 09/11/24 | 10/11/24 | 11/11/24 | 12/11/24 | 13/11/24 | 14/11/24 | 15/11/24 | 16/11/24 | 17/11/24 | 18/11/24 | 19/11/24 | 20/11/24 | 21/11/24 | 22/11/24 | 23/11/24 | 24/11/24 | 25/11/24 | 26/11/24 | 27/11/24 |         |         |         |
|---------|----------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|---------|---------|---------|
| 1       | Chavan Pavan Bharat        |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present |         |         |
| 2       | Dalal Pramod Shivanand     |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present |         |
| 3       | Eklinge Shweta Shivraj     |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present |         |
| 4       | Gaikwad Megha Virsen       |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present |         |
| 5       | Gutte Vaishali Pundlik     |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 6       | Hole Ajay Ramdasrao        |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 7       | Kadam Krishna Baliram      |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 8       | Kote Narayan Rajaram       |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 9       | Miane Sayali Dadasaheb     |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 10      | Mujawar Muskan Dildar      |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 11      | Pande Bhagyashree Nagorao  |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 12      | Sabane Anjali Ambadas      |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 13      | Shaikh Muskan Ajaz         |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 14      | Solati Shraddha Adinath    |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 15      | Surwase Pratiksha Suresh   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 16      | Swami Deepali Mallikarjun  |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 17      | Delmade Swapnali Shivaji   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 18      | Gataie Mayuri Satishappa   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 19      | Ghotmukle Rohini Ashokrao  |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 20      | Kale Pooja Prabhakar       |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 21      | Kauthekar Pranav Venkat    |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 22      | Palskar Bhushan Anandrao   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 23      | Rahatkar Saurabh Saimath   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 24      | Rudrawar Aishwarya Santosh |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 25      | Sakhare Sushant Digambar   |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 26      | Shinde Dipak Narsing       |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |
| 27      | Thengil Bhushan Tukaram    |      | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present  | Present | Present | Present |



Dayanand Education Society's

# DAYANAND COLLEGE OF PHARMACY,

Barshi Road, Latur (Maharashtra) Pin - 413531 PH-(02382)-223299, 223199

Website: [www.dayanandpharmacy.org](http://www.dayanandpharmacy.org) E-mail: [dayanandpharmacy@rediffmail.com](mailto:dayanandpharmacy@rediffmail.com)  
[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

## Attendance Sheet

" Certificate course on Structural Elucidation "

| Sr. No. | Name                       | Date    |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|---------|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1       | Chavan Pavan Bharat        | 16/6/21 | 17/6/21 | 18/6/21 | 19/6/21 | 20/6/21 | 21/6/21 | 22/6/21 | 23/6/21 | 24/6/21 | 25/6/21 | 26/6/21 | 27/6/21 | 28/6/21 | 29/6/21 | 30/6/21 |
| 2       | Dalal Pramod Shivanand     | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 3       | Eklinge Shweta Shivraj     | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 4       | Gaikwad Megha Virsen       | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 5       | Gutte Vaishali Pundlik     | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 6       | Hole Ajay Ramdasrao        | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 7       | Kadam Krishna Baliram      | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 8       | Kote Narayan Rajaram       | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 9       | Mane Sayali Dadasaheb      | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 10      | Mujawar Muskan Dildar      | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 11      | Pande Bhagyashree Nagorao  | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 12      | Sabane Anjali Ambadas      | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 13      | Shaikh Muskan Ajaz         | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 14      | Solat Shraddha Adinath     | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 15      | Surwase Pratiksha Suresh   | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 16      | Swami Deepali Mallikarjun  | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 17      | Delimade Swapnali Shivaji  | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 18      | Gatate Mayuri Satishappa   | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 19      | Ghotmukle Rohini Ashokrao  | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 20      | Kale Pooja Prabhakar       | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 21      | Kauthekar Pranav Venkat    | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 22      | Palskar Bhushan Anandrao   | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 23      | Rahatkar Saurabh Sainath   | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 24      | Rudrawar Aishwarya Santosh | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 25      | Sakhare Sushant Digambar   | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 26      | Shinde Dipak Narsing       | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |
| 27      | Thengil Bhushan Tukaram    | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present | Present |

Dayanand Education Society's  
**Dayanand College of Pharmacy, Latur**

**Final MCQ Examination 2021-22**  
**Subject: Structural Elucidation**

Monday, 08-08-2022  
Class: M. Pharm. I<sup>st</sup>Year (SEM-II)  
Branch:

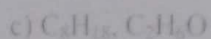
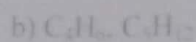
Time: 1 Hour  
Max. Marks: 70  
Roll No.

