Department of Science & Technology (DST) funded
Training workshop under
STUTI
(Synergistic Training Program Utilizing the Scientific and Technological Infrastructure)

7 Days Workshop on Operation of NMR, Single crystal XRD, AES, HPLC & Photoluminescence Instrument
from 2nd January 2023 to 9th January 2023
SCHOOL OF CHEMICAL SCIENCES (SCS), Goa University

400 MHz NMR

SCXRD

AES

HPLC

Photoluminescence

Registration & Contact Details

Interested participants must register and only selected candidates would be invited for the workshop.
Local travel, boarding and lodging for the selected candidates will be covered by School of Chemical Sciences (SCS), Goa University.
Interested participant should register using the following link:

_____

Registration deadline: 24th December 2022
Shortlisted candidates will be intimated by email, latest by 28th December 2022.

Eligibility criteria:

a. Minimum qualification: Post Graduate (Science) or B. Tech.
b. Faculty/Scientists/Post-Doc Fellows/Ph. D. Fellows/Industry persons who are actively involved in R&D

***Please note**: Not more than 3 people from one Institute.*

For more information, contact:
Co-ordinator: Dr. Prajesh S. Volvoikar
E-mail: prajesh.volvoikar07@unigoa.ac.in
Contact: +91-7030965977

Local Organising committee

Prof. H. B. Menon, Vice-Chancellor

Prof. V. S. Nadkarni, Registrar

Prof. VMS Verenkar
Dean, SCS

Prof. S. N. Dhuri, Speaker

Dr. R. E. Patre Speaker

Dr. S. T. Bugde Speaker

Dr. H. K. Kadam Speaker

Dr. P. S. Volvoikar, Coordinator, Speaker

Acknowledgements

Department of Sciences & Technology Government of India

Panjab University 1947

Goa University

Overview of STUTI and Objectives of Workshop

DST welcomes the participants for the workshop on NMR, Single crystal XRD, AES, HPLC & Photoluminescence instrument organised under STUTI. STUTI is intended to build human resource and its knowledge capacity through open access S&T Infrastructure across the country. The program envisions hands-on-training and familiarisation of equipment funded by DST. DST has identified Panjab University, Chandigarh as a Project Management Unit (PMU) to conduct and co-ordinate training sessions under the STUTI program. **The workshop will be held at SCS, Goa University**.

The workshop is aimed to provide an insight into the functioning of NMR, Single crystal XRD, AES, HPLC & Photoluminescence instrument. The participants will be introduced to principles of instruments, hands-on-experience, sample preparation and analysis, data processing. The participants will have an opportunity to interact with subject Experts and also, to analyse their own samples (with prior approval).

DAY 1		DAY 2		DAY 3		DAY 4	
0900	Inaugural session	0900	Session 2A	0900	Session 3A	0900	Session 4A
1100	Tea Break	1100	Tea Break	1100	Tea Break	1100	Tea Break
1130	Session 1A	1130	Session 2B	1130	Session 3B	1130	Session 4B
1300	Lunch	1300	Lunch	1300	Lunch	1300	Lunch
1400	Session 1B	1400	Session 2C	1400	Session 3C	1400	Session 4C
1530	Tea	Tea	Tea	Tea	Tea	Tea	Tea
1545	Session 1C	1545	Session 2D	1545	Session 3D	1545	Session 4D

DAY 5		DAY 6		DAY 7	
0900	Session 5A	0900	Session 6A	0900	Session 5A
1100	Tea Break	1100	Tea Break	1100	Tea Break
1130	Session 5B	1130	Session 6B	1130	Session 7B
1300	Lunch	1300	Lunch	1300	Lunch
1400	Session 5C	1400	Session 6C	1400	Valedictory
1530	Tea	1530	Tea	1530	Tea
1545	Session 5D	1545	Session 6D	1545	Certificates

Registration at 0830 on Day 1; Networking dinner at 1900 on Day 5

Contents

Session 1 A: Introduction of the participants and host; Overview of various DST sponsored schemes. User requirements of participants.
Session 1 B & C: Introduction to instruments : SCS lab visit.
Session 2 A: Overview of NMR.
Session 2 B: Fundamentals of NMR, sample preparation techniques, familiarisation of instrument.
Session 2 C: Overview of SCXRD.
Session 2 D: Fundamentals and working of SCXRD, familiarization of instrument.
Session 3 A: Overview of AES.
Session 3 B: Fundamentals of AES, sample preparation techniques, familiarisation of instrument.
Session 3 C: Overview of HPLC and Photoluminescence instrument.
Session 3 D: Fundamentals and working of HPLC and Photoluminescence instrument instrument.
Session 4-5 A: Demonstration of sample analysis using NMR.
Session 4-5 B: Demonstration of sample analysis using SCXRD.
Session 4-5 C: Demonstration of sample analysis using AES.
Session 4-5 D: Demonstration of sample analysis using HPLC and Photoluminescence.
Session 6 A: Hands-on experience to perform NMR analysis.
Session 6 B: Hands-on experience to perform SCXRD analysis.
Session 6 C: Hands-on experience to perform AES.
Session 6 D: Hands-on experience to perform HPLC and Photoluminescence.
Session 7 A: Analysis of participant's samples for NMR and SCXRD.
Session 7 B: Analysis of participant's samples for AES, HPLC and Photoluminescence.

