

Certificate course on "CHEMISTRY: A SUBJECT WITH MULTIFARIOUS OPPORTUNITIES" organized by the department of Chemistry, Kharagpur College from 16<sup>th</sup> December 2022 to 7<sup>th</sup> January, 2023

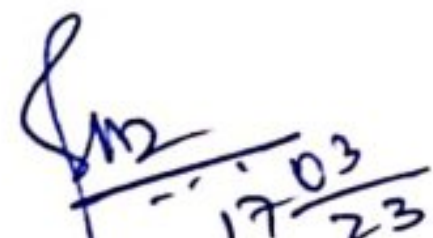
**Participants list**


<i>SL</i>	<i>NAME OF THE PARTICIPANTS</i>	<i>SEMESTER</i>
1	SURAJIT ADDIYA	5th
2	SASWATA MONDAL	5th
3	PALLABI BERA	5th
4	KRISHNENDU MAITY	5th
5	JOYDIP PAL	5th
6	SOUMYAJIT HAIT	5th
7	PRALAY KUMAR JANA	5th
8	ARPITA BERA	3rd
9	SATYAJIT NAYEK	3rd
10	PRASENJIT MAHATA	3rd
11	SURAJIT BISAL	3rd
12	SOMNATH SANTRA	3rd
13	DEBANJAN PARI	3rd
14	RITWIKA SAHOO	3rd
15	SHREYA ROY	3rd
16	SILPA SAHOO	3rd
17	SHANKHA SUBHRA BHUNIA	3rd
18	SURAJIT MAITY	3rd
19	DEBAPRIYA MAITY	3rd
20	STHITI DAS	3rd
21	DIPA PRADHAN	3rd



  
Principal  
Kharagpur College

22	ARPAN DUTTA	3rd
23	SK SAHIL ALI	3rd
24	AMIYA KUMAR GHORAI	3rd
25	DEBRAJ GHOSAL	3rd
26	RUDRA PRASAD SATPATI	3rd
27	SUBRATA MAITI	3rd
28	SUCHITA GHOSH	3rd
29	GAURAV DEBNATH	1st
30	ANUSPA DAS	1st
31	SHOVANWITA JANA	1st
32	BISWAJIT MANDAL	1st
33	AMIT KAREK	1st
34	PURABI DE	1st
35	SNEHASHIS SENAPATI	1st
36	SUCHETA PAUL	1st

  
 Dr. Subhra Mishra  
 Associate Professor, Department of Chemistry  
 Kharagpur College  
 Jt. Coordinator

  
 Dr. Indranil Chakraborty  
 Associate Professor, Department of Chemistry  
 Kharagpur College  
 Jt. Coordinator

2

  
 Principal  
 Kharagpur College



दिनांक Date **17/3/23**

नाम Branch **KHARAGPUR COLLEGE**

एनो एक्सप्रेस एनटीएफटी AB  
 एनो रियल टाइम RTGS

Funds to be sent through

Name of the A/c Holder **PRINCIPAL, KHARAGPUR COLLEGE**

Sender A/c No **133710100055593**

Email to **kharpurcollege@gmail.com** Mob **9474384852**

बिनाधिकारी का नाम Beneficiary Name **vidya Sagar University**

भारतीय नंबर BEN A/c No **17480110077832**

राशि Amount		00
समीक्षण Commission		
समाचार Charges		
कुल Total	<b>10080</b>	00

किस भी बैंक से निकास किया जा रहा है। (This amount is to be credited to Customer's account Over to Bank)

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हस्ताक्षर को जहाँ से प्रेषित किया जा रहा है। (If SC code of the beneficiary branch)

गैरकर्मचारी / Cashier  
 प्राधिकृत हस्ताक्षरकर्ता / Authorised Signatory  
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ATTESTED  
 (62) 27/03/2023  
 Principal  
 Kharagpur College