- Select the wavelength range corresponding to UV-visible region.
  - 400-800 nm
  - 200-800 nm
  - 200-400 nm
  - 1-180 nm
- In carbonyl compound (aldehyde and ketone) intense -----observed.
  - $\sigma \rightarrow \sigma^*$  transition
  - $n \rightarrow \sigma^*$  transition
  - $\pi \rightarrow \pi^*$  transition
  - $n \rightarrow \pi^*$  transition
- The possible transitions for water molecule in UV-visible region are
  - $\sigma \rightarrow \sigma^*$  transition
  - $n \rightarrow \sigma^*$  transition
  - $\pi \rightarrow \pi^*$  transition
  - $\sigma \rightarrow \sigma^*$ ,  $n \rightarrow \pi^*$  transition
- Ultra violet spectroscopy is useful for the detection of -----
  - functional group
  - extent of conjugation
  - geometrical isomers
  - all of above
- The structural increment of 5nm for estimating  $\lambda_{max}$  for  $\alpha$ ,  $\beta$ - unsaturated carbonyl compound is given for.....
  - exocyclic double bond
  - alkyl substituent
  - ring residue
  - all of these
- Pathlength of glass cuvette is ----cm
  - 1
  - 2
  - 3
  - 3
- Rotational transition exists in-----
  - IR
  - UV
  - Microwave
  - Radiowave
- The total number of normal modes of vibration of linear molecules consisting of N atoms is given by
  - (3N-6)
  - (3N-5)
  - (3N-7)
  - (3N-8)
- Which of the following spectroscopy techniques is associated with molecular emission?
  - IR
  - Fluorescence spectroscopy
  - Microwave
  - Radiowave

10. The mid IR region is
- a) 400-800 nm  
b) 25  $\mu\text{m}$ -2.5  $\mu\text{m}$   
c) 4000-400  $\text{cm}^{-1}$   
d) 2.5  $\mu\text{m}$  - 1mm
11. For CO<sub>2</sub> molecule, the number of mode of vibration
- a) 1  
b) 2  
c) 3  
d) 4
12. How many NMR signal are formed for 2-Bromo propane?
- a) 2  
b) 3  
c) 1  
d) none of the above
13. The number of NMR signals in case of 1,1,2 diiodopropane?
- a) 2  
b) 3  
c) 4  
d) none of the above
14. Write the multiplicity of the signal in CH<sub>3</sub>-O-CH<sub>2</sub>-CH<sub>3</sub>
- a) singlet, triplet and quartet  
b) two triplet  
c) a triplet and a quartet  
d) None of these
15. Write the multiplicity of the signal in CH<sub>3</sub>-CH<sub>2</sub>-OH
- a) singlet, triplet and quartet  
b) two triplet  
c) a triplet and a quartet  
d) None of these
16. Write the multiplicity of the signal in ClF<sub>2</sub>C-CH<sub>2</sub>-Br
- a) one, triplet  
b) two singlet  
c) a triplet and a quartet  
d) None of these
17. NMR spectra are observed in -----region
- a) Radio frequency  
b) UV  
c) Microwave  
d) X-ray
18. NMR spectroscopy is useful for the detection:
- a) hydrogen bonding  
b) aromaticity  
c) geometrical isomers  
d) All of these
19. NOE helps in the predicting the
- a) geometry of the molecule  
b) two different protons in close proximity  
c) both a and b  
d) All of the above
20. McLafferty rearrangement ion peak in mass spectrum is usually the basic peak
- a) aldehyde  
b) ketone  
c) Carboxylic acid  
d) All of the above