HANDS ON TRAINING PROGRAM

on

Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance liquid Chromatography (HPLC) & Photoluminescence Instruments

2nd January 2023 to 9th January 2023 at SCS, Goa University

List of Participants:

Sr. No.	Candidate Name	Educational Qualification	Caste	Institution Name
1	Ms. K.Dhanavardhini	Research Scholar	OBC	Vellore Institute of Technology, Tamil Nadu
2	Dr. Ansari Palliyarayil	Post Doctoral Fellow	General	CSIR-Central Leather Research Institute, Tamil Nadu
3	Mr. Huidrom Mangalsana	Research Scholar	General	CSIR-Central Leather Research Institute, Tamil Nadu
4	Mr. Vikash	Research Scholar	SC	CSIR-Central Leather Research Institute, Tamil Nadu
5	Dr. Umamaheshwari S	Assistant Professor	OBC	JSS Academy of Higher Education & Research, Mysuru, Karnataka
6	Dr. Sindhu R	Assistant Professor	General	JSS Academy of Higher Education & Research, Mysuru, Karnataka
7	Dr. Chinmay Bhat	Assistant Professor	General	Government First Grade College Chamarajanagar, Karnataka
8	Ms. Gautami Prakash Shinde	Masters Student	SC	Institute of Chemical Technology Mumbai, Maharashtra
9	Dr. Kiran Dayaram Patil	Assistant Professor	OBC	SVKM'S Institute of Pharmacy, Dhule, Maharashtra
10	Mrs. Navpreet Kaur	Research Scholar	OBC	Panjab University, Chandigarh

11	Dr. Priyanka	Assistant Professor	General	Doon University, Dehradun, Uttarakhand
12	Ms. Isha Riyal	Research Scholar	General	Doon University, Dehradun, Uttarakhand
13	Dr. P. Senthilkumar	Associate Professor	OBC	SRM Institute of Science and Technology / Genetic Engineering, Chennai, Tamil Nadu
14	Mr. Mahendra M	Research Scholar	OBC	JSS Academy of Higher Education & Research, Mysuru, Karnataka
15	Dr. Varada S. Damare	Assistant Professor	General	Goa University, Taleigao, Goa
16	Ms. Imrana Shaikh	Research Scholar	General	Goa University, Taleigao, Goa
17	Mr. Kandukuri Sravya	Research Scholar	OBC	Goa University, Taleigao, Goa
18	Mr. Shivam Kumar Kori	Research Scholar	SC	Dr. Harisingh Gour University, Sagar, Madhya Pradesh
19	Mr. Komal Kashyap	Masters Student	OBC	Dr. Harisingh Gour University, Sagar, Madhya Pradesh
20	Mr. Satyam Yadav	Masters Student	OBC	Dr. Harisingh Gour University, Sagar, Madhya Pradesh
21	Mr. Rajiv Kashyap	Research Scholar	OBC	Panjab University, Chandigarh
22	Dr. Sanket Gaonkar	Assistant Professor	General	P.E.S.S.R.S.N college of Arts and science, Ponda, Goa
23	Mrs. Pooja Dattaram Gadekar	Assistant Professor	OBC	Dnyanprassarak Mandal's College and Research Centre, Goa
24	Dr. Sudarshana D. Mardolkar	Assistant Professor	OBC	Dnyanprassarak Mandal's College and Research Centre, Goa
25	Dr. Amrita R. Natekar	Assistant Professor	General	Dnyanprassarak Mandal's College and Research Centre, Goa
26	Mr. Jaspreet Singh	Research Scholar	OBC	Panjabi University, Patiala, Punjab
27	Ms. Natasha Da Costa	Research Scholar	General	P.E.S.S.R.S.N college of Arts and science, Ponda, Goa

28	Ms. Madhuri Mahadev Gaikwad	Assistant Professor	General	P.E.S.S.R.S.N college of Arts and science, Ponda, Goa
29	Ms. Disha F. Gauns	Research Scholar	General	Goa University, Taleigao, Goa
30	Ms. Sonali S. Gaonkar	Research Scholar	ST	Goa University, Taleigao, Goa
31	Ms. Manasi A. Ugvekar	Research Scholar	General	Goa University, Taleigao, Goa
32	Ms. Apeksha H. Naik	Research Scholar	OBC	Goa University, Taleigao, Goa
33	Mr. Vignesh R. Naidu	Research Scholar	General	Goa University, Taleigao, Goa

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

Organised by

School of Chemical Sciences (SCS), Goa University

in association with

Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh under Synergistic Training Program Utilizingthe Scientific and Technological Infrastructure (STUTI)

From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 02nd January 2023

Sr. No	Name of Participant	Session 1A Inaugural 9.30 am to 11.00 am	Session 1B Invited speaker 1 11.30 am to 1.00 pm	Session 1C Invited speaker 2 2.00 pm to 3.30 pm	Session 1D Invited SCS Visit 3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini	[signature]	[signature]	[signature]	[signature]
2	Dr. Ansari Palliyarayil	[signature]	[signature]	[signature]	[signature]
3	Mr Huidrom Mangalsana	[signature]	[signature]	[signature]	[signature]
4	Vikash	[signature]	[signature]	[signature]	[signature]
5	Dr Umamaheshwari S	[signature]	[signature]	[signature]	[signature]
6	Dr. Sindhu R	[signature]	[signature]	[signature]	[signature]
7	Dr Chinmay Bhat	[signature]	[signature]	[signature]	[signature]
8	Gautami Prakash Shinde	[signature]	[signature]	[signature]	[signature]
9	Dr. Kiran Dayaram Patil	[signature]	[signature]	[signature]	[signature]
10	Mrs. Navpreet Kaur	[signature]	[signature]	[signature]	[signature]
11	Dr. Priyanka	[signature]	[signature]	[signature]	[signature]
12	Isha Riyal	[signature]	[signature]	[signature]	[signature]
13	Dr. P. Senthilkumar	[signature]	[signature]	[signature]	[signature]
14	Mr. Mahendra M	[signature]	[signature]	[signature]	[signature]
15	Dr. Varada S. Damare	[signature]	[signature]	[signature]	[signature]
16	Dr. Pranav Naik	[signature]	[signature]		
17	Miss Imrana Shaikh	[signature]	[signature]	[signature]	[signature]
18	Kandukuri sravya	[signature]	[signature]	[signature]	[signature]
19	Shivam Kumar Kori	[signature]	[signature]	[signature]	[signature]
20	Komal Kashyap	[signature]	[signature]	[signature]	[signature]
21	Satyam Yadav	[signature]	[signature]	[signature]	[signature]
22	Mr. Rajiv kashyap	[signature]	[signature]	[signature]	[signature]
23	Dr. Sanket Gaonkar	[signature]	[signature]	[signature]	[signature]
24	Mrs Pooja Dattaram Gadekar	[signature]	[signature]	[signature]	[signature]
25	Dr. Sudarshana D Mardolkar	[signature]	[signature]	[signature]	[signature]
26	Dr. Amrita R. Natekar	[signature]	[signature]	[signature]	[signature]
27	Jaspreer Singh	[signature]	[signature]	[signature]	[signature]
28	Ms. Natasha Da Costa	[signature]	[signature]	[signature]	[signature]
29	Ms. Madhuri Mahadev Gaikwad	[signature]	[signature]	[signature]	[signature]
30	Mansi A. Vajrekar	[signature]	[signature]	[signature]	[signature]
31	Disha L. Gauns.	[signature]	[signature]	[signature]	[signature]
32	Sonali S. Gaonkar	[signature]	[signature]	[signature]	[signature]
33.	Apeksha H. Naik	[signature]	[signature]	[signature]	[signature]
34	Vignesh R Naidu	[signature]	[signature]	[signature]	[signature]