# Certificate Course, Department of Chemistry, Kharagpur College

**TITLE - CHEMISTRY: A SUBJECT WITH MULTIFARIOUS OPPORTUNITIES**

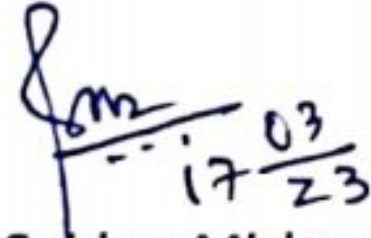
**Date of Commencement: 16<sup>th</sup> December, 2022**

**Date of Completion: 7<sup>th</sup> January, 2023**

**Duration: 48 hrs**

Sl No	Topic		Resource person	Theory/Practical	Duration (Hours)	Date & Time
01	Safety measures in the laboratory		Dr. Forid Saikh, Asst. Prof. Chemistry	Theory	01	22.12.22 1.30pm
02	Fundamentals of computers	MS Words	Sri Alok Halder, Asst. Prof. Comp Science	Theory	01	17.12.22 12.00 noon
		MS Excel	Sri Kousik Bhattacharya, SACT Math	Practical	02	17.12.22
				Theory	01	05.01.23
		Prasetation in Power point, Google form	Dr. Indranil Chakraborty, Associate Prof. Chemistry	Practical	02	1.00 pm
Theory	01	19.12.22				
03	Organocatalysis: New Methodologies for Sustainable Chemistry		Dr. Bidyut Kumar Senapati, Associate Professor, Midnapore College (Autonomous)	Practical	02	1.00 pm
				Theory	02	23.12.22 12.00 noon
04	Computational Chemistry		Molecular modeling, Dr. Subhra Mishra, Associate Prof. Chemistry	Theory	02	16.12.22 3.00pm
			Drawing of small molecules, Dr. Forid Saikh, Asst. Prof. Chemistry	Theory	02	22.12.22 1.00pm
05	Chemical waste & management		Smt. Kuheli Pramanik, Asstt Prof. Chemistry	Theory	02	05.01.23
06	Chemistry in a click		Dr. Jayanta Samanta, Post Doc Fellow, Dartmouth College, USA	Theory (Online mode through Google Meet)	02	27.12.22
07	Learn chemistry think differently _Lecture 1		Dr. Gagan Chandra Mandal, Associate Prof. Chemistry	Theory	02	16.12.22 2.00pm
08	Learn chemistry think differently _Lecture 2		Dr. Gagan Chandra Mandal, Associate Prof. Chemistry	Theory	01	07.01.23 12.00 noon
09	Learning e resources		Sri Amit Roy, Librarian	Theory	02	20.12.22

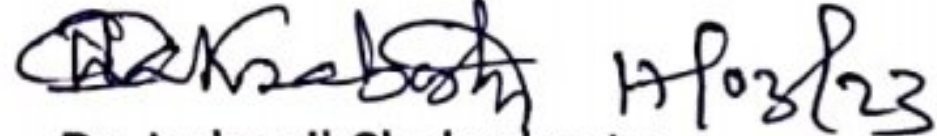
			mode through Google Meet)		3.00 pm
11	Determination of pKa of weak acid conductometrically	Prof. Prasanna Kumar Duley, Asstt Prof. Chemistry	Theory	01	03.01.23
			Practical	02	12 noon
12	Synthesis & application of polysaccharide functionalized metal nanoparticles	Dr. Ipsita Kumar Sen, Asstt Prof. Govt. General Degree College, Salboni.	Theory	02	23.12.22 1.30pm
13	Preparation of cosmetics Shampoo, Nail Polish remover, Vanishing cream etc....	Dr. Subhra Mishra, Associate Prof. Chemistry	Practical	02	03.01.21. 1.00pm
		Dr. Indranil Chakraborty, Associate Prof. Chemistry	Practical	02	04.01.23
		Dr. Forid Saikh, Asst. Prof. Chemistry	Practical	02	05.01.23
14	Chemistry in Everyday Life	Dr. Sumit Ray, Asst. Prof. Chemistry	Theory	02	04.01.22 12 noon
15	Instrumental biochemistry	Sri Subhajit Banerjee, SACT, Zoology	Theory	02	21.12.22 1.00pm
16	Bio fertilizers: A promising approach towards sustainable agriculture	Sri Kalyan Sur, SACT, Chemistry	Theory	02	03.01.23 1.00pm
17	Application of polysaccharides	Dr. Soumita Mondal, Associate Professor, Chemistry, Panskura Banamali College	Theory	02	21.12.22 1.30 pm
18	Career Opportunities in Chemistry	Dr. Sudipa Panigrahi, Director R&I Development, L'Oreal R&I USA	Theory(Online mode through Google Meet)	02	20.12.22 7.00pm