21. The signal for compound like A-CH<sub>2</sub>-CH<sub>2</sub>-B
- Two triplet
  - Two singlet
  - Two doublet
  - Two quartet
22. for the molecular formula C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>, the number of DBE
- 0
  - 1
  - 2
  - 3
23. for the molecular formula C<sub>6</sub>H<sub>6</sub>O<sub>3</sub>, the number of DBE
- 0
  - 1
  - 2
  - 4
24. for the molecular formula C<sub>12</sub>H<sub>12</sub>N<sub>2</sub>, the number of DBE
- 6
  - 7
  - 8
  - 9
25. Choose the wave number corresponding to 25 μm
- 2500 cm<sup>-1</sup>
  - 4000 cm<sup>-1</sup>
  - 250 cm<sup>-1</sup>
  - 400 cm<sup>-1</sup>
26. Which of the following shows bathochromic shift in polar solvent?
- Shielding effect
  - Spin-spin decoupling
  - Spin-spin coupling
  - Deshielding effect
27. Which of the following solvent is not used in NMR?
- D<sub>2</sub>O
  - CHCl<sub>3</sub>
  - CCl<sub>4</sub>
  - CDCl<sub>3</sub>
28. Chemical shift has the units of
- Parts per million
  - Parts per billion
  - Tesla
  - No units
29. Equivalent protons in a molecules will have
- Same environment
  - Same chemical shift
  - Same shielding effect
  - All of the above
30. Which of the following produces magnetic anisotropy?
- Hydrogen bonding
  - Aromatic ring system
  - Electronegativity
  - pH
31. Which of the following Isotopes is NMR inactive?
- <sup>1</sup>H
  - <sup>16</sup>O
  - <sup>13</sup>C
  - <sup>31</sup>P
32. What are different frequencies obtained in NMR peak called as-----
- Chemical peak
  - chemical shift
  - Physical peak
  - None of the above

33. Which of the compound show only one signal is present in the PMR spectra?



d) All of the above

34. The distance between the centers of the peaks of doublet is called as?

a) Coupling constant

b) Spin Constant

c) Spin-Spin coupling

d) None of the above

35.  $H_2$ ,  $CH_4$ ,  $C_2H_6$  and  $C_6H_6$  exhibit which PMR spectra?

a) Singlet

b) Doublet

c) Triplet

d) Quintet

### Answer Key

| Q. No. | Answer option | Q.No. | Answer option | Q.No. | Answer option | Q.No. | Answer option |
|--------|---------------|-------|---------------|-------|---------------|-------|---------------|
| 01.    |               | 11.   |               | 21.   |               | 31.   |               |
| 02.    |               | 12.   |               | 22.   |               | 32.   |               |
| 03.    |               | 13.   |               | 23.   |               | 33.   |               |
| 04.    |               | 14.   |               | 24.   |               | 34.   |               |
| 05.    |               | 15.   |               | 25.   |               | 35.   |               |
| 06.    |               | 16.   |               | 26.   |               |       |               |
| 07.    |               | 17.   |               | 27.   |               |       |               |
| 08.    |               | 18.   |               | 28.   |               |       |               |
| 09.    |               | 19.   |               | 29.   |               |       |               |
| 10.    |               | 20.   |               | 30.   |               |       |               |