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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School of Chemical Sciences (SCS), Goa University

in association with

Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh under Synergistic Training Program Utilizingthe Scientific and Technological Infrastructure (STUTI)

From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 03rd January 2023 (Day 2)

Sr. No	Name of Participant	Session 1A Introduction to host, participant and DST scheme 9.30 am to 11.00 am	Session 2B Introduction to instruments 11.30 am to 1.00 pm	Session 2C Overview of SCXRD, fundamentals of SCXRD 2.00 pm to 3.30 pm	Session 2D Working of SCXRD, familiarization of instrument 3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Dr Chinmay Bhat				
8	Gautami Prakash Shinde				
9	Dr. Kiran Dayaram Patil				
10	Mrs. Navpreet Kaur				
11	Dr. Priyanka				
12	Isha Riyal				
13	Dr. P. Senthilkumar				
14	Mr. Mahendra M				
15	Dr. Varada S. Damare				
16	Dr. Pranav Naik				
17	Miss Imrana Shaikh				
18	Kandukuri sravya				
19	Shivam Kumar Kori				
20	Komal Kashyap				
21	Satyam Yadav				
22	Mr. Rajiv kashyap				
23	Dr. Sanket Gaonkar				
24	Mrs Pooja Dattaram Gadekar				
25	Dr. Sudarshana D Mardolkar				
26	Dr. Amrita R. Natekar				
27	Jaspreet Singh				
28	Ms Natasha Da Costa				
29	Ms. Madhuri Mahadev Gaikwad				
30	Manasi A. Gaekar				
31	Disha F. Gouns.				
32	Sonali S. Gaonkar.				
33	Apeksha H. Naik				
34	Vignesh R. Naidu				

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 04th January 2023 (Day 3)

Sr. No	Name of Participant	Session 3A Nuclear Magnetic Resonance 9.00 am to 11.00.am	Session 3B High Performace Liquid Chromatography 11.15 am to 1.00 pm	Session 3C Atomic Emission Spectroscopy 2.00 pm to 3.30 pm	Session 3D Working of SCXRD, familiarization of instrument 3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Dr Chinmay Bhat				
8	Gautami Prakash Shinde				
9	Dr. Kiran Dayaram Patil				
10	Mrs. Navpreet Kaur				
11	Dr. Priyanka				
12	Isha Riyal				
13	Dr. P. Senthilkumar				
14	Mr. Mahendra M				
15	Dr. Varada S. Damare				
16	Dr. Pranav Naik				
17	Miss Imrana Shaikh				
18	Kandukuri sravya				
19	Shivam Kumar Kori				
20	Komal Kashyap				
21	Satyam Yadav				
22	Mr. Rajiv kashyap				
23	Dr. Sanket Gaonkar				
24	Mrs Pooja Dattaram Gadekar				
25	Dr. Sudarshana D Mardolkar				
26	Dr. Amrita R. Natekar				
27	Jaspreer Singh				
28	Ms Natasha Da Costa				
29	Ms. Madhuri Mahadev Gaikwad				
30	Manasi A. Ugvekar				
31	Disha F. Gauns				
32	Sonali S. Gaonkar				
33	Apeksha H. Naik				
34	Vignesh R Naidu				

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 05th January 2023 (Day 4) Batch 1

Sr. No	Name of Participant	Session 4A Demonstration of sample analysis using NMR. 9.00 am to 11.00 am	Session 4B Hands-on experience to perform NMR analysis. 11.15 am to 1.00 pm	Session 4C Demonstration of sample analysis using SCXRD 2.00 pm to 3.30 pm	Session 4D Hands-on experience to perform SCXRD 3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Gautami Prakash Shinde				
8	Dr. Kiran Dayaram Patil				
9	Dr. Priyanka				
10	Isha Riyal				
11	Dr. P. Senthilkumar				
12	Mr. Mahendra M				
13	Kandukuri sravya				
14	Ms Natasha Da Costa				
15	Ms. Madhuri Mahadev Gaikwad				
16	Ms. Disha F. Gauns				
17	Ms. Sonali S. Gaonkar				

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 05th January 2023 (Day 4) Batch 2

Sr. No	Name of Participant	Session 4A Demonstration of sample analysis using SCXRD	Session 4B Hands-on experience to perform SCXRD	Session 4C Demonstration of sample analysis using NMR.	Session 4D Hands-on experience to perform NMR analysis.
		9.00 am to 11.00 am	11.15 am to 1.00 pm	2.00 pm to 3.30 pm	3.45 pm to 5.15 pm
1	Dr Chinmay Bhat				
2	Mrs. Navpreet Kaur				
3	Dr. Varada S. Damare				
4	Dr. Pranav Naik				
5	Miss Imrana Shaikh				
6	Shivam Kumar Kori				
7	Komal Kashyap				
8	Satyam Yadav				
9	Mr. Rajiv kashyap				
10	Dr. Sanket Gaonkar				
11	Mrs Pooja Dattaram Gadekar				
12	Dr. Sudarshana D Mardolkar				
13	Dr. Amrita R. Natekar				
14	Jaspreet Singh				
15	Ms. Manasi A. Ugvekar				
16	Ms. Apeksha H. Naik				
17	Mr. Vignesh R. Naidu				

