AQAR 2023-2024

Criterion-II

TEACHING-LEARNING AND EVALUATION

QIM – 2.3.2

TEACHERS USE ICT-ENABLED TOOLS FOR EFFECTIVE TEACHING-LEARNING PROCESS

Shri. Shivaji Education Society, Amravati's

Mahatma Fule Arts, Commerce & Sitaramji Chaudhari Science Mahavidyalaya, Warud.

Dist. Amravati - 444 906 (07229) 232022

NAAC Reaccreadited with "B"Grade CGPA 2.24 (IIIrd Cycle) (2021-2026)

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Contents

1. Teachers use ICT-enabled tools for effective teaching-learning process

Response:

The institution has enhanced the effectiveness of the teaching and learning process by offering ICT-enabled devices, e-learning resources, and digital classrooms, among other tools. The college supplies computers and laptops, ensures high-speed internet connectivity, provides campus Wi-Fi, and offers various ICT facilities. Additionally, both students and faculty members have access to online courses through platforms such as SWAYAM and NPTEL. It has been noted that students exhibit a highly positive attitude towards their work and education when utilizing computers for their assignments, which fosters their motivation to acquire knowledge and skills. Those who engage with ICT tools demonstrate increased self-confidence and a deeper understanding of their subjects of interest, along with enhanced skills.

Various platforms, including YouTube, PowerPoint presentations, and Google Classroom, play a crucial role in modern academic settings by providing educators with effective means to share study materials with students. These tools not only enhance the learning experience but also contribute significantly to the overall efficiency of educational processes.

YouTube is a vital resource for educators, offering a variety of instructional videos that complement traditional teaching.

PowerPoint presentations are essential in academia, allowing educators to create visually appealing and structured content that effectively communicates complex information.

Google Classroom stands out as a comprehensive platform that streamlines the distribution of study materials, assignments, and unit tests.

Moreover, these digital tools enhance communication between educators and students. This open line of communication helps to address students' questions and concerns promptly, creating a supportive learning atmosphere.

SEAL

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2. YouTube links of teachers for developing the e-contents for students

Deparment of Chemistry

Dr. U.E. Chaudhari-

1) https://www.youtube.com/channel/UCBgfJhvaUs8xSphV_ZyJfFg
2) https://www.youtube.com/user/8087920416
3) https://www.youtube.com/watch?v=ZUrOGlFWPlo
4) https://www.youtube.com/watch?v=CFi0PMGvLx0
5) https://www.youtube.com/watch?v=vFhuRJ0XeKw
6) https://www.youtube.com/watch?v=z0qPSYV0dJ4
7) https://www.youtube.com/watch?v=WrZ4Si9dsoE
8) https://www.youtube.com/watch?v=BeC8wsSZo2s
9) https://www.youtube.com/watch?v=U6tyrzhbacA

Department of Physics

Dr. N. N. Sarkar-

1) Google Classroom link- https://sites.google.com/view/dr-naresh-n-sarkar/home
2) https://www.youtube.com/watch?v=meLgOBW6Yws
3) https://www.youtube.com/watch?v=EcTBkkHNFvU
4) https://www.youtube.com/watch?v=HYa4TpUjO_Y
5) https://www.youtube.com/watch?v=aK5_GcqUag4
6) https://www.youtube.com/watch?v=9vlwj_F92F8
7) https://www.youtube.com/watch?v=ViN1qM5xWEY
8) https://www.youtube.com/watch?v=ze3De6VxkeU
9) https://www.youtube.com/watch?v=svzlO1Y9UvY
10) https://www.youtube.com/watch?v=SCxFase5f3E
11) https://www.youtube.com/watch?v=4sR9g4-SfFo
12) https://www.youtube.com/watch?v=jleNm0Hv720

Dr. Y. S. Tamgadge -https://www.youtube.com/@ystamgadge4623

1) https://www.youtube.com/channel/UCqfK5ozRmfMRKjrJiSeN9dw
2) https://www.youtube.com/watch?v=xw2yI72-mo4
3) https://www.youtube.com/watch?v=Wh-y1DJg4TA
4) https://www.youtube.com/watch?v=kybRKiIrnjQ
5) https://www.youtube.com/watch?v=IgwoQPSDuC8
6) https://www.youtube.com/watch?v=ZWuAK5SBAOw
7) https://www.youtube.com/watch?v=f867nbSxh74
8) https://www.youtube.com/watch?v=8nK8OWba9DY
9) https://www.youtube.com/watch?v=zMAWSmu8yes
10) https://www.youtube.com/watch?v=UiR1jlEwSgw
11) https://www.youtube.com/channel/UCvreQxU1vIAOZXs9_zvI1Ug
12) https://www.youtube.com/watch?v=77yghgu6WRs

Ms. A. B. Patil - https://www.youtube.com/@amrapalipatilsukhadeve7720/videos

13) https://www.youtube.com/watch?v=xXILCxR5MH4
14) https://www.youtube.com/watch?v=oc7UF1W9vM8
15) https://www.youtube.com/watch?v=BmYBBgVKsdc
16) https://www.youtube.com/watch?v=hw284R8PKAE
17) https://www.youtube.com/watch?v=X9TqEHA7Wz4
18) https://www.youtube.com/watch?v=Koyko2MVEa8
19) https://www.youtube.com/channel/UCvreQxU1vIAOZXs9_zvI1Ug
20) https://www.youtube.com/watch?v=bgmFPI5C4-A
21) https://www.youtube.com/watch?v=Yt1-Foujy7A

Dr. R. Y. Bakale -https://www.youtube.com/@reenabakale7468

1) https://www.youtube.com/channel/UCjeMyo_nAyXcjyb99PHPHMw
2) https://www.youtube.com/watch?v=bZs-JyP-lac
3) https://youtube.com/watch?v=fTj-bFwMHgE
4) https://youtube.com/watch?v=jMuV7uiG3xc
5) https://www.youtube.com/watch?v=9H6Hz6Yxyp4
6) https://www.youtube.com/watch?v=VJ3nRu7zZrQ
7) https://www.youtube.com/watch?v=isyDZU1h-38&list=PLerVQoNoozmRrJ_yX9iDff-efKxlDMQEN

Department of Mathematics

Dr. R. S. Wadbudhe - https://www.youtube.com/@rameshwadbude548

1) https://www.youtube.com/watch?v=_4VVJsEcHOM
2) https://www.youtube.com/watch?v=NdhNuRbyhWA
3) https://www.youtube.com/watch?v=df1a6NQF3uw
4) https://www.youtube.com/watch?v=7MEL8UUWvzE
5) https://www.youtube.com/watch?v=1rmIz2V2Zco
6) https://www.youtube.com/watch?v=jZOo8g4-OYM
7) https://www.youtube.com/watch?v=4A46-w2Qw8w
8) https://www.youtube.com/watch?v=Nh9CbHe6yUs
9) https://www.youtube.com/watch?v=wrVMR0Btpi4
10) https://www.youtube.com/channel/UCXj10J1MdgVcSRH1u-lk7yw/videos

Department OF Zoology

Dr. Sunil Kondulkar

1) https://www.youtube.com/@sunilkondulkar3192
2) https://www.youtube.com/watch?v=ODHmZpROvN0

Dr. V.S.Panchavate https://www.youtube.com/@dr.vaishalipanchwatetinkhe5051

3) https://www.youtube.com/watch?v=oGVw1c1wv0Y
4) https://www.youtube.com/watch?v=vObA745bPVA
5) https://www.youtube.com/watch?v=fFnBWU3UlSE
6) https://www.youtube.com/watch?v=XpGiXQFJz1w
7) https://www.youtube.com/watch?v=YTHKALd_BPg

8) https://www.youtube.com/watch?v=26eYaJPN5hc

Dr. K. D. Ingle https://www.youtube.com/@khushalingle6866

1) https://www.youtube.com/watch?v=8CFV3z4gbgY
2) https://www.youtube.com/watch?v=cgXRLE-E2ys
3) https://www.youtube.com/watch?v=xpE77T7Lr18
4) https://www.youtube.com/watch?v=Pd3zXAk6xAQ
5) https://www.youtube.com/watch?v=UHaJnaGvweo
6) https://www.youtube.com/watch?v=4ZXBBYIGfn8
7) https://www.youtube.com/watch?v=zWPLep8-zHw
8) https://www.youtube.com/watch?v=PkeZDuR-MDM
9) https://www.youtube.com/watch?v=lQDpCY4Knto
10) https://www.youtube.com/watch?v=vwz5WQ-26Bc
11) https://www.youtube.com/watch?v=X-Cm5tVmEWI
12) https://www.youtube.com/watch?v=4ZXBBYIGfn8

Dr. Shazad Ahamad Majid - https://www.youtube.com/@dr.ahmadshahzad103

1) https://www.youtube.com/watch?v=vBQ14FIXZ1g
2) https://www.youtube.com/watch?v=py4qZzHp7yg
3) https://www.youtube.com/watch?v=hl3llhpTEAc
4) https://www.youtube.com/watch?v=q2jfNG_fA8w
5) https://www.youtube.com/watch?v=Uhv2zCcve0c
6) https://www.youtube.com/watch?v=kPw1uidp4Zc
7) https://www.youtube.com/watch?v=ML1L4mYkrOc
8) https://www.youtube.com/watch?v=Gbb-Sx0Josw
9) https://youtube.com/watch?v=cX4_15327_Q
10) https://www.youtube.com/@dr.ahmadshahzad103

Department Of Botany

Dr. Pranjali J. Deshmukh

1. https://youtu.be/UhAELJGjE
2. https://youtu.be/gDHDB0UnUb0
3. https://youtu.be/Xdfq_U8KzkI
4. https://youtu.be/NiRjj2Azqss
5. https://youtu.be/Oq70gbdfNlc
6. https://youtu.be/30XszllHshE
7. https://youtu.be/0R9z_MRdQLg
8. https://youtu.be/CLSTHD2LrUM
9. https://youtu.be/30XszIlHshE

Department of Electronics:

Dr. K.V. Pawar- https://www.youtube.com/@kiranpawar8079

1. https://www.youtube.com/watch?v=M3DtCeHk-Fs
2. https://www.youtube.com/watch?v=YNyyzQoLwdA
3. https://www.youtube.com/watch?v=TgC1ds7EVcA

4. https://www.youtube.com/watch?v=QChJFzGU1uU
5. https://www.youtube.com/watch?v=Aibw6iXs_n4
6. https://www.youtube.com/watch?v=_dm8blTmDEw
7. https://www.youtube.com/watch?v=H6oovOlBOk4
8. https://www.youtube.com/watch?v=qor0uF3ZKY4
9. https://www.youtube.com/watch?v=F2lsIKoy6l0

Dr. G. K. Reddy –

1. https://youtu.be/Ww8PgOYn7H4
2. https://youtu.be/jMgpNyNWPc

Department of Philosophy

Dr. S. A. Kalmegh- https://www.youtube.com/@philosophy_mfm9719

1. https://www.youtube.com/watch?v=NFBkldDqnO0
2. https://www.youtube.com/watch?v=rbom2NZivto
3. https://www.youtube.com/watch?v=mI3qYxKZC7U
4. https://www.youtube.com/watch?v=S4QrCNwz9FA
5. https://www.youtube.com/watch?v=yuKBTkAsV1k

Commerce Faculty

Mrs. M. R. Umekar - https://www.youtube.com/@madhuriumekar9689

1. https://www.youtube.com/watch?v=XgTAw-sVh_M
2. https://www.youtube.com/watch?v=lJyoER9v5Rs
3. https://www.youtube.com/watch?v=oC8LRjYTmz4
4. https://www.youtube.com/watch?v=j1cNzXIUQ6k
5. https://www.youtube.com/watch?v=IP22alYxlaE
6. https://www.youtube.com/watch?v=T3BAzn1mL-Y
7. https://www.youtube.com/watch?v=T3BAzn1mL-Y
8. https://www.youtube.com/watch?v=rSwARQdO4Y0
9. https://www.youtube.com/watch?v=rSwARQdO4Y0
10. https://www.youtube.com/watch?v=Ejfd2NNPy5Y