  
 Dr. Subhra Mishra  
 Associate Professor, Department of Chemistry  
 Kharagpur College  
 Jt. Coordinator



①

Kharagpur College

  
 Dr. Indranil Chakraborty  
 Associate Professor, Department of Chemistry  
 Kharagpur College  
 Jt. Coordinator

Notice  
Kharagpur College

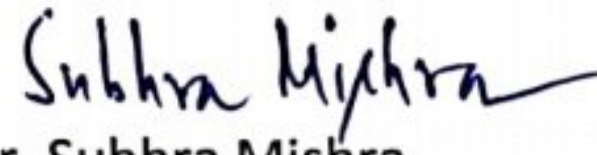
08.12.2022

**Notice for payment of registration fees for the certificate course on  
“Chemistry: A subject with multifarious opportunities”**

This is for information of all registered students of the Vidyasagar University approved certificate course (15 days) on “CHEMISTRY: A SUBJECT WITH MULTIFARIOUS OPPORTUNITIES” to submit the registration fees of Rs. 400.00 (Course fees Rs. 200/-, and application fees Rs.200/-) to the college office by 12.12.2022. The tentative date of commencement of the certificate course is 16<sup>th</sup> Dec 2022. The detailed course schedule will be intimated in due course of time.



Dr. Indranil Chakraborty  
Associate Professor & Head  
Department of Chemistry  
Jt. Course Coordinator



Dr. Subhra Mishra  
Associate Professor  
Department of Chemistry  
Jt. Course Coordinator

① 09/12/22

Dr. Bidyut Samanta  
Principal,  
Kharagpur College



## SUMMARY REPORT OF THE CERTIFICATE COURSE

**Topic of the Certificate Course: CHEMISTRY: A SUBJECT WITH MULTIFARIOUS OPPORTUNITIES**

**Organized by: Department of Chemistry, Kharagpur College.**

**Approved by: Centre for Continuing & Adult Education (CCAЕ), Vidyasagar University.**

**Duration: 16<sup>th</sup> December, 2022 to 7<sup>th</sup> January, 2023 (duration: 48 hrs).**

**Participants: Thirty six (36) students of B.Sc (Chemistry Honours), Kharagpur College.**

**Mode of delivery of course content: Hybrid mode.**

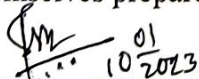
**Nature of delivery: Both theoretical and practical.**


**Resource Persons: Eighteen (18) Resource persons were involved in the course, out of which thirteen (11) faculty members were from Kharagpur College, four (04) from other colleges affiliated to Vidyasagar University, two from industry (ITC group, Bangalore & L'Oreal R&I USA), one from Dartmouth College, USA.**

**Co-ordinators: Dr. Indranil Chakraborty, Associate Professor, Department of Chemistry & Dr. Subhra Mishra, Associate Professor, Department of Chemistry.**

**Areas covered: Safety measures in the laboratory, Fundamentals of computers, Methodologies for Sustainable Chemistry, Computational Chemistry, Chemical waste & management, Chemistry in a click, Learn chemistry think differently, Learning e resources, Conductometry, Metal nanoparticles, Application of polysaccharide, Preparation of cosmetics Shampoo, Nail Polish remover, Vanishing cream etc, Chemistry in Everyday Life, Instrumental biochemistry, Bio fertilizers, Career Opportunities in Chemistry.**