Spelling Mistake →

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 06th January 2023 (Day 5) Batch 1

Sr. No	Name of Participant	Session 5A Demonstration of sample analysis using AES	Session 5B Hands-on experience to perform AES	Session 5C Demonstration of sample analysis using HPLC	Session 5D Hands-on experience to perform HPLC
		9.00 am to 11.00 am	11.15 am to 1.00 pm	2.00 pm to 3.30 pm	3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Gautami Prakash Shinde				
8	Dr. Kiran Dayaram Patil				
9	Dr. Priyanka				
10	Isha Riyal				
11	Dr. P. Senthilkumar				
12	Mr. Mahendra M				
13	Kandukuri sravya				
14	Ms Natasha Da Costa				
15	Ms. Madhuri Mahadev Gaikwad				
16	Ms. Disha F. Gauns				
17	Ms. Sonali S. Gaonkar				

7 Days Workshop on Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 06th January 2023 (Day 5) Batch 2

Sr. No	Name of Participant	Session 5A Demonstration of sample analysis using HPLC	Session 5B Hands-on experience to perform HPLC	Session 5C Demonstration of sample analysis using AES	Session 5D Hands-on experience to perform AES
		9.00 am to 11.00 am	11.15 am to 1.00 pm	2.00 pm to 3.30 pm	3.45 pm to 5.15 pm
1	Dr Chinmay Bhat				
2	Mrs. Navpreet Kaur				
3	Dr. Varada S. Damare				
4	Dr. Pranav Naik				
5	Miss Imrana Shaikh				
6	Shivam Kumar Kori				
7	Komal Kashyap				
8	Satyam Yadav				
9	Mr. Rajiv kashyap				
10	Dr. Sanket Gaonkar				
11	Mrs Pooja Dattaram Gadekar				
12	Dr. Sudarshana D Mardolkar				
13	Dr. Amrita R. Natekar				
14	Jaspreet Singh				
15	Ms. Manasi A. Ugvekar				
16	Ms. Apeksha H. Naik				
17	Mr. Vignesh R. Naidu				

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 04th January 2023 (Day 3)

Sr. No	Name of Participant	Session 6A Interpretation of data and doubts 9.00 am to 11.00 am	Session 6B Keynote Speaker 11.15 am to 1.00 pm	Session 6C Demonstration of sample analysis Photoluminescence instrument 2.00 pm to 3.30 pm	Session 6D Hands on experience of Photolumine scence instrument 3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Dr Chinmay Bhat				
8	Gautami Prakash Shinde				
9	Dr. Kiran Dayaram Patil				
10	Mrs. Navpreet Kaur				
11	Dr. Priyanka				
12	Isha Riyal				
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14	Mr. Mahendra M				
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22	Mr. Rajiv kashyap				
23	Dr. Sanket Gaonkar				
24	Mrs Pooja Dattaram Gadekar				
25	Dr. Sudarshana D Mardolkar				
26	Dr. Amrita R. Natekar				
27	Jaspreet Singh				
28	Ms Natasha Da Costa				
29	Ms. Madhuri Mahadev Gaikwad				
30	Ms. Disha F. Gauns				
31	Ms. Sonali S. Gaonkar				
32	Ms. Manasi A. Ugvekar				
33	Ms. Apeksha H. Naik				
34	Mr. Vignesh R. Naidu				

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From

2nd January 2023 to 9th January 2023 at SCS, Goa University

Attendance: Date 09th January 2023 (Day 7)

Sr. No	Name of Participant	Session 7A Analysis of participant's samples for NMR and SCXRD	Session 7B Analysis of participant's samples for AES, HPLC and Photoluminescence	Session 7C Valedictory function	Session 7D Certificates and memento distribution
		9.00 am to 11.00 am	11.15 am to 1.00 pm	2.00 pm to 3.30 pm	3.45 pm to 5.15 pm
1	Ms K.Dhanavardhini				
2	Dr. Ansari Palliyarayil				
3	Mr Huidrom Mangalsana				
4	Vikash				
5	Dr Umamaheshwari S				
6	Dr. Sindhu R				
7	Dr Chinmay Bhat				
8	Gautami Prakash Shinde				
9	Dr. Kiran Dayaram Patil				
10	Mrs. Navpreet Kaur				
11	Dr. Priyanka				
12	Isha Riyal				
13	Dr. P. Senthilkumar				
14	Mr. Mahendra M				
15	Dr. Varada S. Damare				
16	Dr. Pranav Naik				
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21	Satyam Yadav				
22	Mr. Rajiv kashyap				
23	Dr. Sanket Gaonkar				
24	Mrs Pooja Dattaram Gadekar				
25	Dr. Sudarshana D Mardolkar				
26	Dr. Amrita R. Natekar				
27	Jaspreet Singh				
28	Ms Natasha Da Costa				
29	Ms. Madhuri Mahadev Gaikwad				
30	Ms. Disha F. Gauns				
31	Ms. Sonali S. Gaonkar				
32	Ms. Manasi A. Ugvekar				
33	Ms. Apeksha H. Naik				
34	Mr. Vignesh R. Naidu				

Azadi Ka Amrit Mahotsav

HANDS ON TRAINING PROGRAM

on

Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance Liquid Chromatography (HPLC) & Photoluminescence instrument

02nd January 2023 - 09th January 2023

Under

"STUTI" – Synergistic Training program Utilizing the Scientific and Technological Infrastructure

Certificate of Participation

Awarded to Ms. Manasi A. Ugvekar, Research Scholar, Goa University, for participating in the 7 days Hands on Training Program organized by the School of Chemical Sciences (SCS), Goa University, Goa in association with Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh.