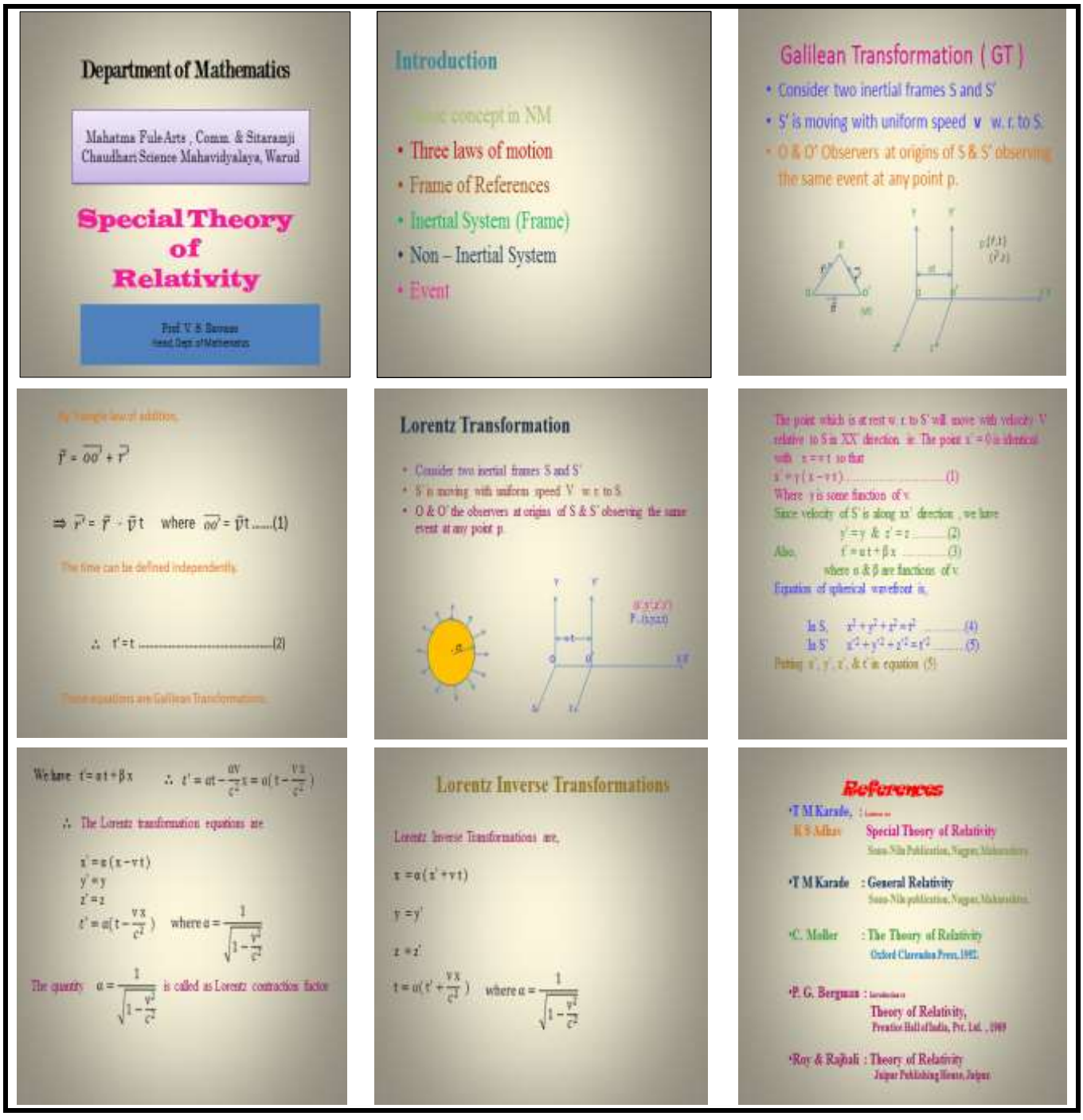
Department of Economics

Dr. S. U. Sangolkar - https://www.youtube.com/@umeshsangolkar3678

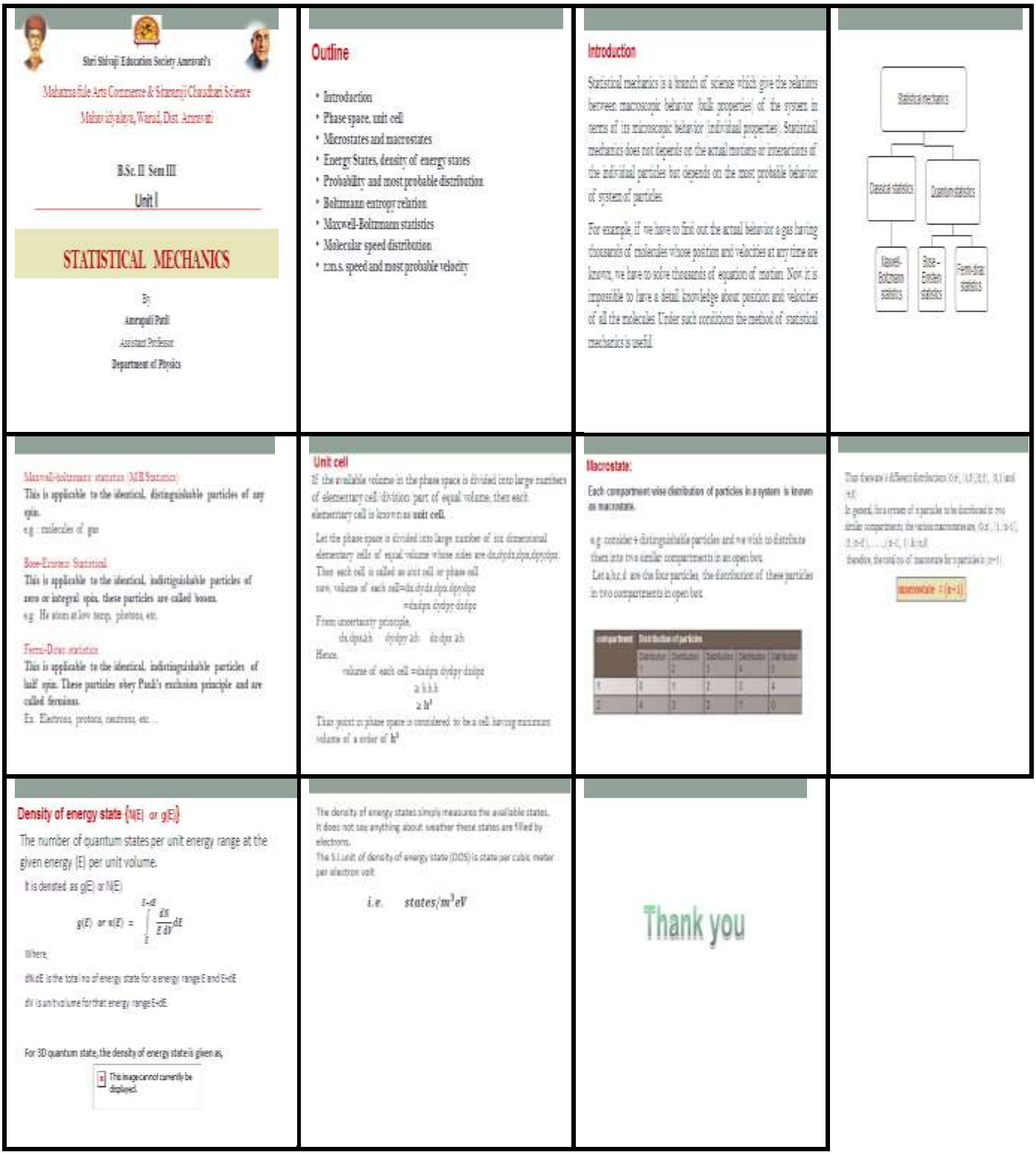
1. https://www.youtube.com/watch?v=cL0C7PTSJlk
2. https://www.youtube.com/watch?v=fc7AgAUKWOo
3. https://youtube.com/watch?v=Ge8d3yU40jA
4. https://www.youtube.com/watch?v=eFWtKyyJkyo
5. https://www.youtube.com/watch?v=JNNzwNqyqoU
6. https://www.youtube.com/watch?v=6WH8bnvJgOU
7. https://www.youtube.com/watch?v=UNxZ8PBbDKA

3. PowerPoint presentations of teachers for students

Dr. V. S. Bawane



PPT: Miss. A. B. Patil



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B.Sc. II Sem III

Unit I

STATISTICAL MECHANICS

By

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Assistant Professor

Department of Physics

Outline

- Introduction
- Phase space, unit cell
- Microstates and macrostates
- Energy States, density of energy states
- Probability and most probable distribution
- Boltzmann entropy relation
- Maxwell-Boltzmann statistics
- Molecular speed distribution
- r.m.s. speed and most probable velocity

Introduction

Statistical mechanics is a branch of science which give the relations between macroscopic behavior (bulk properties) of the system in terms of its microscopic behavior (individual properties). Statistical mechanics does not depends on the actual motions or interactions of the individual particles but depends on the most probable behavior of system of particles.

For example, if we have to find out the actual behavior a gas having thousands of molecules whose position and velocities at any time are known, we have to solve thousands of equation of motion. Now it is impossible to have a detail knowledge about position and velocities of all the molecules. Under such conditions the method of statistical mechanics is useful.

Statistical mechanics

Classical statistics

Quantum statistics

Maxwell-Boltzmann statistics

Bose-Einstein statistics

Fermi-dirac statistics

Maxwell-boltzmann statistics (MB Statistics):

This is applicable to the identical, distinguishable particles of any spin.

e.g. : molecules of gas

Bose-Einstein Statistics:

This is applicable to the identical, indistiguishable particles of zero or integral spin, these particles are called bosons.

e.g. He atom at low temp, photons, etc.

Fermi-Dirac statistics:

This is applicable to the identical, indistinguishable particles of half spin. These particles obey Pauli's exclusion principle and are called fermions.

Ex. Electrons, protons, neutrons, etc ...

Unit cell

If the available volume in the phase space is divided into large numbers of elementary cell (division part of equal volume, then each elementary cell is known as unit cell.

Let the phase space is divided into large number of six dimensional elementary cells of equal volume whose sides are $dx, dy, dz, dp_x, dp_y, dp_z$.

Then each cell is called as unit cell or phase cell

Now, volume of each cell $= dx\,dy\,dz\,dp_x\,dp_y\,dp_z$

$= dx\,dp_x\,dy\,dp_y\,dz\,dp_z$

From uncertainty principle,

$dx\,dp_x \geq h \quad dy\,dp_y \geq h \quad dz\,dp_z \geq h$

Hence,

volume of each cell $= dx\,dp_x\,dy\,dp_y\,dz\,dp_z$

$\geq h\,h\,h$

$\geq h^3$

Thus point in phase space is considered to be a cell having minimum volume of a order of h^3

Macrostate:

Each compartment wise distribution of particles in a system is known as macrostate.

e.g. consider 4 distinguishable particles and we wish to distribute them into two similar compartments in an open box.

Let a, b, c, d are the four particles, the distribution of these particles in two compartments in open box

compartment	Distribution of particles				
	Distribution 1	Distribution 2	Distribution 3	Distribution 4	Distribution 5
1	0	1	2	3	4
2	4	3	2	1	0

Thus there are 5 different distributions (0,4), (1,3), (2,2), (3,1) and (4,0).

In general, for n number of n particles to be distributed in two similar compartments, the various macrostates are (0,n), (1,n-1), (2,n-2), ... (n-2, 2), (n-1,1), (n,0).

therefore, the total no of macrostate for n particles is $(n+1)$.

macrostate $= (n+1)$

Density of energy state (N(E) or g(E))

The number of quantum states per unit energy range at the given energy (E) per unit volume.

It is denoted as g(E) or N(E)

$$g(E) \text{ or } n(E) = \int_{E}^{E+dE} \frac{dN}{E\,dV} dE$$

Where,

dN.dE is the total no of energy state for a energy range E and E+dE

dV is unit volume for that energy range E+dE.

For 3D quantum state, the density of energy state is given as,

This image cannot currently be displayed.

The density of energy states simply measures the available states. It does not say anything about weather these states are filled by electrons.

The S.I.unit of density of energy state (DOS) is state per cubic meter per electron volt.

i.e. $states/m^3eV$

Thank you



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B.Sc. III Sem VI

Unit II

Bose-Einstein Statistics & Fermi-Dirac Statistics

By

Amrapali Patil

Assistant Professor

Department of Physics

Bose-Einstein Statistics

Bose- Einstein statistics is applicable to the particles if

1. The particles are identical and indistinguishable.
2. Any number of particles can occupy a single cell in phase space.
3. Particles with an integral spin angular momentum in units of ħ
4. The sum of the energies of all the particles in the different quantum groups, taken together constitutes the total energy of the system.
5. Particles which obey Bose-Einstein statistics are known as bosons.

Bose-Einstein distribution law

Consider a system of N identical indistinguishable particles. Since these particles obey Bose-Einstein statistics they are called as bosons

Let these particles be distributed into number of groups.

Let n1, n2,.....,ni be the number of particles in the group 1,2,.....,i having energies E1,E2,.....Ei for which the number of cells available are g1,g2,.....,gi respectively.

i.e. n1 group of particles having energy E1 can be placed into g1 number of cells.

Similarly , n2 group of particles having energy E2 can be distributed into g2 number of cells.

And n3 group of particles having energy E3 can be distributed into g3 number of cells..... And so on.....

Now consider the i^{th} group. The distribution of n_i particles in the i^{th} group among the g_i cells can be done in following ways.

We first choose the cell with which we have to being the sequence. This choice can be made in gi ways since there are gi cells.

Once this has been done, the remaining (gi-1) cells and ni particles can be arranged in order.

Therefore,

the number of ways of doing this = (ni + gi -1)!

And

The total number of ways of ways for the distribution

= gi (ni + gi -1)!

Since the particles are indistinguishable, there arrangement of particles will not give rise to any new distribution (arrangement). The number of such meaningless permutations is $n_1!$

Hence term shown by equation(1) is divided by $n_i!$

To avoid the repeated arrangements of cells, the above expression should further be divided by $g_i!$

Thus,

the required number of ways are = Wi =

Now ,

$g_i! = g_i(g_i-1)!$

forexample

$8! = 8\times7\times6\times5\times4\times3\times2\times1$

$8! = 8\times7!$

$8! = 8\times(8-1)!$

Putting value of $g_i!$ in W_i,

Since n_i and g_i are both very large numbers, neglecting 1 from the expression

$$W_i = \frac{(n_i+g_i)}{n_i!\,g_i!} \quad \ldots\ldots\ldots(1)$$

Similar expression will be obtained for other groups. So the total number of arrangements for all N particles the system gives the total thermodynamic probability.

Total thermodynamic probability =W = W1.W2.W3.....Wi

$$= \prod W_i$$

$$= \prod \frac{(n_i+g_i)!}{n_i!\,g_i!} \quad \ldots\ldots\ldots(2)$$

Condition for most probable distribution

The most probable distribution corresponds to the maximum thermodynamic probability.