**Course outcome: The course has been especially meant to make the students aware of the huge openings of the subject and also the challenges to be faced therein. During the tenure of the course discussions on different topics like fundamentals of computers, computational Chemistry, waste management, sustainability, nanochemistry, instrumental biochemistry etc helped the participating students to be acquainted with the mainstream chemistry of present days. They learned how to think differently after studying Chemistry. They have also been given hands on training on some interesting cosmetics preparation. During the interactive sessions with scientists from Industries the students came to know about job opportunities in various industries, and they have also been informed how to make themselves prepared for industries.**

  
(Dr. Subhra Mishra)  
Associate Professor, Department of  
Chemistry  
Kharagpur College  
Jt. Coordinator

 10.01.23  
(Dr. Indranil Chakraborty)  
Associate Professor, Department of  
Chemistry  
Kharagpur College  
Jt. Coordinator

**Question paper for final evaluation of  
Certificate Course on Chemistry: A Subject With Multifarious Opportunities  
Department of Chemistry, Kharagpur College**

**F.M. : 30**

**Time: 1 hour**

**Date: 07.01.2023**

**Answer any 15 questions (each question carries 02 marks)**

1. Name two stabilizers that can be used to prepare Ag nanoparticles.
2. What is the dimension of the metal nanoparticles?
3. What are the ingredients for preparation of shampoo?
4. What is the origin of "Click Chemistry"?
5. What is bio-fertilizer? Give two examples.
6. Name the main chemical ingredient present in toothpaste?
7. Write down the name of a proteomic tool used to generate secondary structure of a novel protein.
8. What are the ingredients for preparation of nail enamel?
9. Give two examples of green solvent.
10. Write down the structure of PVC.
11. Write down the structure of  $\beta$  glucan.
12. Give one example where AI is used in medical diagnosis?
13. Draw the curve for conductometric titrations of weak acid and weak base.
14. What will you do if concentrated Sulphuric acid spill on your hand?
15. What precaution you will take while handling with Bromine?
16. Why organocatalysts have advantage over conventional catalysts?
17. How will you manage chemical waste in your laboratory?
18. How will you use waste of your college hostel to produce fertilizer?
19. What are the two important applications of PPT?
20. What is earth overshoot day?

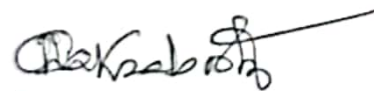


Certificate course on "CHEMISTRY: A SUBJECT WITH MULTIFARIOUS OPPORTUNITIES" organized by the department of Chemistry, Kharagpur College from 16 December 2022 onwards


### ATTENDANCE RECORD

SL	NAME OF THE STUDENTS	SEM	Roll	24/12/22	03/01/23	04/01/23	05/01/23	02/01/23	07/01/23	Signature
1	GAURAV DEBNATH	1	2019071	P	P	P	P	P	P	Gaurav Debnath.
2	ARPITA BERA	3	2119009	P	P	P	P	P	P	Arpita Bera
3	SURAJIT ADDHYA	5	2019068	P	P	ab	P	P	P	Surajit Addhya
4	ANUSPA DAS	1	2219069	P	P	P	P	P	P	Anuspa Das.
5	SASWATA MONDAL	5	2019078	P	P	P	P	P	P	Saswata Mondal
6	SHOVANWITA JANA	1	2219075	P	P	P	P	P	P	Shovanwita Jana
7	BISWAJIT MANDAL	1	2219016	P	P	P	P	P	P	Biswajit Mandal
8	AMIT KAREK	1		P	P	P	P	ab	P	Amit Karek.
9	SATYAJIT NAYEK	3	2119092	P	P	P	P	ab	P	Satyajit Nayek
10	PURABI DE	1	2219038	P	P	P	ab	P	P	Purabi De
11	PALLABI BERA	5	2019071	P	P	P	P	P	P	Pallabi Bera
12	KRISHNENDU MAITY	5	2019023	P	P	P	P	P	P	Krishnendu Maity.
13	JOYDIP PAL	5	2019074	P	P	ab	P	P	P	Joydip Pal.
14	PRASENJIT MAHATA	3	2119069	P	P	P	P	P	P	Prasenjit Mahata
15	SURAJIT BISAL	3	2119064	P	P	P	P	P	P	Surajit Bisal.
16	SOMNATH SANTRA	3	2119055	P	P	P	P	ab	P	Somnath Santra
17	SNEHASHIS SENAPATI	1	2219047	P	P	P	P	P	P	Snehashis Senapati.
18	SOUMYAJIT HAIT	5	2019058	P	P	P	P	P	P	Soumyajit Hait