Dr. P. S. Volvoikar
Assistant Prof. SCS
STUTI Coordinator
Goa University, Goa

Prof. V. M. S. Verenkar
Dean
School of Chemical Sciences
Goa University, Goa

Prof. G. R. Chaudhary
Director, SAIF/CIL
STUTI Coordinator (PMU)
Panjab University, Chandigarh

Azadi Ka Amrit Mahotsav

HANDS ON TRAINING PROGRAM

on

Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance Liquid Chromatography (HPLC) & Photoluminescence instrument

02nd January 2023 - 09th January 2023

Under

"STUTI" – Synergistic Training program Utilizing the Scientific and Technological Infrastructure

Certificate of Participation

Awarded to Ms. Sonali S. Gaonkar, Research Scholar, Goa University, for participating in the 7 days Hands on Training Program organized by the School of Chemical Sciences (SCS), Goa University, Goa in association with Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh.

Dr. P. S. Volvoikar
Assistant Prof. SCS
STUTI Coordinator
Goa University, Goa

Prof. V. M. S. Verenkar
Dean
School of Chemical Sciences
Goa University, Goa

Prof. G. R. Chaudhary
Director, SAIF/CIL
STUTI Coordinator (PMU)
Panjab University, Chandigarh

HANDS ON TRAINING PROGRAM

on

Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance Liquid Chromatography (HPLC) & Photoluminescence instrument

02nd January 2023 - 09th January 2023

Under

"STUTI" – Synergistic Training program Utilizing the Scientific and Technological Infrastructure

Certificate of Participation

Awarded to Ms. Madhuri Gaikwad, Assistant Professor, P.E.S's R.S.N. College, for participating in the 7 days Hands on Training Program organized by the School of Chemical Sciences (SCS), Goa University, Goa in association with Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh.

Dr. P. S. Volvoikar
Assistant Prof. SCS
STUTI Coordinator
Goa University, Goa

Prof. V. M. S. Verenkar
Dean
School of Chemical Sciences
Goa University, Goa

Prof. G. R. Chaudhary
Director, SAIF/CIL
STUTI Coordinator (PMU)
Panjab University, Chandigarh

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 Days workshop on operation of NMR, XRD, AES, HPLC Photoluminescence by st

Date and Duration of Training: 02-01-2023 to 09-01-2023

Name of the Institute where Training has been conducted: GOA UNIVERSITY, GOA

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology								✓		
5.	How far the field visit is relevant and related to your research study								✓		
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle								✓		
8.	How far have you benefitted from interaction with the fellow participants of the training								✓		
9.	How far the course material supplied relevant and related to the training curriculum								✓		
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

1) It will be better and more catchy, instead of keeping all the theory classes together followed by theory classes, if it is like one theory class followed by the technical session on the same instrument on the same day.

2) The duration of the technical session can be scheduled based on the complexcity of the instrument as well the no of instruments covered.

(Name of the Participant)

Dr. Ansari Pallyarayil

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: STUTI TRAINING PROGRAMME

Date and Duration of Training: 2nd Jan to 9th Jan / 7 days

Name of the Institute where Training has been conducted: SCS, GOA UNIVERSITY.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.							✓			
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology								✓		
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training								✓		
11.	Your recommendation to your peers/ colleagues for the training Programme									✓	

Any other suggestions/ observations, if any-

Vinidy.

(Name of the Participant)

(VINIDESH R NAIDU)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 Days Workshop on Operation of NMR, XRD, AES, HPLC & Photoluminescence Instruments.

Date and Duration of Training: 2nd January 2023 – 9th January 2023

Name of the Institute where Training has been conducted: SCS, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Ms. SONALI GAONKAR

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on Operation of NMR, XRD, AE: HPLC & photoluminescence instruments.

Date and Duration of Training: 3rd January 2023 - 9th January 2023

Name of the Institute where Training has been conducted: SCS, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

APEKSHA HIRU NAIK.

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, XRD, AAS, HPLC & photoluminescence instruments.

Date and Duration of Training: 02nd January 2023 – 9th January 2023

Name of the Institute where Training has been conducted: SCS, Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Dr - Sudarshana D Mardolkar

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 Days Workshop on operation of NMR, XRD, AES, HPLC and PL instruments.

Date and Duration of Training: 2nd to 9th January 2023

Name of the Institute where Training has been conducted: School of Chemical Sciences, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme									✓	

Any other suggestions/ observations, if any-

ARNatekar

(Name of the Participant)

DR. Amita R. Natekar

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 Days Workshop on operation of NMR, XRD, AES, HPLC and PL instruments

Date and Duration of Training: 2nd to 8th Jan., 2023

Name of the Institute where Training has been conducted: GOA UNIVERSITY, GOA

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle								✓		
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

I am very greatly influenced by the way this Workshop is Conducted and told how these various techniques are useful in different discipline research. Also very good selection of all the researcher from different field and different designation. As well as a very Nice theory and Experimented demonstration given by Complete Academi staff. Very thanks for giving us this Chance.

(Rajiv)

(Name of the Participant)
(RAJIV KASHYAP)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST SPONSERED STUTI TRAINING WORKSHOP ORGANIZED BY SCS, GOA UNIVERSITY IN ASSOCIATION WITH SHIF, PAJAB UNIVE

Date and Duration of Training: 02/01/2023 to 09/01/2023

Name of the Institute where Training has been conducted: GOA UNIVERSITY

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									9	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									9	
3.	Overall grading of the faculty members conducting the training										10
4.	How do you rate the overall training methodology										10
5.	How far the field visit is relevant and related to your research study									9	
6.	Usefulness of this training in your current role										10
7.	Usefulness of this training in future work/job you may handle										10
8.	How far have you benefitted from interaction with the fellow participants of the training										10
9.	How far the course material supplied relevant and related to the training curriculum									9	
10.	Overall grading of the process of training										10
11.	Your recommendation to your peers/ colleagues for the training Programme										10

Any other suggestions/ observations, if any- —

Dr. Sanket K. Gaonkar

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 Days Workshop on operation of NIVIR, Single Crystal XRD, AES, HPLC & Photoluminescence Instrument

Date and Duration of Training: 2nd Jan to 9th Jan 2023

Name of the Institute where Training has been conducted: School of Chemical Sciences Goa University Goa.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology								✓		
5.	How far the field visit is relevant and related to your research study								✓		
6.	Usefulness of this training in your current role								✓		
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum								✓		
10.	Overall grading of the process of training								✓		
11.	Your recommendation to your peers/ colleagues for the training Programme									✓	

Any other suggestions/ observations, if any-

Overall Training Program was good. But the issue is Regarding the Session Insted of Doing Session First After 2 Days Demonstration try to Engage both in Same Days And try to Get trainer from the Instrument Made Company

Mahendra. M
(Name of the Participant)

NAVPREET KAUR.