Therefore,

taking logarithm of both the sides of equation(2)

$$\log W = \sum\left[\log(n_i+g_i)! - \log n_i - \log g_i!\right]$$

Using sterling's approximation

$$\log x! = x\log x - x$$

$$\log W = \sum\left[(n_i+g_i)\log(n_i+g_i) - n_i\log n_i - g_i\log g_i\right]$$

Differentiating both the sides

$$\delta\log W = \sum\left[(n_i+g_i)\frac{1}{(n_i+g_i)}\delta n_i + \log(n_i+g_i)\delta n_i - \frac{1}{n_i}\delta n_i - \log n_i\delta n_i\right]$$

$\because$ g_i is a number $\therefore \delta g_i = 0$

$$\delta\log W = \sum\left[\delta n_i + \log(n_i+g_i)\delta n_i - \delta n_i - \log n_i\delta n_i\right]$$

$$= \sum\left[\log(n_i+g_i)\delta n_i - \log n_i\delta n_i\right]$$

$$= \sum\left[\log(n_i+g_i) - \log n_i\right]\delta n_i$$

$$\log W = \sum\left[\log\frac{(n_i+g_i)}{n_i}\right]\delta n_i$$

$$\sum\left[\log\frac{(n_i+g_i)}{n_i}\right]\delta n_i - \alpha\sum\delta n_i - \beta\sum E_i\delta n_i = 0$$

$$\sum\left[\log\frac{(n_i+g_i)}{n_i} - \alpha - \beta E_i\right]\delta n_i = 0$$

This condition is true for any group hence we can write above equation as,

$$\left[\log\frac{(n_i+g_i)}{n_i} - \alpha - \beta E_i\right] = 0$$

$$\log\frac{(n_i+g_i)}{n_i} = \alpha + \beta E_i$$

For maximum thermodynamic probability

$$\therefore \quad \sum\left[\log\frac{(n_i+g_i)}{n_i}\right]\delta n_i = 0 \quad \ldots\ldots\ldots(3)$$

This represents the condition for most probable distribution of particles (bosons) in different cells. In addition to this , the syste must satisfy two other conditions.

The total number of particles N and the total energy E of the sy is constant.

$$N = n_1 + n_2 + n_3 + \ldots\ldots + n_i = \sum n_i = \text{constant}$$

$$E = n_1E_1 + n_2E_2 + n_3E_3 + \ldots\ldots + n_iE_i = \sum n_iE_i = \text{constant}$$

Thank You

PPT :Dr. Mrs. R. Y. Bakale

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UNIT-3
Crystallography

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Asst.Prof.
Dept. of Physics

3.1 INTRODUCTION

Crystallography is a branch of science in which the geometry. internal structure and physical properties of crystalline materials are studied by using different techniques. Solid materials can be broadly classified into two categories.

(i) Crystalline solids

and

(ii) non-crystalline or Amorphous solids.

3.2 CRYSTALLINE AND AMORPHOUS MATERIALS

(i) Crystalline solids

Crystalline solids are those in which the atoms (or ions or molecules) are arranged in a periodic manner in all the three directions. Each atom is fixed at a definite point in space, and at a definite distance from surrounding atom

Crystalline solid has a regular shape and when it is broken, all the broken pieces have the same regular shape. A crystalline solid possess spatial regularity extending over a large volume.

(ii) Non-Crystalline or Amorphous Solids:

Amorphous solids are those in which atoms (or molecules) are arranged in a random manner. There is no regularity or periodicity in the arrangement of atoms in space. They have no directional properties i.e.; their physical properties remain same in all the three directions. So amorphous solids are called isotropic. They do not possess any regular shape. They have no sharp melting point but have wide range of melting point.

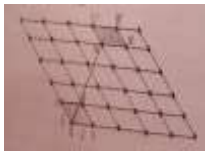
3.3 UNIT CELL

What is a Unit Cell?

The smallest repeating unit of the crystal lattice is the unit cell.

Unit cell is defined as the smallest volume of a crystal from which the complete crystal can be constructed by translational repetition in three dimensions. The complete crystal is found to consists of identical blocks or unit cells. The unit cell is basic building block of a crystal having all the structural properties of the given crystal.

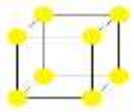
Consider a two-dimensional plane lattice in which atoms are arranged as shown in figure...



Primitive cell-

The unit cell in which atoms are situated only at the corner is called Primitive cell

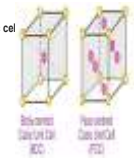
e.g.– Simple Cell

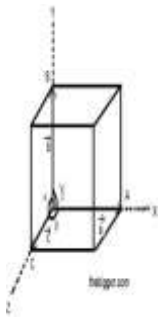


Non-Primitive cell–

The unit cell in which atoms are situated at the corner as well as at the centre of the body and face is called Non-Primitive cell

e.g. – Body Centre cubic cell and Face Centre cubic cel



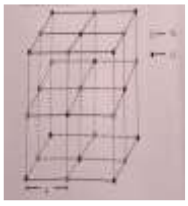


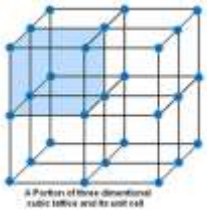
The three axes of the unit cell are called crystallographic axis, The intercepts a, b and c on the crystallographic axes gives the dimensions of unit cell and are known as its primitive or characteristics intercepts on the axes. The angles between the three crystallographic axes are called interfacial angles. The angles between b and c is α the angle between c and a is β and angle between a and b is γ.

These primitives a, b, c and interfacial angles α, β, γ are the basic lattice parameters because they determine the actual size of the unit cell.

The unit cell formed by the primitives a, b and c is called primitive cell. A primitive cell will have only one lattice point. If there are two or more lattice points, then it is not a primitive cell. Most of the unit cells of different crystal contain two or more lattice points and hence it is not necessary that the unit cell should be a primitive cell.

Consider a three-dimensional space lattice of sodium chloride (NaCl) crystal.





A Portion of three dimentional cubic lattice and its unit cell

Thank You

PT: Dr. Mrs. R. Y. Bakale

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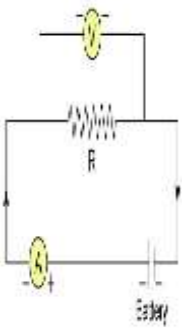
Website: https://mfulecollegewarud.org/ Ph. No. 07229-232022

UNIT-V B.Sc II SEM

Network Theorems; Ballistic Galvanometer, Varying Currents

.....Lecturer No.1

Dr.Reena Y. Bakale
Asst.Prof.
Dept. of Physics



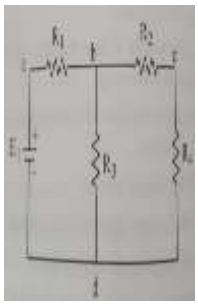
OHM'S LAW

Ohm's law gives a relationship between current and potential difference.

According to Ohm's law : At constant temperature, the current flowing through a conductor is directly proportional to the potential difference across its ends. If I is the current flowing through a conductor and V is the potential difference (or voltage) across its ends, Then according to

Ohm's law is given by following equation

$$V = IR$$



Figures shows a simple network. During the analysis of network or while studying the network theorems, we often use the following terms.

1. **Active element**
2. **Passive element**
3. **Network**
4. **Node**
5. **Junction**
6. **Branch**
7. **A loop**
8. **A mesh**

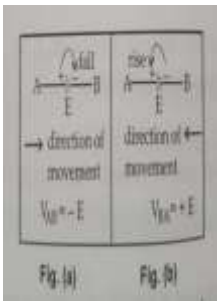
Procedure for Applying Kirchhoff's Law for Resistive Circuit

1. Give the direction of current in different branches arbitrarily.

2. Give a positive sign for voltages at a terminal where current enters and negative sign at a terminal from where current leaves.

3. In closed network, moving from positive terminal to negative terminal there is voltage (fall) drop. Voltage drop is shown by negative sign. And moving from negative terminal to positive terminal, there is voltage rise. Voltage rise is shown by positive sign.

4. Moving from any point either in a clockwise or anticlockwise direction, take the algebraic sum of voltages till the starting point is reached and equate it to zero.



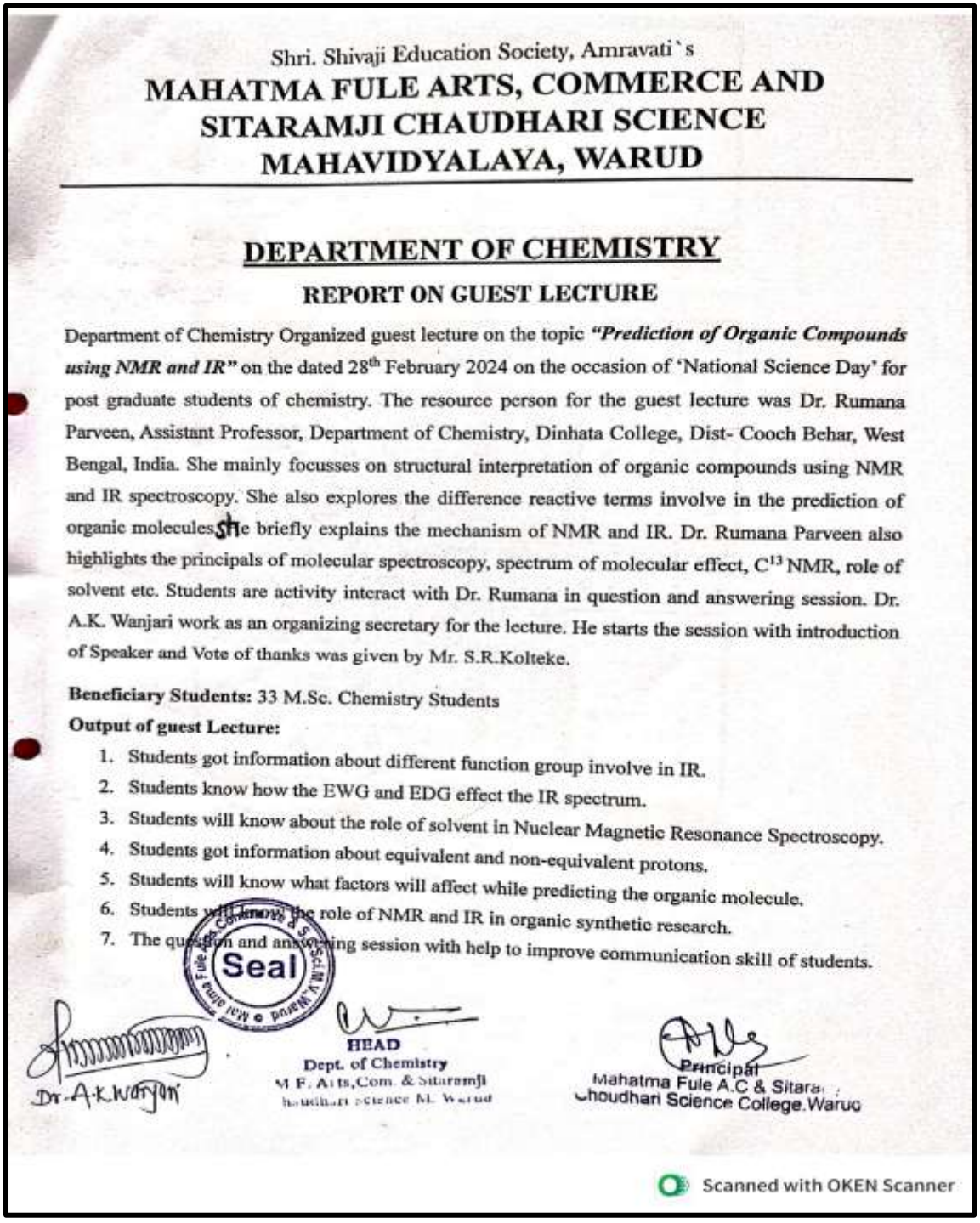
1. Sign Conversion for potential Source

A d.c. potential source has fixed positive and negative terminals. Positive terminal is at higher potential and negative terminal is at lower potential.

Let us consider a voltage source in which the direction of movement is from A to B as shown in fig. (a). There is fall in voltage from A to B which is shown by negative sign. Then this potential will be -E. From B to A, as shown in fig. (b) there is rise in voltage. Voltage rise is shown by positive sign. So, this potential will be +E.

Thank You

4. Online Guest Lecture for Students



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MAHATMA FULE ARTS, COMMERCE AND SITARAMJI CHAUDHARI SCIENCE MAHAVIDYALAYA, WARUD

DEPARTMENT OF CHEMISTRY

REPORT ON GUEST LECTURE

Department of Chemistry Organized guest lecture on the topic ***"Prediction of Organic Compounds using NMR and IR"*** on the dated 28th February 2024 on the occasion of 'National Science Day' for post graduate students of chemistry. The resource person for the guest lecture was Dr. Rumana Parveen, Assistant Professor, Department of Chemistry, Dinhata College, Dist- Cooch Behar, West Bengal, India. She mainly focusses on structural interpretation of organic compounds using NMR and IR spectroscopy. She also explores the difference reactive terms involve in the prediction of organic molecules. She briefly explains the mechanism of NMR and IR. Dr. Rumana Parveen also highlights the principals of molecular spectroscopy, spectrum of molecular effect, C^{13} NMR, role of solvent etc. Students are activity interact with Dr. Rumana in question and answering session. Dr. A.K. Wanjari work as an organizing secretary for the lecture. He starts the session with introduction of Speaker and Vote of thanks was given by Mr. S.R.Kolteke.

Beneficiary Students: 33 M.Sc. Chemistry Students

Output of guest Lecture:

1. Students got information about different function group involve in IR.
2. Students know how the EWG and EDG effect the IR spectrum.
3. Students will know about the role of solvent in Nuclear Magnetic Resonance Spectroscopy.
4. Students got information about equivalent and non-equivalent protons.
5. Students will know what factors will affect while predicting the organic molecule.
6. Students will know the role of NMR and IR in organic synthetic research.
7. The question and answering session with help to improve communication skill of students.