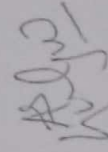
# Dayanand College of Pharmacy

Barshi Road Latur

M. Pharm First Year Pharmaceutical Quality Assurance (SEM-II)

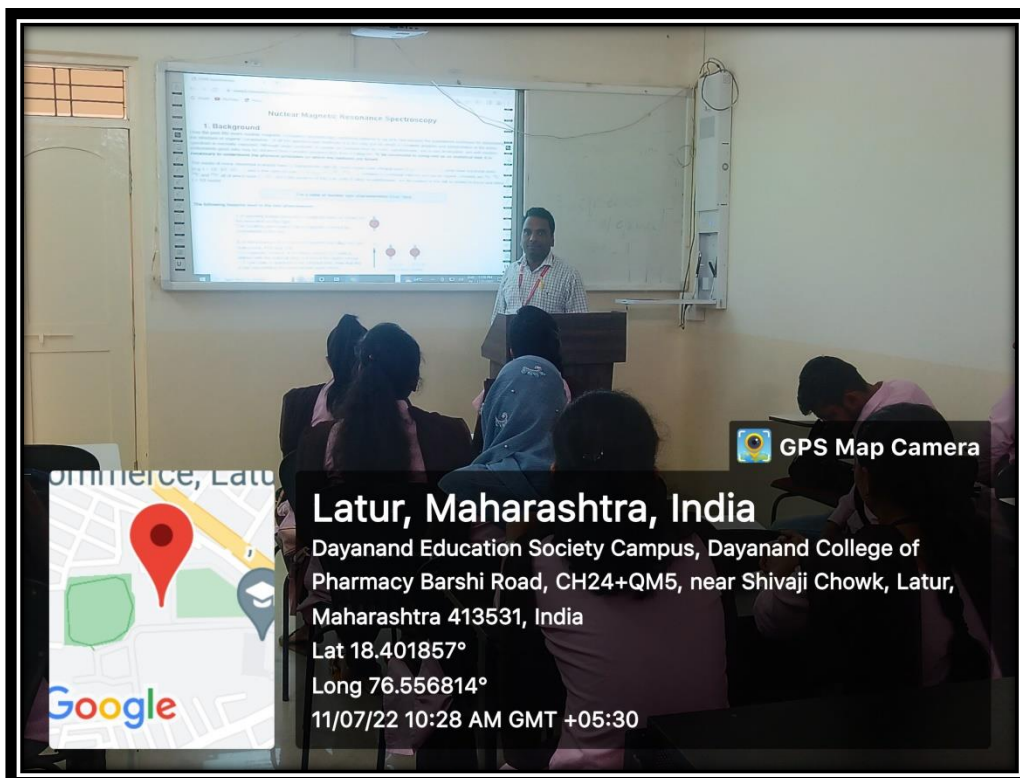
Subject: Structural Elucidation

| Seat No. | Name of the Student        | Structural Elucidation<br>Home Exam Theory |            |              |                       |    | Total<br>(100) |
|----------|----------------------------|--|------------|--------------|-----------------------|----|----------------|
|          |                            | I<br>(30)                                  | II<br>(30) | Mean<br>(30) | Final<br>Exam<br>(70) |    |                |
| VY97647  | Delmade Swapnali Shivaji   | 19   | 14         | 17           | 44                    | 61 |                |
| VY97648  | Gatate Mayuri Satishappa   | 10   | 14         | 12           | 36                    | 48 |                |
| VY97649  | Ghotmukle Rohini Ashokrao  | 14   | 19         | 17           | 48                    | 65 |                |
| VY97650  | Kale Pooja Prabhakar       | 17   | 17         | 17           | 50                    | 67 |                |
| VY97651  | Kauthekar Pranav Venkat    | 09   | 15         | 12           | 36                    | 48 |                |
| VY97652  | Palskar Bhushan Anandrao   | 14   | 14         | 14           | 40                    | 54 |                |
| VY97653  | Rahatkar Saurabh Sainath   | 14   | 15         | 15           | 56                    | 71 |                |
| VY97654  | Rudrawar Aishwarya Santosh | 19   | 12         | 16           | 36                    | 52 |                |
| VY97655  | Sakhare Sushant Digambar   | 19   | 13         | 16           | 38                    | 54 |                |
| VY97656  | Shinde Dipak Narsing       | 23   | 24         | 24           | 58                    | 82 |                |
| VY97657  | Thengil Bhushan Tukaram    | 16   | 19         | 18           | 50                    | 68 |                |



Name & Signature of Faculty

Mr. Gudgun A.B.



**Expert Lecture by Prof. Gadgul A.B. on Structural Elucidation**



Dayanand Education Society's

# DAYANAND COLLEGE OF PHARMACY,

Barshi Road, Latur (Maharashtra) Pin - 413531 PH-(02382)-223299, 223199

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[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

Shri Laxmiraman Lahoti  
President

Shri Ramesh Biyani  
Secretary

Dr. Satpute K.L.  
Principal

## CERTIFICATE COURSE ON "STRUCTURAL ELUCIDATION" 2021-22

### FEEDBACK FORM

Name of Student: Swami Deepali Mallikarjun

Class: M.pharm 1<sup>st</sup> year

Phone No.: 9529826031

E-Mail: swamidipali777@gmail.com

Feedback:

| Sr.No. | Parameter   | Excellent | Very good | Good | Average |
|--------|---|-----------|-----------|------|---------|
| 1      | Course objective were stated clearly & Meet                                     |           | ✓         |      |         |
| 2      | Participation & interaction were encouraged                                     |           | ✓         |      |         |
| 3      | This content was organized & easy to follow                                     | ✓         |           |      |         |
| 4      | Duration of course of sufficient  |           | ✓         |      |         |
| 5      | The presenter provided adequate time of question & Answered them satisfactorily |           |           | ✓    |         |
| 6      | The course increased my knowledge & skills                                      |           |           | ✓    |         |
| 7      | The presenter & presentation was effective                                      |           |           | ✓    |         |

Suggestion if any: \_\_\_\_\_

Swami Deepali  
Signature



Dayanand Education Society's

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Website: [www.dayanandpharmacy.org](http://www.dayanandpharmacy.org) E-mail : [dayanandpharmacy@rediffmail.com](mailto:dayanandpharmacy@rediffmail.com)