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days Workshop by STUTI

Date and Duration of Training: 02/1/23 to 09/1/23

Name of the Institute where Training has been conducted: School of chemical sciences (SCS) Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, XRD, AES, HPLC & photoluminescence instruments

Date and Duration of Training: 2nd January 2023 – 9th January 2023

Name of the Institute where Training has been conducted: SCS, Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training								✓		
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Manasi A. Ugvekar.

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST STUTI Training Program by GOA University in Association with Punjab Univers

Date and Duration of Training: 2nd Jan to 9th Jan (7 Days)

Name of the Institute where Training has been conducted: School of Chemical Science GOA University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Dr. Kiran D. Patil

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operational, NMR, XRD, AES, HPLC and PL instrument

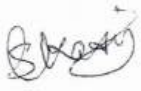
Date and Duration of Training: 02nd January 2023 to 09th January 2023

Name of the Institute where Training has been conducted: Sehabat Chemical Science Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-



Shivam Kumar Kavi

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST STUTI 7 Days Training Programme

Date and Duration of Training: 2nd Jan 2023 — 9 Jan 2023

Name of the Institute where Training has been conducted: School of Chemical Sciences Gurl University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Satyam yadav

SATYAM YADAV

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 DAYS WORKSHOP ON OPERATION OF NMR, XRD, AES, HPLC & PHOTOLUMINESCENCE INSTRUMENTS UNDER STUTI.

Date and Duration of Training: 02/01/2023 — 09/01/2023

Name of the Institute where Training has been conducted: SCHOOL OF CHEMICAL SCIENCES, GOA UNIVERSITY

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology								✓		
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training								✓		
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

More time on the hands on training sessions with lesser participants per batch would have been a better option.

HUIDROM MANGALSANA
CSIR-CLRI, CHENNAI
(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: STUTI workshop on operation of NMR, XRD, AES, HPLC and Photoluminescence instruments

Date and Duration of Training: 7 days from 02/01/2023 to 09/01/2023

Name of the Institute where Training has been conducted: School of chemical sciences, Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

IMRANA SHAIKH

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: STUTI TRAINING
OPERATION OF NMR, XRD, AES, HPLC & PHOTOLUMINESCENCE INSTRUMENTS

Date and Duration of Training: 02-09 January 2023, 7 days

Name of the Institute where Training has been conducted: School of Chemical Sciences, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Dr. Varada S. Damare
(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, XRD, AES-HPLC and Photoluminescence instruments.

Date and Duration of Training: 2nd January 2023 to 8th January 2023

Name of the Institute where Training has been conducted: Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training								✓		
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Some other instruments like GC-MS, LC-MS, Powder XRD would also be included ~~for~~ in training Program if any training program for future. Plan.

Komal

(Name of the Participant)

(KOMAL KASHYAP)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, AES, XRD, HPLC & photoluminescence instruments

Date and Duration of Training: 2nd January 2023 - 9th January 2023

Name of the Institute where Training has been conducted: SCS, Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Disha L. Gaonkar.

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on Operation of NMR, XRD, AES HPLC & Photoluminescence instruments

Date and Duration of Training: 02/01 to 09/01/2023 (7 days)

Name of the Institute where Training has been conducted: Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

(1) Please make smaller groups (4-5 members) so that everyone gets closure to instrumental view.

(2) Please conduct examination at the end of the program

(3) Provide some 'assignments' to the participants so that everyone will be more attentive.

(Name of the Participant)

(Dr. Chinmay Ghosh)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST-STUTI 7 days Workshop.

Date and Duration of Training: 02.01.23 to 09.01.23 (7 days)

Name of the Institute where Training has been conducted: School of Chemical Sciences, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any- Very Well Organized.

S. Umamaheshwari

(Name of the Participant)

(Dr. Umamaheshwari)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST-STUTI Training Program

Date and Duration of Training: 02/1/23 to 09/1/23

Name of the Institute where Training has been conducted: School of Chemical Sciences, Goa University, Goa

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study							✓			
6.	Usefulness of this training in your current role								✓		
7.	Usefulness of this training in future work/job you may handle									✓	
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

P. SENTHILkumar

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, AES, HPLC & photoluminescence instruments.

Date and Duration of Training: 02/01/2023 to 09/01/2023.

Name of the Institute where Training has been conducted: Goa University, Goa.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any- NIL

Sindhu R.

Dr. Sindhu R, JSS-AHER

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, XRD, AE HPLC and Photoluminescence Instrument

Date and Duration of Training: 2 Jan. 2023 to 9 Jan. 2023

Name of the Institute where Training has been conducted: SCS, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study								✓		
6.	Usefulness of this training in your current role								✓		
7.	Usefulness of this training in future work/job you may handle								✓		
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

(Name of the Participant)

Dr. Priyanka
Doon University

ISHA KHAL
PhD Scholar
Doon University

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on operation of NMR, SC AES, HPLC and Photoluminescence Instruments

Date and Duration of Training: 2 Jan, 2023 to 9 Jan, 2023

Name of the Institute where Training has been conducted: SCS, Goa University

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

(Name of the Participant)

GAUTAMI PRAKASH SHIND

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: DST, STUTI Workshop

Date and Duration of Training: 2 Jan to 9 Jan 2023

Name of the Institute where Training has been conducted: School of Chemical Science Goa University.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training									✓	
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study									✓	
6.	Usefulness of this training in your current role										✓✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme									✓	

Any other suggestions/ observations, if any-

GAUTAMI PRAKASH SHINDE

(Name of the Participant)

K. DHANAVARDHINI.

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: STUTI TRAINING PROGRAM

Date and Duration of Training: 7 DAYS – 02.01.2023 to 09.01.2023.