Seal

Dr. A.K. Wanjari

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Dept. of Chemistry
M.F. Arts, Com. & Sitaramji Chaudhari Science M. Warud

Principal
Mahatma Fule A.C & Sitaramji Chaudhari Science College, Warud

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Department of Chemistry

Feedback Form on Guest Lecture Sessions – 2023-24

Year / Section	M.Sc. II yr (Sem III)	**Academic Year**	2023-24
Name of the Guest	Dr. Manisha Walunj	**Date of the Lecture**	28/10/23
Topic of the lecture	Career Arenues for chemical science student	**Duration**	12 pm 2 hr.

Sr. No	Description	Excellent	Good	Average	Poor
1	The instructor explained the topic clearly and used relevant examples	✓			
2	The lecture was interactive and felt engaged	✓			
3	Speaker positively influenced my view towards the topic	✓			
4	In future, I would like to attend the lectures from the speaker	✓			

Mention few points you have learnt from the lecture

How to choose supervisor for research and the base knowledge competetative exame like net-set.

Seal

Signature of Student

Department of Chemistry

List of Students present in Guest Lecture on *"Career Avenues for Chemical Science Students"* on the dated 28th October 2023.

Sr. No.	Name of Student	Signature
1)	Ku. Krutika M. Chinchamalatpure	
2)	Ku. Rupali V. Manekar	
3)	Ku. Sejal R. Durge	
4)	Ku. Vaishnavi D. Mahalle	
5)	Vaishnavi R. Malode	
6)	Ku. Pratiksha E. Kadu	
7)	Rutuja S Gawali	
8)	Ankush V. Sakhare.	
9)	Sakshi R. pokale	
10)	Ku. Pallavi G. Ambulkar	
11)	Ku. Sakshi D. Hete	
12)	Ku. Neha K. pohane	
13)	Mayuri S. Kalbhor	
14)	Pranali V. Modak	
15)	Ku. Rashmi H. Bareskar.	
16)	Ku. Bhagyashri K. Bele	
17)	Ku. Shrutika P. Wankhade	
18)	Kol. Kalyani A. Ganorkar	
19)	Harshad S. Nerkar	
20)	Vaishnavi S. Malode	
21)	Sanika S. Gawande	
22)	Snehal mohanrao Hete	
23)	Pratiksha B. Ambudkar	
24)	Kalyani S. Pande	
25.	Namrata S. Gawande	
26.	Gayatri P. Bele	
27	Bushra Jahan sheikh khalique.	
28	Mahini kunbade	
29.	Punam Gunmule	
	Pallavi Satange	

Dr.ATUL K.WANJARI
Assi Prof in Chemistry
Mahatma Fule Arts Commerce and Sitaramji Chaudhari Science College Warud Dist Amravati

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Dept. of Chemistry
M.F. Arts,Com. & Sitaramji Chaudhari Science M. Warud

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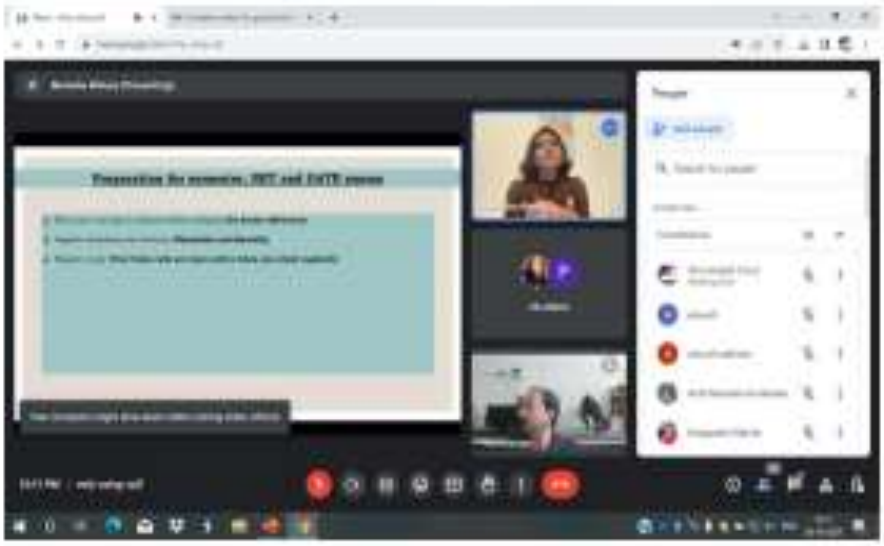

Dr.ATUL K.WANJARI
Ass Prof in Chemistry
Mahatma Fule Arts Commerce and
Rambhau Chaudhari Science College
Warud Dist Amravati

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Dept. of Chemistry
M.F. Arts, Com. & Science
Warud

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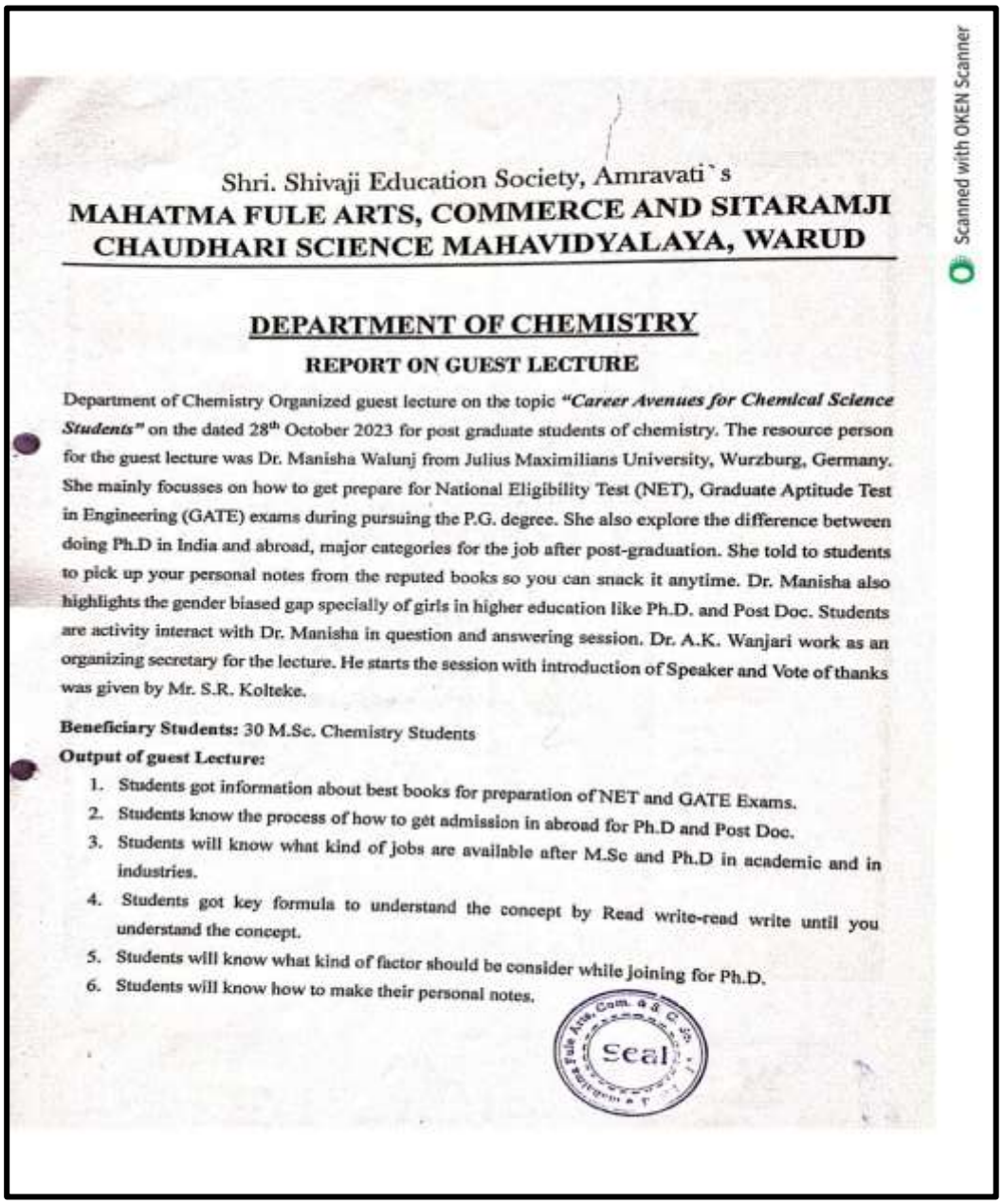

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MAHATMA FULE ARTS, COMMERCE AND SITARAMJI CHAUDHARI SCIENCE MAHAVIDYALAYA, WARUD

DEPARTMENT OF CHEMISTRY

REPORT ON GUEST LECTURE

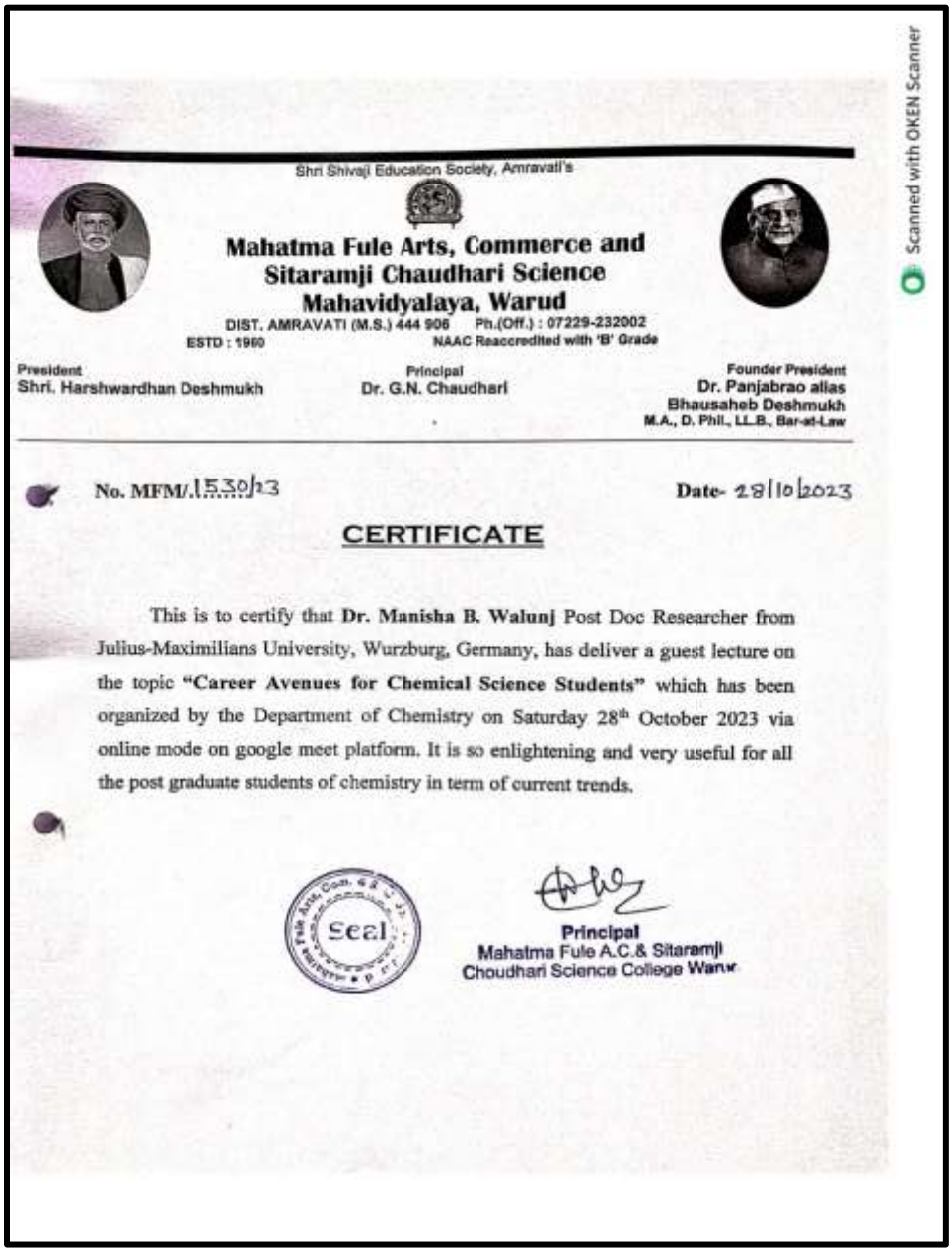
Department of Chemistry Organized guest lecture on the topic ***"Career Avenues for Chemical Science Students"*** on the dated 28th October 2023 for post graduate students of chemistry. The resource person for the guest lecture was Dr. Manisha Walunj from Julius Maximilians University, Wurzburg, Germany. She mainly focusses on how to get prepare for National Eligibility Test (NET), Graduate Aptitude Test in Engineering (GATE) exams during pursuing the P.G. degree. She also explore the difference between doing Ph.D in India and abroad, major categories for the job after post-graduation. She told to students to pick up your personal notes from the reputed books so you can snack it anytime. Dr. Manisha also highlights the gender biased gap specially of girls in higher education like Ph.D. and Post Doc. Students are activity interact with Dr. Manisha in question and answering session. Dr. A.K. Wanjari work as an organizing secretary for the lecture. He starts the session with introduction of Speaker and Vote of thanks was given by Mr. S.R. Kolteke.

Beneficiary Students: 30 M.Sc. Chemistry Students

Output of guest Lecture:

1. Students got information about best books for preparation of NET and GATE Exams.
2. Students know the process of how to get admission in abroad for Ph.D and Post Doc.
3. Students will know what kind of jobs are available after M.Sc and Ph.D in academic and in industries.
4. Students got key formula to understand the concept by Read write-read write until you understand the concept.
5. Students will know what kind of factor should be consider while joining for Ph.D.
6. Students will know how to make their personal notes.