[principaldcop@gmail.com](mailto:principaldcop@gmail.com)

List of student Completed for certificate course on "Structural Elucidation"

2021-22

### M. Pharmacy First Year (Pharmaceutics / Pharmaceutical Quality Assurance)

| Sr. No. | Name of the Student        | Sign |
|---------|----------------------------|------|
| 1       | Chavan Pavan Bharat        |      |
| 2       | Dalal Pramod Shivanand     |      |
| 3       | Eklinge Shweta Shivraj     |      |
| 4       | Gaikwad Megha Virsen       |      |
| 5       | Gutte Vaishali Pundlik     |      |
| 6       | Hole Ajay Ramdasrao        |      |
| 7       | Kadam Krishna Baliram      |      |
| 8       | Kote Narayan Rajaram       |      |
| 9       | Mane Sayali Dadasaheb      |      |
| 10      | Mujawar Muskan Dildar      |      |
| 11      | Pande Bhagyashree Nagorao  |      |
| 12      | Sabane Anjali Ambadas      |      |
| 13      | Shaikh Muskan Ajaz         |      |
| 14      | Solat Shraddha Adinath     |      |
| 15      | Surwase Pratiksha Suresh   |      |
| 16      | Swami Deepali Mallikarjun  |      |
| 17      | Delmade Swapnali Shivaji   |      |
| 18      | Gatate Mayuri Satishappa   |      |
| 19      | Ghotmukle Rohini Ashokrao  |      |
| 20      | Kale Pooja Prabhakar       |      |
| 21      | Kauthekar Pranav Venkat    |      |
| 22      | Palskar Bhushan Anandrao   |      |
| 23      | Rahatkar Saurabh Sainath   |      |
| 24      | Rudrawar Aishwarya Santosh |      |
| 25      | Sakhare Sushant Digambar   |      |
| 26      | Shinde Dipak Narsing       |      |
| 27      | Thengil Bhushan Tukaram    |      |

Principal

**PRINCIPAL**  
Dayanand Education Society's  
Dayanand College of Pharmacy  
LATUR-413531



DAYANAND EDUCATION SOCIETY'S

# DAYANAND COLLEGE OF PHARMACY

Barshi Road, Latur - 413512 Maharashtra. Ph:- 02382-223199.

## CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms. Palskar Bhushan Abaddao Student of Dayanand College of Pharmacy, Latur studying in class M. Pharm I/II/III/IV has successfully completed a Certificate Course on Structural Elucidation from 27/04/22 to 01/08/22. He / She secured A Grade in the course.

  
\_\_\_\_\_

Co-Ordinator

  
\_\_\_\_\_

Dr. Satpute K.L.  
Principal



DAYANAND EDUCATION SOCIETY'S


# DAYANAND COLLEGE OF PHARMACY

Barshi Road, Latur - 413512 Maharashtra. Ph:- 02382-223199.

## CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Mrs. Rohatkar Sewrabb Sainath Student of Dayanand College of Pharmacy, Latur studying in class M. Pharm I/II/III/IV has successfully completed a Certificate Course on Structural Elucidation from 27/04/22 to 01/08/22. He / She secured A+ Grade in the course.

  
Co-Ordinator

  
Dr. Satpute K.L.  
Principal



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# DAYANAND COLLEGE OF PHARMACY

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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr./~~Ms.~~ Mr. Rudrawar Aishwarya Santosh Student  
of Dayanand College of Pharmacy, Latur studying in class M. Pharm  
I/II/III/IV has successfully completed a Certificate Course on Structural  
Elucidation from 27/04/22 to 01/08/22. He / ~~She~~ secured At Grade in  
the course.

Co-Ordinator

Dr. Satpute K.L.  
Principal



DAYANAND EDUCATION SOCIETY'S

# DAYANAND COLLEGE OF PHARMACY


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\_\_\_\_\_

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\_\_\_\_\_

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Principal





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## CERTIFICATE OF PARTICIPATION

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the course.

  
\_\_\_\_\_

Co-Ordinator

  
\_\_\_\_\_

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Principal



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## CERTIFICATE OF PARTICIPATION

This is to certify that Mr./Ms. Thengil Bhushan Tukaram Student of Dayanand College of Pharmacy, Latur studying in class M. Pharm I/II/III/IV has successfully completed a Certificate Course on Structural Elucidation from 27/04/22 to 01/08/22. He / She secured At Grade in the course.

Co-Ordinator

Dr. Satpute K.L.  
Principal