Name of the Institute where Training has been conducted: SCHOOL OF CHEMICAL SCIENCES, GOA UNIVERSITY.

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

The Training program was organized Excellent, couldn't figure out any issue with the arrangements.

(Name of the Participant)

(K. DhanaVardhini).

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 days workshop on Operation of NMR, XRD, AES, HPLC & Photoluminescence instruments

Date and Duration of Training: 2nd January 2023 - 9th January 2023

Name of the Institute where Training has been conducted: School of Chemical Sciences, Goa Unive

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.										✓
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

Madhuri

Ms. Madhuri M. Gaikwad

(Name of the Participant)

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: 7 DAYS WORKSHOP BY STUTI

Date and Duration of Training: 02-01-2023 to 09-01-2023

Name of the Institute where Training has been conducted: SCHOOL OF CHEMICAL SCIENCES (SCS
GCA UNIVERSITY

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.										✓
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology										✓
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role										✓
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training									✓	
9.	How far the course material supplied relevant and related to the training curriculum										✓
10.	Overall grading of the process of training										✓
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

The interaction with the speaker/faculty greatly influenced me. The way of talking is very Good. The demonstration of instruments with working principle and hands on trainings were very well explained. Here one kind suggestion for future please provide hand on trainings will be on ~~sorry~~ same day of demonstration with theory
Thanking for your coordination and chance

(Name of the Participant)
JASPREET SINGH
Jaspreet Sr

Kandukuri Snavya.

FEEDBACK FORM FOR TRAINING PROGRAM

Title of the Training Programme: STUTI WORKSHOP

Date and Duration of Training: 2 Jan - 9 Jan, 2023

Name of the Institute where Training has been conducted: Goa University, Goa

Please rate the Programme components on a scale of 10 to 1 (10 indicates 'Excellent/Most Effective' and 1 indicates 'Poor/ Least Effective') wherever necessary.

S. No.	Content	Rating									
		1	2	3	4	5	6	7	8	9	10
1.	Overall grading of the Programme with reference to relevance of course, module/ content etc.									✓	
2.	Overall grading of the facilities provided by the institute, i.e., Hostel, Mess, Class Rooms, Transport/infrastructure etc.									✓	
3.	Overall grading of the faculty members conducting the training										✓
4.	How do you rate the overall training methodology									✓	
5.	How far the field visit is relevant and related to your research study										✓
6.	Usefulness of this training in your current role									✓	
7.	Usefulness of this training in future work/job you may handle										✓
8.	How far have you benefitted from interaction with the fellow participants of the training										✓
9.	How far the course material supplied relevant and related to the training curriculum									✓	
10.	Overall grading of the process of training									✓	
11.	Your recommendation to your peers/ colleagues for the training Programme										✓

Any other suggestions/ observations, if any-

K. Snavya

(Name of the Participant)

PROCEEDINGS

HANDS ON TRAINING PROGRAM
on
Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance liquid Chromatography (HPLC) & Photoluminescence Instruments

2nd January 2023 to 9th January 2023
at SCS, Goa University

400 MHz NMR

SCXRD

AES

HPLC

Photoluminescence

Organised by
School of Chemical Sciences (SCS),
Goa University

in association with
Sophisticated Analytical Instrumentation Facility (SAIF),
Panjab University,
Chandigarh under Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI)

Professor Harilal B. Menon
Vice Chancellor

Goa University
Goa India-403206

MESSAGE

A warm welcome to all the participants of the Training program on "Operation of Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments" organized by School of Chemical Sciences (SCS), in association with Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh under Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI) initiative of Department of Science and Technology (DST) at Goa University. This is truly a platform which aims to sensitize the young generation about the state-of-the–art equipments through open access Science and Technology infrastructure across the country.

My heartiest Congratulations to the Sophisticated Analytical Facility (SAIF)/Central Instrumentation Laboratory (CIL), Panjab University, Chandigarh for being selected as the Project Management Unit (PMU) and exquisitely executing their role as the hub manager for the STUTI program in the region. The School of Chemical Sciences (SCS), Goa University deserves an applause for taking the initiative of hosting this hands-on training program. It is heartening to see an interdisciplinary consolidation which is the need of the hour.

The facilities of NMR, AES, HPLC and photoluminescence techniques are extensively used by researchers, for academics and industrial applications in Goa and elsewhere. The programme enables hands-on training for separation, identification, and purification of the components.

The endeavor of the organizing committee will certainly result in a fruitful accomplishment. I wish the event a great success.

(Prof. H. B. Menon)

Prof. V. M. S. Verenkar
Dean, School of Chemical Sciences

Goa University
Goa India-403206

MESSAGE

It is a matter of honour for me to extend a very warm welcome to all the dignitaries who are gathered here for the Hands on Training Program on "Operation of Nuclear Magnetic Resonance (NMR), Single Crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Pressure liquid Chromatography (HPLC) & Photoluminescence Instruments" being organized by School of Chemical Sciences, Goa University, Goa in association with Sophisticated Analytical Instrumentation Facility (SAIF), Panjab University, Chandigarh under Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI).

High end research in chemical science is the need of the hour in developing novel drug molecules for the treatments of numerous outrageous diseases. The training aims at creating the significantly needed perspectives and expertise in constantly progressing trends and practices in NMR, X-ray Diffraction (XRD) and Chromatography based techniques. The current hands-on training program could be another milestone in DST's initiative towards building human resources through STUTI.

These 7 days training program will also encourage the researchers and industry to provide suitable solutions and interface for future scientific ventures. During this training program, attendees will have the opportunity to visit facilities available at the School of Chemical Sciences (SCS). This will also provide tremendous opportunities for all the stakeholders to come together, collaborate and complement each other.

I congratulate the Coordinators and the Organizing Committee for having worked hard to ensure the success of the 7-day training program at the Goa University campus.

I wish you all a fruitful and successful training program.