Seal



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Dr. Panjabrao alias Bhausaheb Deshmukh
M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/1530/23

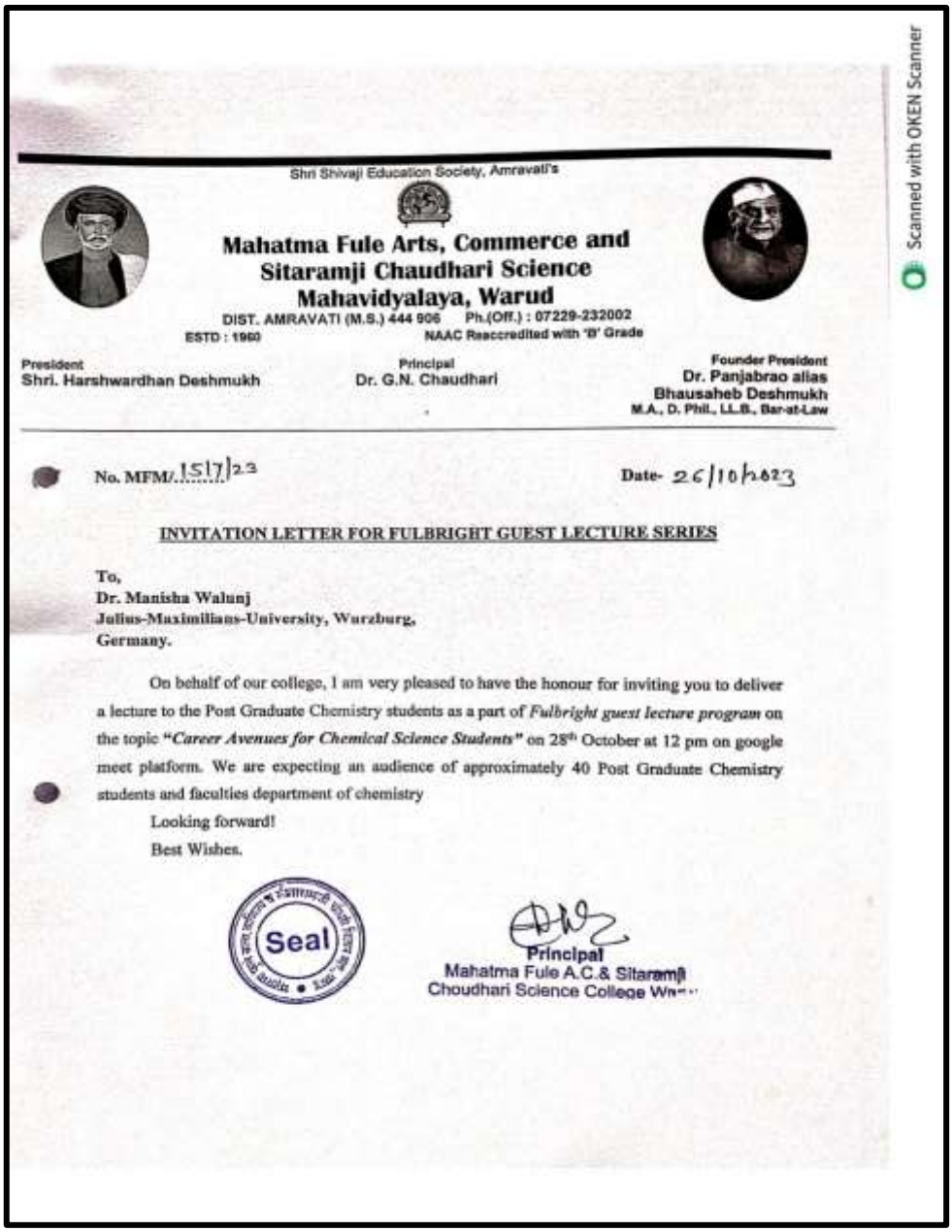
Date- 28/10/2023

CERTIFICATE

This is to certify that **Dr. Manisha B. Walunj** Post Doc Researcher from Julius-Maximilians University, Wurzburg, Germany, has deliver a guest lecture on the topic **"Career Avenues for Chemical Science Students"** which has been organized by the Department of Chemistry on Saturday 28th October 2023 via online mode on google meet platform. It is so enlightening and very useful for all the post graduate students of chemistry in term of current trends.

Seal

Principal
Mahatma Fule A.C.& Sitaramji Choudhari Science College Warud



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M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/1517/23 Date- 26/10/2023

INVITATION LETTER FOR FULBRIGHT GUEST LECTURE SERIES

To,
Dr. Manisha Walunj
Julius-Maximilians-University, Wurzburg,
Germany.

On behalf of our college, I am very pleased to have the honour for inviting you to deliver a lecture to the Post Graduate Chemistry students as a part of *Fulbright guest lecture program* on the topic **"*Career Avenues for Chemical Science Students*"** on 28th October at 12 pm on google meet platform. We are expecting an audience of approximately 40 Post Graduate Chemistry students and faculties department of chemistry

Looking forward!

Best Wishes.

Seal

Principal
Mahatma Fule A.C.& Sitaramji
Choudhari Science College Warud

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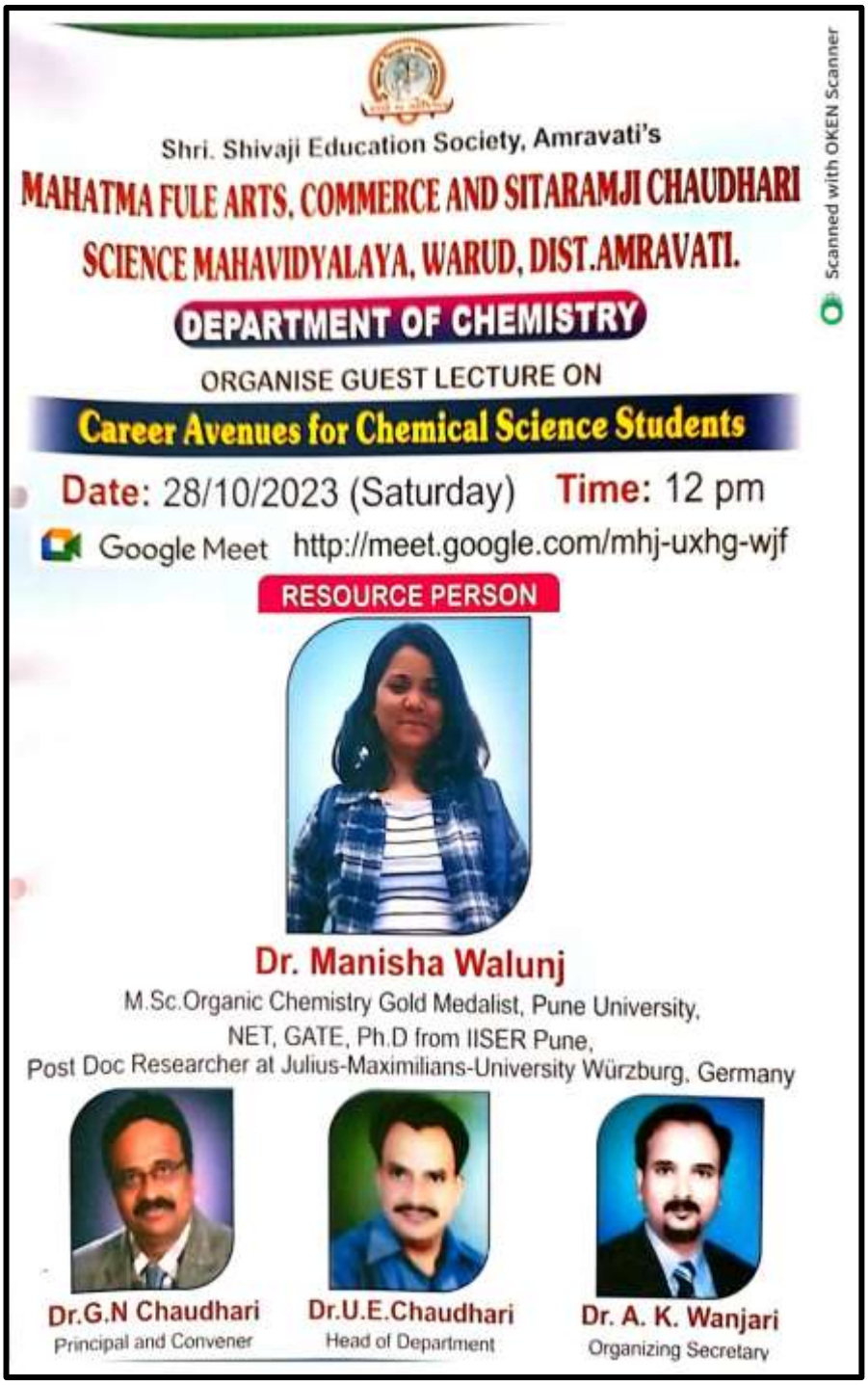
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MAHATMA FULE ARTS, COMMERCE AND SITARAMJI CHAUDHARI SCIENCE MAHAVIDYALAYA, WARUD, DIST.AMRAVATI.
DEPARTMENT OF CHEMISTRY
ORGANISE GUEST LECTURE ON
Career Avenues for Chemical Science Students
Date: 28/10/2023 (Saturday) Time: 12 pm
Google Meet http://meet.google.com/mhj-uxhg-wjf
RESOURCE PERSON
Dr. Manisha Walunj
M.Sc.Organic Chemistry Gold Medalist, Pune University,
NET, GATE, Ph.D from IISER Pune,
Post Doc Researcher at Julius-Maximilians-University Würzburg, Germany
Dr.G.N Chaudhari
Principal and Convener
Dr.U.E.Chaudhari
Head of Department
Dr. A. K. Wanjari
Organizing Secretary
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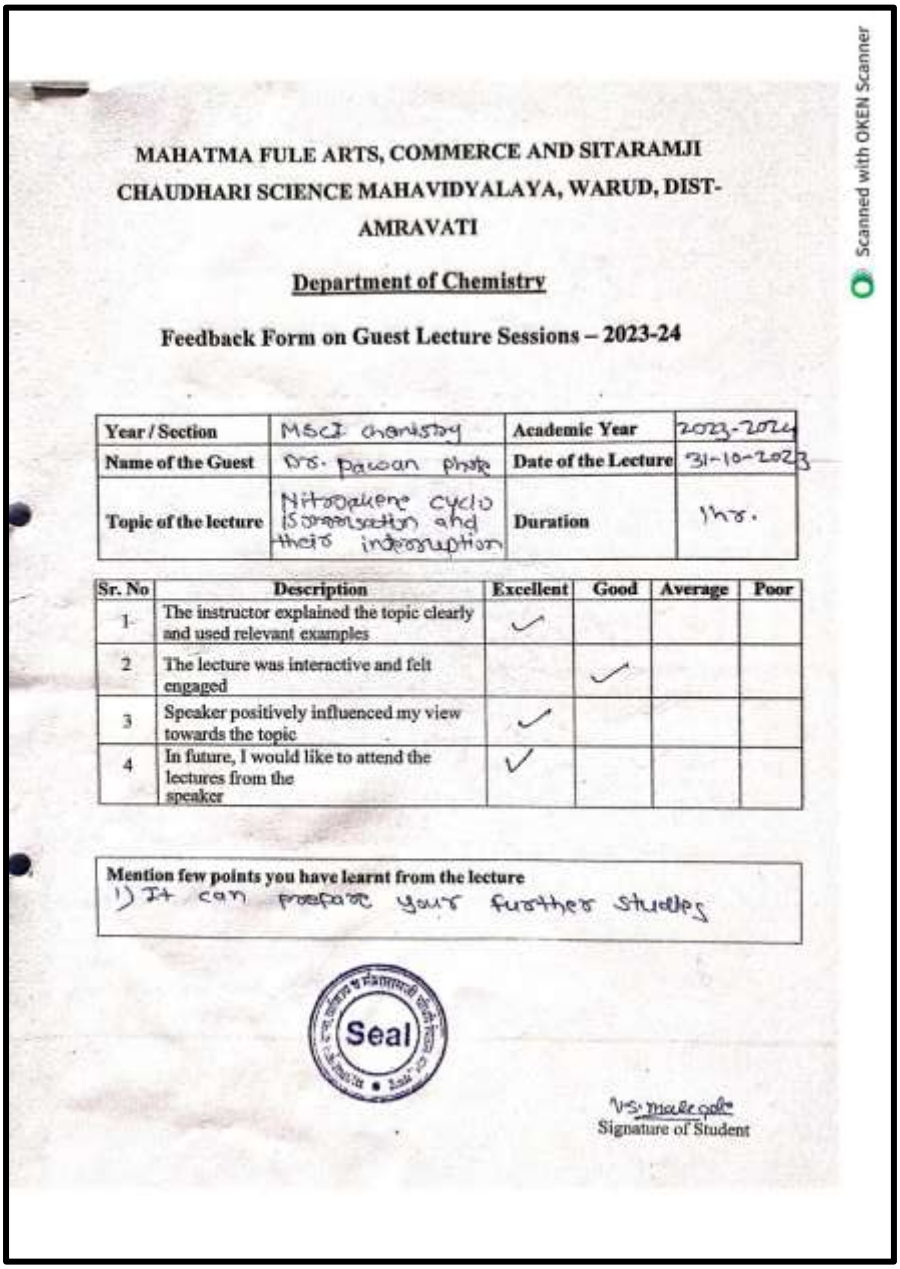

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Department of Chemistry

Feedback Form on Guest Lecture Sessions – 2023-24

Year / Section	MSc I chemistry	Academic Year	2023-2024
Name of the Guest	Dr. Pawan Phate	Date of the Lecture	31-10-2023
Topic of the lecture	Nitrogen cycle Isomerization and their interruption	Duration	1 hr.