SL	NAME OF THE STUDENTS	SEM	27/11/20	02/11/23	04/11/23	05/11/23	06/11/23	07/11/23	Roll No.	SIGNATURE
19	DEBANJAN PARI	3	P	P	P	Ab	P	P	2119070	Debanjan Pari
20	RITWIK SAHOO	3	P	P	P	P	P	P	2119039	Ritik Sahoo
21	PRALAY KUMAR JANA	5	P	P	P	P	P	cb	2019024	Pralay Kumar Jana
22	SHREYA ROY	3	P	P	P	P	P	P	2119018	Shreya Roy
23	SILPA SAHOO	3	P	P		P	P	P	2119041	Silpa Sahoo
24	SHANKHA SUBHRA BHUNIA	3	P	P	P	P	P	cb	2119016	Shankha Subhra Bhunia
25	SURAJIT MAITY	3	P	P	P	P	P	P	2119065	Surajit Maity
26	DEBAPRIYA MAITY	3	P	P	P	P	P	P	2119004	Debapriya Maity
27	STHITI DAS	3	P	P	P	P	P	P	2119059	Stिति Das
28	DIPA PRADHAN	3	P	P	P	P	P	cb	2119023	Dipa Pradhan
29	ARPAN DUTTA	3	P	P	P	cb	P	P	2119072	Arpan Dutta
30	SK SAHIL ALI	3	P	P	P	P	P	P	2119052	SK Sahil Ali
31	AMIYA KUMAR GHORAI	3	P	P		P	P	P	2119002	Amiya Kumar Ghora
32	DEBRAJ GHOSAL	3	P	P	P	P	P	P	2119019	Debraj Ghosal
33	RUDRA PRASAD SATPATI	3	P	P		P	P	cb	2119035	Rudra Prasad Satpati
34	SUBRATA MAITI	3	P	P	P	P	P	P	2119061	Subrata Maiti
35	SUCHITA GHOSH	3	P	P	P	P	P	P	2119006	Suchita Ghosh
36	SUCHETA PAUL	1	P	P	P	P	P	P	220049	Sucheta Paul



Dr. Indranil Chakraborty  
Associate Professor & Head  
Department of Chemistry  
Jt. Course Coordinator



Dr. Subhra Mishra  
Associate Professor  
Department of Chemistry  
Jt. Course Coordinator