Sr. No	Description	Excellent	Good	Average	Poor
1	The instructor explained the topic clearly and used relevant examples	✓			
2	The lecture was interactive and felt engaged		✓		
3	Speaker positively influenced my view towards the topic	✓			
4	In future, I would like to attend the lectures from the speaker	✓			

Mention few points you have learnt from the lecture
1) It can prepare your further studies

Seal

Signature of Student

Department of Chemistry

List of Students present in Guest Lecture on *"Nitroalkyne Cycloisomerization and Their Interruption"* on the dated 31st October 2023.

Sr. No.	Name of Student	Signature
1)	Ku. Neha K. Pohane	N.K.Pohane.
2)	Ku. Bhagyashri K. Barole	B.Barole
3)	Ku. Mamta H. Hale	M.H.Hale.
4)	Ku. Rashmi H. Baraskar.	R.Baraskar.
5)	Ku. Pratiksha E. Kadu	[illegible]
6)	Rutuja S Gawali	[illegible]
7)	Rupali V. Manekar	[illegible]
8)	Vaishnavi R. Marode	[illegible]
9)	Sakshi R. Pokale	[illegible]
10)	Sakshi D Hete	[illegible]
11)	Pallavi G. Ambulkar	Ambulkar
12)	Ankush Sakhare	Asakhare
13)	Sejal Durge	Durge
14)	Pranali Modak	Pmodak
15)	Vaishnavi Mahalle	Vmahalle
16)	Kritika chinchmalpure	Kchinch
17)	Purva Geelam	Pgeelam
18)	Pallavi Satange	Psatange
19)	Mayur Kalbhor	Mkalbhor
20)	Rasika S. Upase	Rupase
21)	Harshali S. Merkar	H.S.Merkar
22)	Pratiksha B. Ambadkar	P. Ambadkar
23)	Shrutika P. Wankhade	[illegible]
24)	Neha S. Gondnkar	Gondnkar
25)	Kalyani A. Ganorkar	[illegible]
26)	Gayatri P. Bele.	G.P.Bele
27)	Punam R Gurmule	Pgurmule
28)	Sanika D. Gawande	G. Gawande
29)	Snehal M. Hete	[illegible]
30)	Vaishnavi S. Makode	V.S.makode

31/10/2023

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Dept. of Chemistry
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Choudhari Science College Wani

Principal
Mahatma Fule A.C.& Sitaramji
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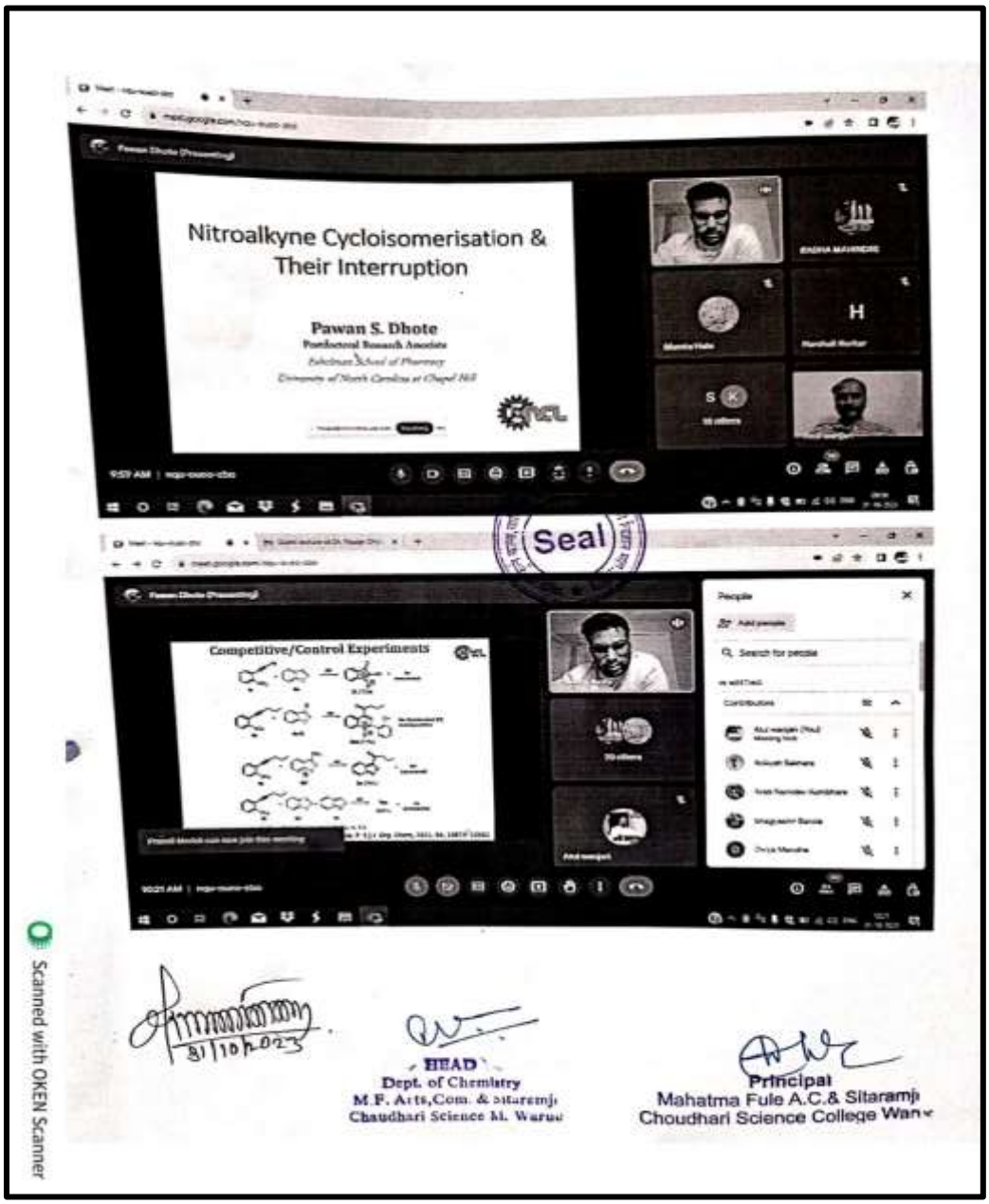
Nitroalkyne Cycloisomerisation &
Their Interruption
Pawan S. Dhote
Postdoctoral Research Associate
Competitive/Control Experiments
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31/10/2023
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DEPARTMENT OF CHEMISTRY

REPORT ON GUEST LECTURE

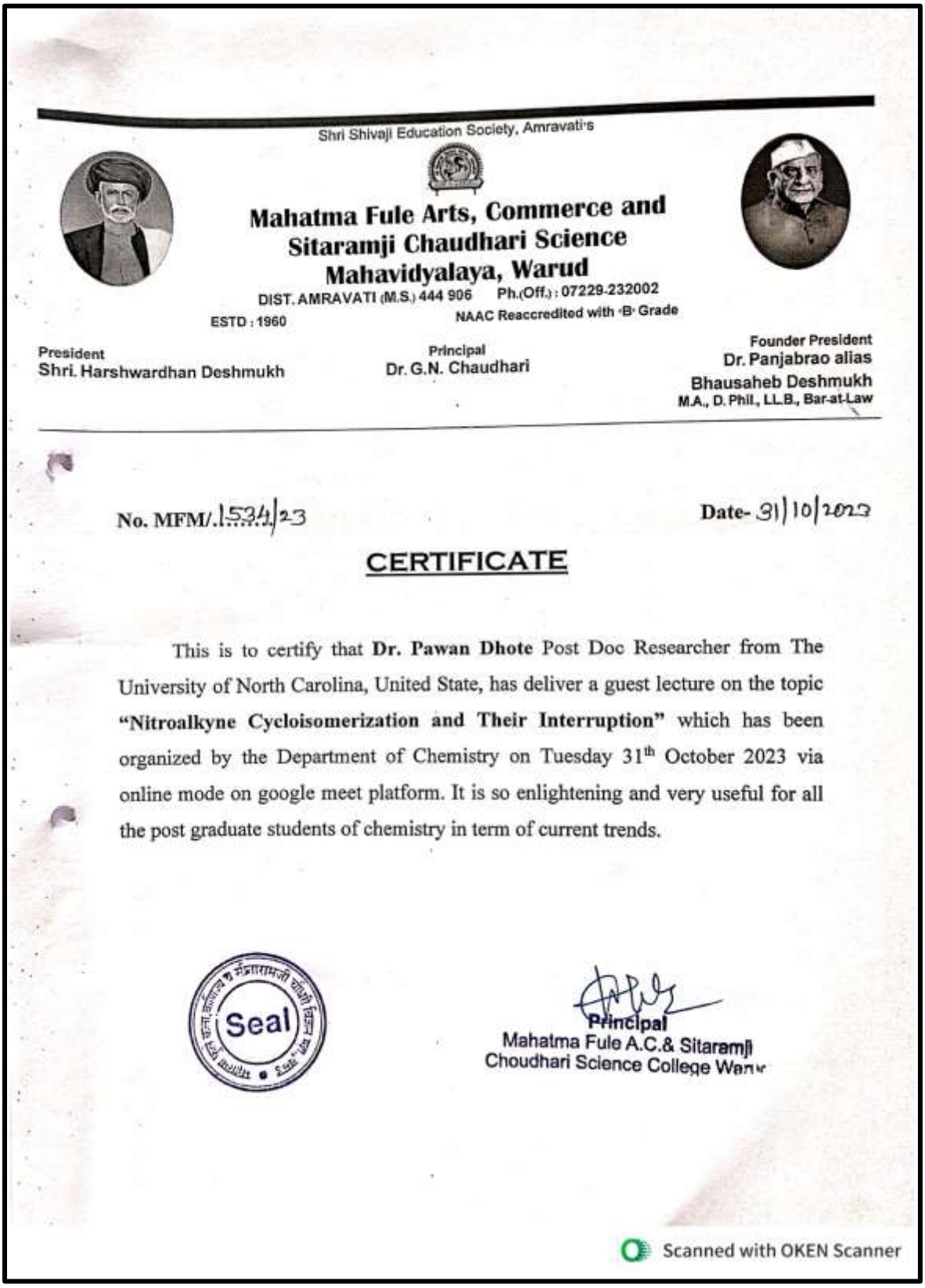
Department of Chemistry Organized guest lecture on the topic ***"Nitroalkyne Cycloisomerization and Their Interruption"*** on the dated 31st October 2023 for post graduate students of chemistry. The resource person for the guest lecture was Dr. Pawan Dhote from The University of North Carolina, United State. He mainly focusses on isomerization, types of isomerization of cyclic compounds, their structural interpretation. He also explores the difference reactive terms involve in the reactions of nitroalkynes. He briefly explains the mechanism involve in the nitroalkyne cycloisomerization. Dr. Pawan also highlights the role of α-gold carbene to competitive control the cycloisomerization. Students are activity interact with Dr. Pawan in question and answering session. Dr. A.K. Wanjari work as an organizing secretary for the lecture. He starts the session with introduction of Speaker and Vote of thanks was given by Mr. V.N. Gulhane.

Beneficiary Students: 31 M.Sc. Chemistry Students

Output of guest Lecture:

1. Students got information about Isomerization and their types.
2. Students know the experimental control for organic reactions.
3. Students will know about the role of α-gold carbene to competitive control the cycloisomerization
4. Students got to know about various mechanism involve in the organic reaction.
5. Students will know factors affecting the organic reaction at different temperature and time.
6. Students will know the role of catalyst in controlled organic reaction with their mechanistic approach.
7. The question and answering session with help to improve communication skill of students.

Seal



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Dr. Panjabrao alias
Bhausaheb Deshmukh
M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/.1534/23 Date- 31/10/2023

CERTIFICATE

This is to certify that **Dr. Pawan Dhote** Post Doc Researcher from The University of North Carolina, United State, has deliver a guest lecture on the topic **"Nitroalkyne Cycloisomerization and Their Interruption"** which has been organized by the Department of Chemistry on Tuesday 31th October 2023 via online mode on google meet platform. It is so enlightening and very useful for all the post graduate students of chemistry in term of current trends.

Seal

Principal
Mahatma Fule A.C.& Sitaramji
Choudhari Science College Warud

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President
Shri. Harshwardhan Deshmukh

Principal
Dr. G.N. Chaudhari

Founder President
Dr. Panjabrao alias
Bhausaheb Deshmukh
M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/151/23 Date- 26/10/2023

INVITATION LETTER FOR FULBRIGHT GUEST LECTURE SERIES

To,
Dr. Pawan Dhote
University of North Carolina,
United State.

On behalf of our college, I am very pleased to have the honour for inviting you to deliver a lecture to the Post Graduate Chemistry students as a part of *Fulbright guest lecture program* on the topic **"*Nitroalkyne Cycloisomerization and Their Interruption*"** on 31st October at 10 pm on google meet platform. We are expecting an audience of approximately 40 Post Graduate Chemistry students and faculties department of chemistry

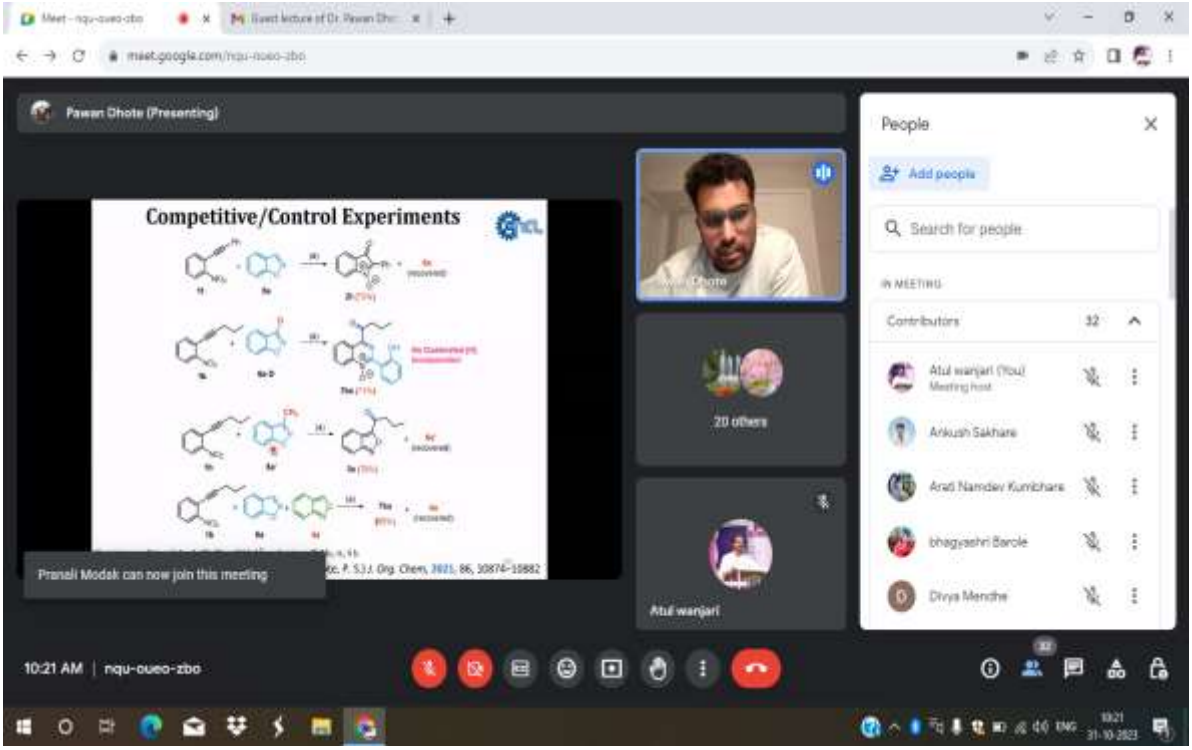
Looking forward!

Best Wishes.

Seal

Principal
Mahatma Fule A.C.& Sitaramji
Choudhari Science College Warud


Pawan Dhote (Presenting)
Nitroalkyne Cycloisomerisation & Their Interruption
Pawan S. Dhote
Postdoctoral Research Associate
Eshelman School of Pharmacy
University of North Carolina at Chapel Hill
RADHA MAHINDRE
Mamta Hale
Harshali Nerkar
10 others
9:59 AM | nqu-oueo-zbo


Pawan Dhote (Presenting)
Competitive/Control Experiments
Pranali Modak can now join this meeting
20 others
Atul wanjari
People
Add people
Search for people
IN MEETING
Contributors 32
Atul wanjari (You)
Ankush Sakhare
Aradi Namdev Kumbhare
bhagyashri Barole
Divya Mendhe
10:21 AM | nqu-oueo-zbo

Shri. Shivaji Education Society, Amravati's

MAHATMA FULE ARTS, COMMERCE AND SITARAMJI CHAUDHARI SCIENCE MAHAVIDYALAYA, WARUD, DIST.AMRAVATI.

DEPARTMENT OF CHEMISTRY

ORGANISE GUEST LECTURE ON

Nitroalkyne cycloisomerization and Their interruption.

Date: 31/10/2023 (Tuesday) **Time:** 10 am

Google Meet http://meet.google.com/nqu-oueo-zbo

RESOURCE PERSON

Dr. Pawan Dhote

M.Sc. Organic Chemistry, Pune University, SET, Ph.D from NCL Pune,
Post Doc Researcher at The University of North Carolina, United State (US)

Dr.G.N Chaudhari
Principal and Convener

Dr.U.E.Chaudhari
Head of Department

Dr. A. K. Wanjari
Organizing Secretary

Shri Shivaji Education Society, Amravati's

Mahatma Fule Arts, Commerce and Sitaramji Chaudhari Science Mahavidyalaya, Warud

DIST. AMRAVATI (M.S.) 444 906 Ph.(Off.) : 07229-232002

ESTD : 1960 NAAC Reaccredited with 'B' Grade

President
Shri. Harshwardhan Deshmukh

Principal
Dr. G.N. Chaudhari

Founder President
Dr. Panjabrao alias
Bhausaheb Deshmukh
M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/.209/24 Date- 13/02/2024

INVITATION LETTER FOR FULBRIGHT GUEST LECTURE SERIES

To,

Dr. Rumana Parveen

Head, Department of Chemistry,

Dinhata College, Dist-Cooch Behar, West Bengal, India

On behalf of our college, I am very pleased to have the honour for inviting you to deliver a lecture to the Post Graduate Chemistry students as a part of *Fulbright guest lecture program* on the topic ***"Prediction of Organic Compounds using NMR and IR"*** on google meet platform in the last week of February 2024. We are expecting an audience of approximately 40 Post Graduate Chemistry students and faculties department of chemistry.

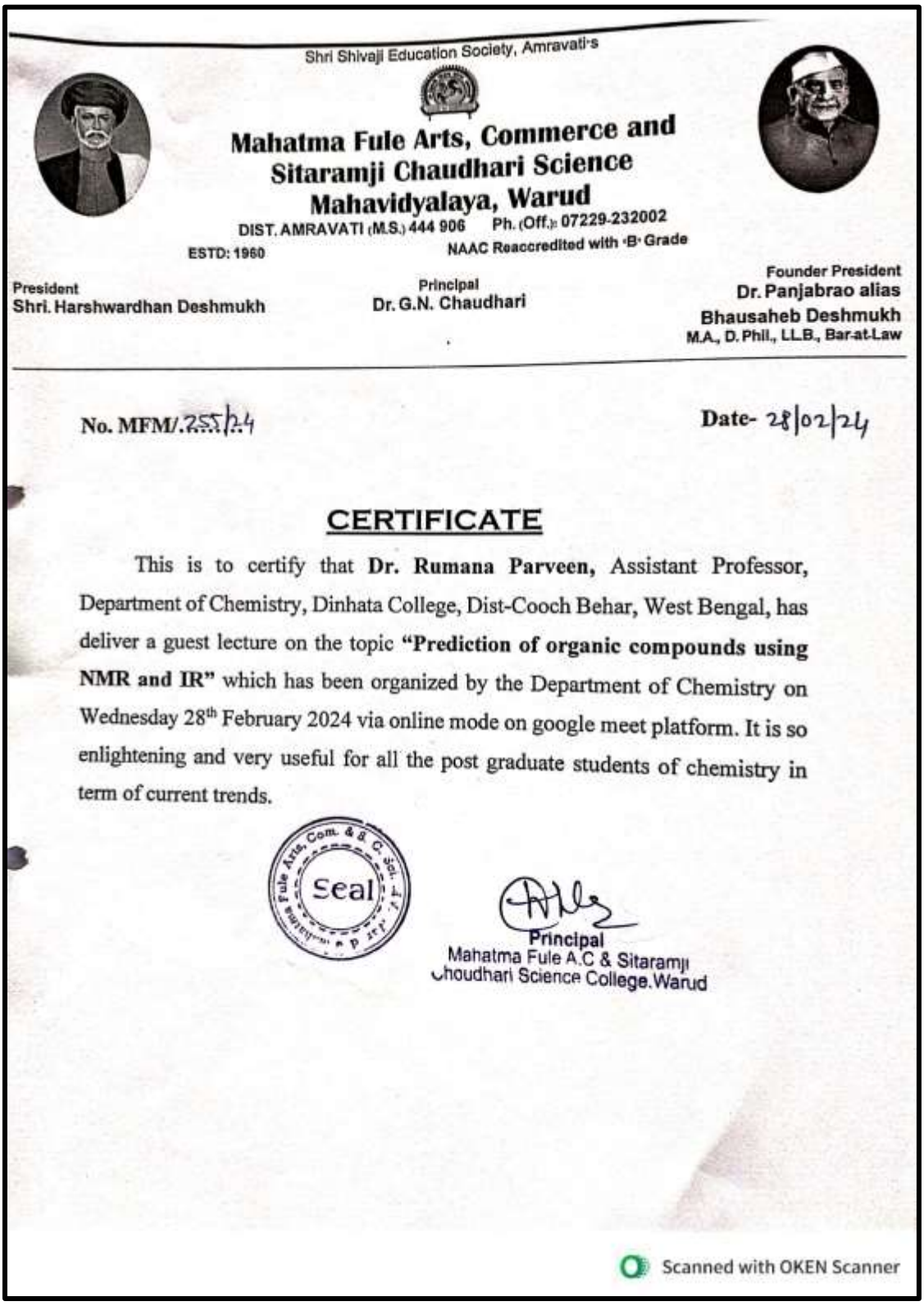
Kindly let us know the final date of lecture as per your convenience.

Looking forward!

Best Wishes.

Seal

Principal
Mahatma Fule A.C & Sitaramji
Choudhari Science College.Warud



Shri Shivaji Education Society, Amravati's

Mahatma Fule Arts, Commerce and Sitaramji Chaudhari Science Mahavidyalaya, Warud

DIST. AMRAVATI (M.S.) 444 906 Ph. (Off.) 07229-232002

ESTD: 1960 NAAC Reaccredited with 'B' Grade

President
Shri. Harshwardhan Deshmukh

Principal
Dr. G.N. Chaudhari

Founder President
Dr. Panjabrao alias
Bhausaheb Deshmukh
M.A., D. Phil., LL.B., Bar-at-Law

No. MFM/.255/24

Date- 28/02/24

CERTIFICATE

This is to certify that **Dr. Rumana Parveen,** Assistant Professor, Department of Chemistry, Dinhata College, Dist-Cooch Behar, West Bengal, has deliver a guest lecture on the topic **"Prediction of organic compounds using NMR and IR"** which has been organized by the Department of Chemistry on Wednesday 28th February 2024 via online mode on google meet platform. It is so enlightening and very useful for all the post graduate students of chemistry in term of current trends.

Seal

Principal
Mahatma Fule A.C & Sitaramji Choudhari Science College.Warud

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MAHATMA FULE ARTS, COMMERCE AND SITARAMJI CHAUDHARI SCIENCE MAHAVIDYALAYA, WARUD, DIST-AMRAVATI

Department of Chemistry

Feedback Form on Guest Lecture Sessions – 2023-24

Year / Section	M.Sc-II, S-IV	**Academic Year**	2023-24
Name of the Guest	Dr. Rumana Parveen	**Date of the Lecture**	28/02/2024
Topic of the lecture	Prediction of organic compounds using NMR and IR	**Duration**	2 Hrs.

Sr. No	Description	Excellent	Good	Average	Poor
1	The instructor explained the topic clearly and used relevant examples	✓			
2	The lecture was interactive and felt engaged		✓		
3	Speaker positively influenced my view towards the topic	✓			
4	In future, I would like to attend the lectures from the speaker	✓			

Mention few points you have learnt from the lecture Role of solvent in NMR

Signature of Student
(Sakshi Hete.)

Department of Chemistry

List of Students present in Guest Lecture on ***"Prediction of Organic Compounds using NMR and IR"*** on the dated 28th February 2024 on the occasion of National Science Day.

Sr. No.	Name of Student	Signature
1.	Ku. Pratiksha Eokadu	Eokadu
2.	Ku. Pallavi Ganeshrao Ambulkar	Ambulkar
3.	Ku. Divya G. mendhe	Mendhe
4.	Ku. Mohini Sharadrao Kuzhade	Kuzhade
5)	Ku. Gayatri pradiprao Bele	G.P. Bele
6.	Vaishnavi Sanjay Mahode	V.S. Mahode
7	Ku. Shrutika Pradiprao Wankhade	
8.	Ku. Pratiksha Baburao Ambadkar	P. Ambadkar
9.	Ku. Neha Sunilrao Ganorkar	Ganorkar
10	Ku. Sanika Onkarrao Gawande	S.Gawande
11	Ku sakshi Dineshrao Hele	
12	Ku Neha K. pohane	Pohane
13	Ku Bhagyashri Bardle	
14	Ku. Mamata H. Hale	Mayur
15	Mayuri S. Kalbhore	Pallavi
16	pallavi N. satange	Kuryodar
17	purva G. gedam	Rathod
18	Rashmi S. Barskar	Rashmi Upase
19	Rasika S. Upase	Rutuja
20	Rutuja S. Gawali	
21	Rapali V. Manekar	Rupali
22	sakshi R. Pokale	Sakshi R.
23	sejal R. Purge	
24	vaishnavi D. mahalle	vaishnavi.
25	Krutika M. chinchmalpure	Krutika
26	Pranali U. modak	Pranali Modak.
27	Ankush V. Sakhare	Ankush.
28	Ku. Snehal Hele.	S. Hele.
29	Ku. Kalyani Pande	K. Pande.
30	Ku. Kalyani Gahorkar	K. Gahorkar.
31.	Ku. Punam Gurmule.	P. Gurmule.
32	Ku. [illegible] Netkar	H. Netkar
33.	Ku. [illegible] Gawande.	N. Gawande.