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### ATTENDANCE RECORD

SL	NAME OF THE STUDENTS	SEM	Roll	16-12-22	17-12-22	19-12-22	20-12-22	21-12-22	22-12-22	23-12-22	Signature
1	GAURAV DEBNATH	1	2219071	P	P	P	P	P	P	P	Gaurav Debnath. Arpita Bera Surajit Addhya Anuspa Das. Saswata Mondal Shovanwita Jana Biswajit Mandal Amit Karek, Satyajit Nayek Purabi De Pallabi Bera Krishnendu Maity Joydip Pal. Prasenjit Mahata Surajit Bisal. Somnath Santra Snehashis Senapati. Soumyajit Hait
2	ARPITA BERA	3	2119007	P	P	P	P	P	P	P	
3	SURAJIT ADDHYA	5	2019068	P	P	P	P	P	P	P	
4	ANUSPA DAS	1	2119069	P	P	P	P	P	Ab	P	
5	SASWATA MONDAL	5	2019078	P	P	P	P	P	P	P	
6	SHOVANWITA JANA	1	2219079	P	P	P	P	P	P	P	
7	BISWAJIT MANDAL	1	2219086	P	Ab	P	P	P	Ab	P	
8	AMIT KAREK	1									
9	SATYAJIT NAYEK	3	2119097	P	P	P	P	P	P	P	
10	PURABI DE	1	2219038	P	P	P	P	P	P	P	
11	PALLABI BERA	5	2019071	P	P	P	P	P	P	P	
12	KRISHNENDU MAITY	5	2019023	P	P	P	P	P	P	P	
13	JOYDIP PAL	5	2019074	P	P	P	P	P	P	P	
14	PRASENJIT MAHATA	3	2119069	P	P	P	P	P	P	P	
15	SURAJIT BISAL	3	2119067	P	P	P	P	P	P	P	
16	SOMNATH SANTRA	3	2119055	P	P	P	P	P	P	P	
17	SNEHASHIS SENAPATI	1	2219097	P	P	P	P	P	P	P	
18	SOUMYAJIT HAIT	5	2019058	P	P	P	P	P	P	P	

SL	NAME OF THE STUDENTS
19	DEBANJAN PARI
20	RITWIKA SAHOO
21	PRALAY KUMAR JANA
22	SHREYA ROY
23	SILPA SAHOO
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32	DEBRAJ GHOSAL
33	RUDRA PRASAD SATPATI
34	SUBRATA MAITI
35	SUCHITA GHOSH
36	SUCHETA PAUL

SEM		16-12-22	17-12-22	19-12-22	20-12-22	21-12-22	22-12-22	23-12-22	Rolno.	SIGNATURE
3	P	P	P	P	P	P	P	P	2119070	Debanjan PARI
3	P	P	P	P	P	P	P	P	2119034	Ritwika Sahoo
5	P	P	P	P	P	P	P	P	2019134	Pralay Kumar Jana
3	P	P	P	P	P	P	P	P	2119048	Shreya Roy
3	P	P	P	P	P	P	P	P	2119021	Silpa Sahoo
3	P	P	P	P	P	P	P	P	2119046	Shankha Subhra Bhunia
3	P	P	P	P	P	P	P	P	2119065	Surajit Maity.
3	P	P	P	P	P	P	P	P	2119071	Debapriya Maity.
3	P	P	P	P	P	P	P	P	2119059	Sthiti Das.
3	P	P	P	P	P	P	P	P	2119073	Dipa Pradhan.
3	P	P	P	P	P	P	P	P	2119072	Arpan Dutta
3	P	P	P	P	P	P	P	P	2119052	SK Sahil Ali
3	P	P	P	P	P	P	P	P	2119002	Amiya Kumar Ghorai
3	P	P	Ab	P	P	P	P	P	2119019	Debraj Ghosal.
3	P	Ab	P	P	P	P	P	P	2119035	Rudra Prasad Satpati
3	P	P	P	P	P	P	P	P	2119061	Subrata Maiti
3	P	P	P	P	P	P	P	P	2119076	Suchita Ghosh.
1	P	P	P	P	P	Ab	P	P	2200048	Sucheta Paul

  
 Dr. Indranil Chakraborty  
 Associate Professor & Head  
 Department of Chemistry  
 Jt. Course Coordinator

  
 Dr. Subhra Mishra  
 Associate Professor  
 Department of Chemistry  
 Jt. Course Coordinator

# Vidyasagar University



This is to certify that *Arpita Bera*

has successfully completed *15* Days/Week/Month/Year

Certificate/Diploma/PG Diploma Course in *Chemistry*:

*A Subject with Multifarious Opportunities*

held between *16.12.2022* and *07.01.2023* organized by

*Khavagpur College*

in collaboration with the Centre for Continuing and Adult Education (CCAЕ), Vidyasagar University.

Director, CCAE  
Vidyasagar University



Course Coordinator(s)