Seal

Dr A K Wanjari

HEAD
Dept. of Chemistry
M. F. Arts, Com. & Sitaramji Choudhari Science M. Warud

Principal
Mahatma Fule A.C & Sitaramji Choudhari Science College, Warud

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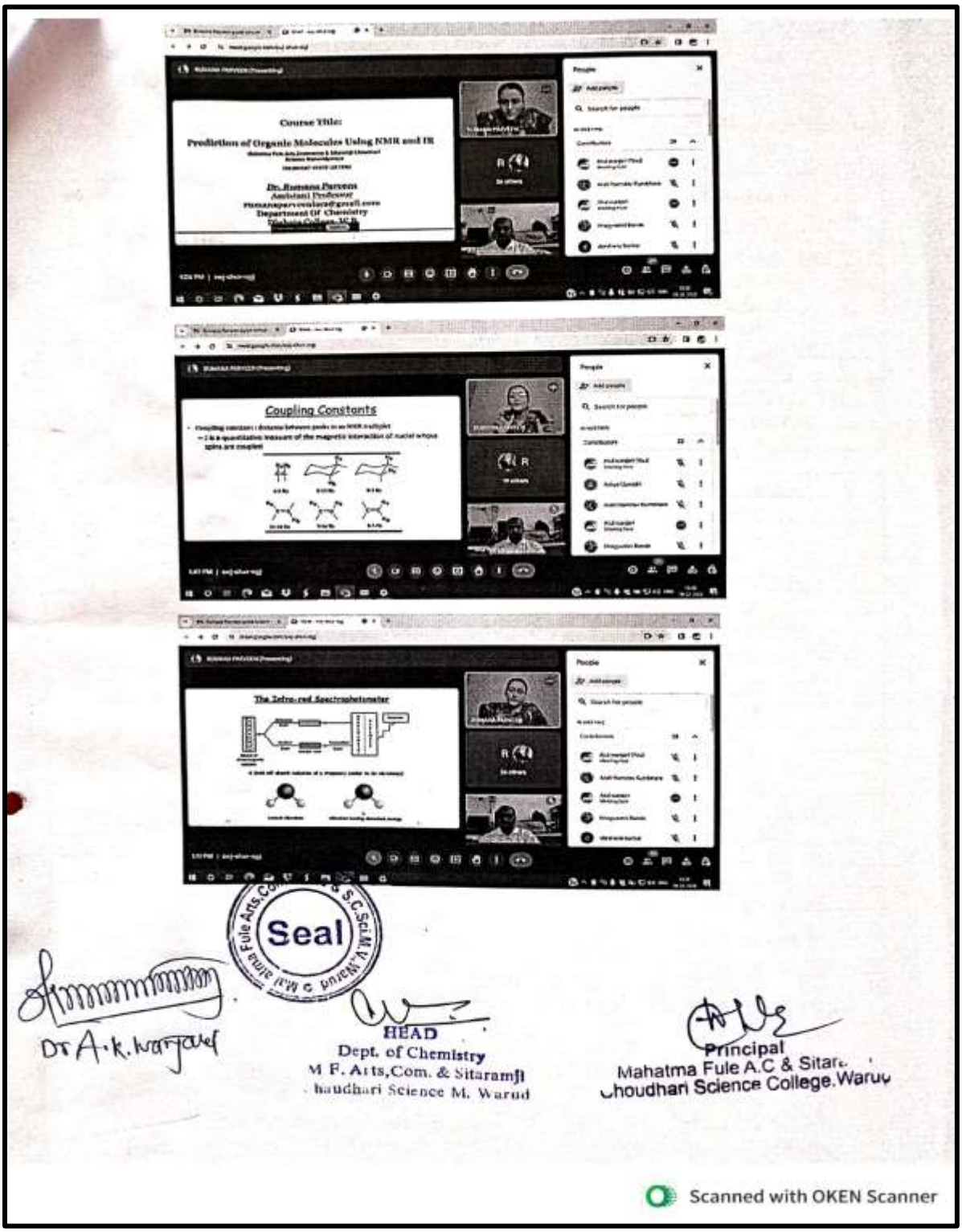
Course Title:
Prediction of Organic Molecules Using NMR and IR
Coupling Constants
The Infra-red Spectrophotometer
Seal
Dr A.k.wargad
HEAD
Dept. of Chemistry
M F. Arts,Com. & Sitaramji
haudhari Science M. Warud
Principal
Mahatma Fule A.C & Sitar
Choudhari Science College.Warud
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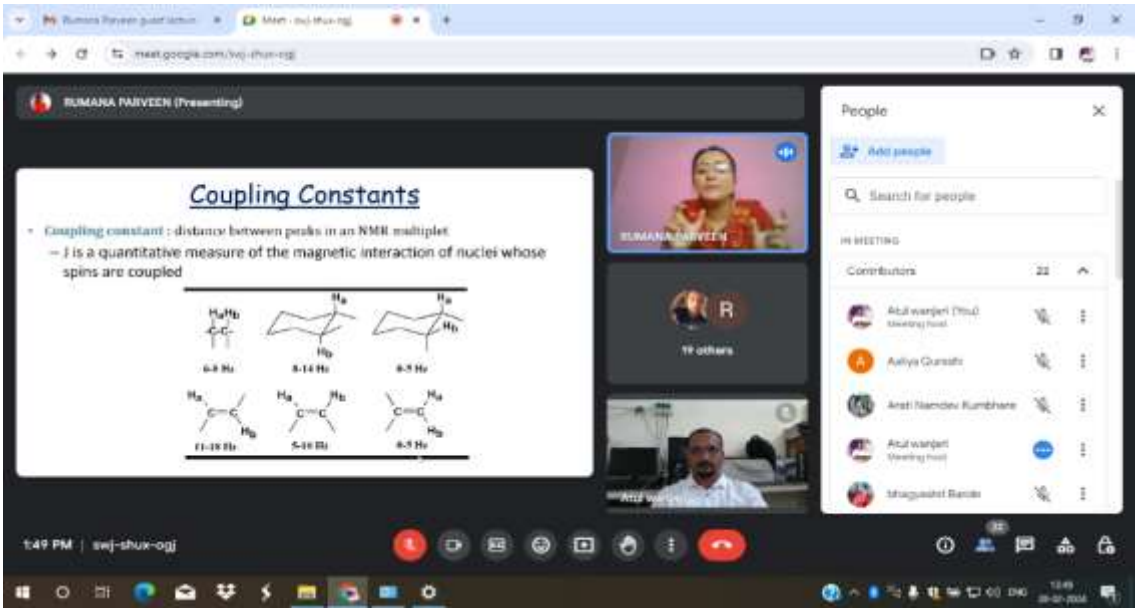
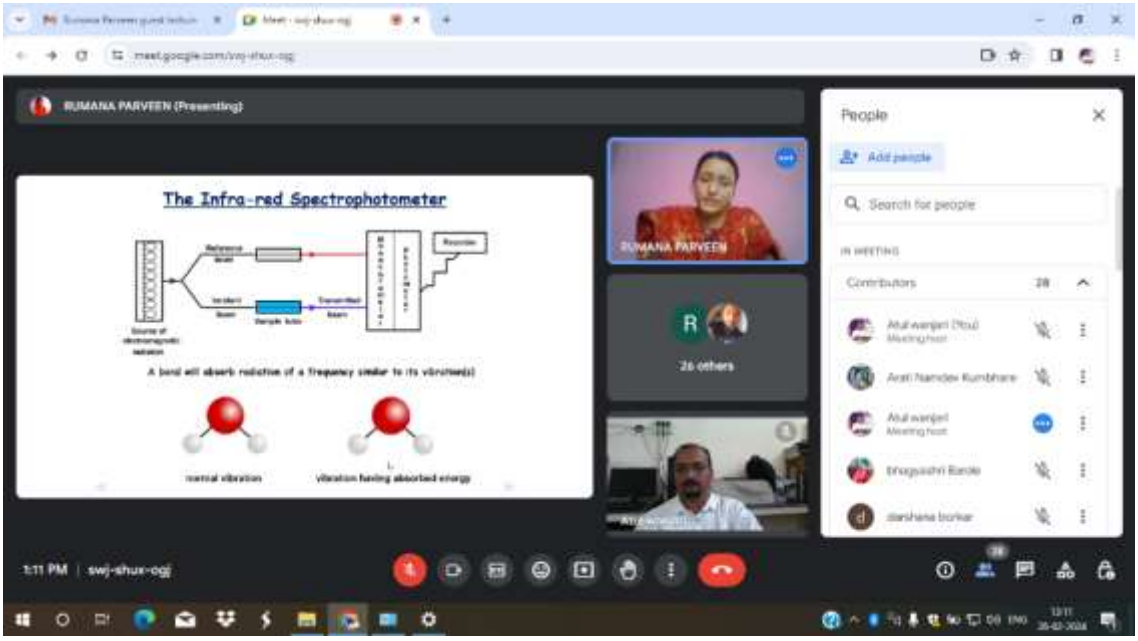
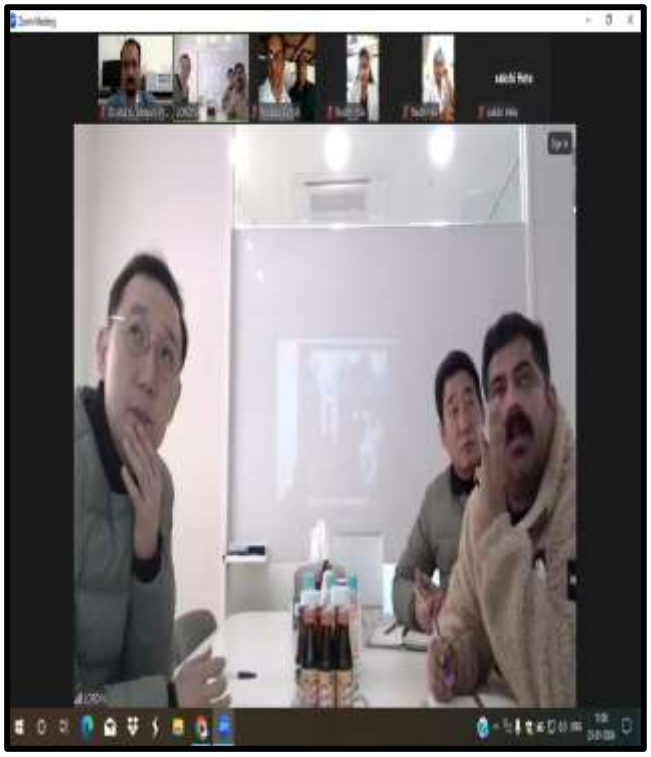

RUMANA PARVEEN (Presenting)
Coupling Constants
Coupling constant : distance between peaks in an NMR multiplet
– J is a quantitative measure of the magnetic interaction of nuclei whose spins are coupled
People
Add people
Search for people
IN MEETING
Contributors
1:49 PM | swj-shux-ogj

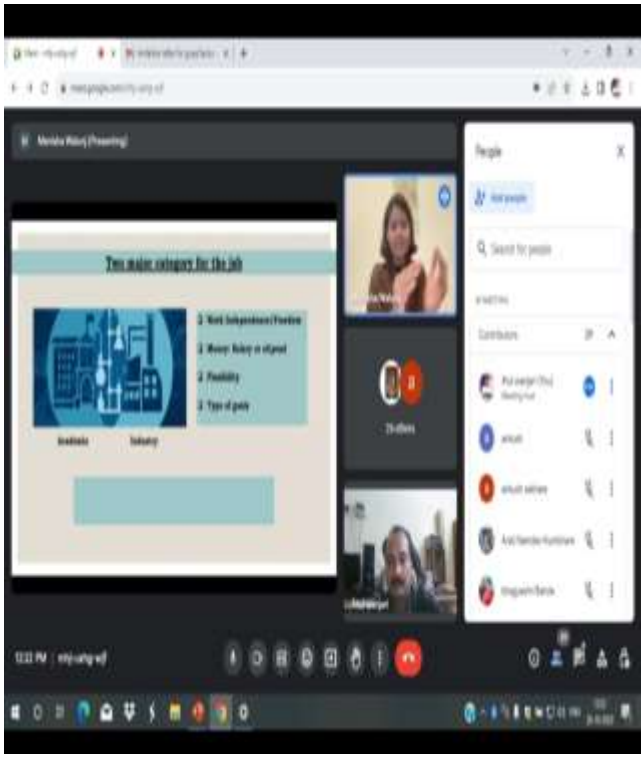

RUMANA PARVEEN (Presenting)
The Infra-red Spectrophotometer
People
Add people
Search for people
IN MEETING
Contributors
1:11 PM | swj-shux-ogj

मातृभूमि

महात्मा फुले महाविद्यालय येथे

जर्मनी व संयुक्त राष्ट्र येथून गेस्ट लेक्चर





5. SWAYAM/NPTEL courses/MOOC courses of faculties/Students

Elite

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

AMRAPALI BHAURAO PATIL

for successfully completing the course

Research Methodology

with a consolidated score of 73 %

Online Assignments	17.92/25	Proctored Exam	54.69/75

Total number of candidates certified in this course: 3794

Prof. Devendra Jalihal
Chairperson,
Centre for Outreach and Digital Education, IITM

Aug-Oct 2023
(8 week course)

Prof. Andrew Thangaraj
NPTEL, Coordinator
IIT Madras

Indian Institute of Technology Madras

swayam

Roll No: NPTEL23GE36S642802840 To verify the certificate No. of credits recommended: 2 or 3

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

AMRAPALI BHAURAO PATIL

for successfully completing the course

Experimental Physics I

with a consolidated score of **44** %

Online Assignments	13.69/25	Proctored Exam	30/75

Total number of candidates certified in this course: **112**

Jul-Oct 2023

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL23PH37S542802496 To verify the certificate No. of credits recommended: 3 or 4

NPTEL Online Certification

(Funded by the MoE, Govt. of India)

This certificate is awarded to

AMRAPALI BHAURAO PATIL

for successfully completing the course

Characterization of Polymers, Elastomers and Composites

with a consolidated score of **50** %

Online Assignments	12.97/25	Proctored Exam	37.5/75

Total number of candidates certified in this course: **240**

Jan-Apr 2024

(12 week course)

Prof. Haimanti Banerji
Coordinator, NPTEL
IIT Kharagpur

Indian Institute of Technology Kharagpur

swayam

Roll No: NPTEL24CH35S1262900946 To verify the certificate No. of credits recommended: 3 or 4

SEAL

Dr S.V.Satpute

IQAC Coordinator
Mahatma Fule Arts, Commerce and Sitaramji Chaudhari Science Mahavidyalaya, Warud, Dist. Amravati

Dr.G.N.Chaudhari

Principal
PRINCIPAL
Mahatma Fule Arts,Com.&Sitaramji Chaudhari Sci.Mahavidyalaya,Warud