(Prof. V. M. S. Verenkar)

Dr. Prajesh Volvoikar
Workshop Convenor
School of Chemical Sciences,

Goa University
Goa India- 403206

MESSAGE

On behalf of the organizing Committee, it is an honour and pleasure to officially welcome you to the Training Program. The Training program encompasses key aspects NMR spectroscopy, SC-XRD, HPLC, and Photoluminescence techniques that are employed extensively in modern day new molecules discovery, research and development and diagnostics. This training program will primarily help the participants who are seeking basic and advanced level training in these techniques to get insight into their research and other industrial based technical operations. The training program enhances the working horizon among faculty, post-doc fellow, PhD Fellow. The scope of the training program is also extended to the industrial persons who are extensively involved in new molecules production and their detailed qualitative and quantitative descriptions. This training program will play a vital role in understanding formations, actions, and regulations of various novel molecules that can be used to efficiently target new drugs.

This puts light on the increasing importance of on the hands-on training on NMR spectroscopy, SC-XRD, HPLC, Photoluminescence, etc. techniques for the qualitative and quantitative analysis. The programme enables participants to acquire the basic NMR techniques required for success in scientific research in chemical sciences. During this training program, attendees will have the opportunity to visit facilities available at SCS and provide basic introduction of other instrumental facilities like BET, AFM, VSM TG-DTA etc. Additionally, the attendees will have an opportunity to closely interact with eminent scientists of Goa University.

We hope that this training program will stimulate new ideas and approaches for promoting chemistry and enhance skills in the field. We wish all delegates a fruitful attendance and involvement in the excellent event and hope that this training program is productive. Thank you for your participation and we wish you a very enjoyable stay in Goa.

(Dr. Prajesh Volvoikar)

GOA UNIVERSITY, GOA

Goa University was established under the Goa University Act of 1984 (Act No. 7 of 1984) and commenced operations on 1 June 1985. The university provides higher education in the Indian state of Goa. It is located on Taleigao Plateau overlooking Zuari estuary on a picturesque campus spread over 402 acres with state-of-the-art infrastructure such as faculty blocks, administrative building, library, sports facilities, student hostels, bank, post-office, staff quarters, etc. Campus-Wide Internet connectivity with strong bandwidth is available for all 24 hours a day.

The University took over the enhanced role of Centre of Post-Graduate Instruction and Research (CPIR) which was set after the liberation of Goa by India in December 1961, by the University of Bombay (now Mumbai), in June 1962. Since 1985 Goa University offers graduate and post-graduate studies and research programmes. It is currently (2014-19) accredited to the National Assessment and Accreditation Council (NAAC) in India with A Grade. The National Institutional Ranking Framework (NIRF) (an organ of Ministry of Human Resources and Development, Govt. of India) has currently (2022) ranked the University at Rank-band 101-150. Among the QS World University Rankings for 'BRICS countries 2019', Goa University is among the group of 241-250 universities. There are about 9000 universities in BRICS countries. QS University rankings - a World University rankings agency - has ranked Goa University in the range of 61-65 among Indian Universities for the year 2022 and among the QS World University Rankings for 'QS Asia University Rankings 2022', Goa University is among the group of 501-550 universities.

Over the past 35 years, the University has steadily expanded its reach, both in terms of the number

of affiliated colleges - professional and general education numbering to 61, as well as the diversity of courses offered. These colleges offer various courses leading to a degree at graduate, post-graduate level. 7 of them are also recognized as research centres to offer Ph.D. programmes. The University, on its campus, has 10 schools (Table 1). The formation of schools has been done at the start of the academic year 2019-20 with amalgamation of traditional departments to allow organic evolution of new courses. They offer programmes leading to Undergraduate degree (3), Master's degree (35) and Ph.D. degree (25) in various disciplines. In addition, 7 recognised institutions in various disciplines situated in the state of Goa are also recognised for research programmes leading to Ph.D. degree by the University.

Over 30000 youth from all talukas of Goa are studying in affiliated colleges and over 2000 are enrolled for post-graduate programmes at the University campus. The percentage of women (over 60%) outnumber men (about 40%).

The University has made a significant impact at the national level in various areas of specialization and draws students in select disciplines from across the country. Geographically, Goa is located in an ecologically sensitive region along the Western Ghats and the Arabian Sea. Goa University has appropriately emerged as an important resource centre for research in the field of flora and fauna endemic to this region, as well as the marine environment. The Ministry of Earth Sciences has recognized Goa University's significant contribution in this domain, as a consequence of which a Centre of Excellence was established in Marine Microbiology. The Departments at the University have developed excellent research facilities. Large funding for research is received from Central Government agencies such as University Grants Commission, Department of Science & Technology, Ministry of Earth Sciences, Ministry of Environmental Sciences and Climate Change, Department of Biotechnology, etc. For a relatively small university, Goa University attracts generous funding of research projects from national funding agencies which reflects upon the high quality of research undertaken at the University. The research outcomes (over 6500) in the form of papers, theses, etc., have been made available to the public over the university website in its publication's repository. The Web of Science® reports about 1400 items on their database accruing over 16000 citations. The University publications have an h-index of 54.

In addition to the conventional graduate and postgraduate programmes, Goa University has also taken initiatives to provide innovative programmes. Some noteworthy initiatives are the National Resource Centre in Marine Science under the Ministry of Human Resource Development (MHRD) for the professional development of higher education using the MOOCs platform SWAYAM, the State Resource Centre for Women funded by Ministry of Women and Child Development, Govt. of India as well as Dept. of Women and Child, Govt. of Goa, the Study India Programme with Nihon University of Japan, etc. Goa University launched the Visiting Research Professors Programme (VRPP) from the year 2013-14 to bring luminaries in the field of liberal arts & literature, social and natural sciences, and other fields. The visiting professors interact with students, deliver lectures, offer courses, and work on collaborative research projects, or stimulate the creation of art installations and music performances with faculty and students. These visiting professors are found to generate a creative environment in learning and contemporary knowledge production practices with their intellectual and aesthetic endeavours. The programme is being supported by Directorate of Art and Culture, Government of Goa through generous grants and open to the general public too.

School of Chemical Sciences

The establishment of the School of Chemical Sciences took place by transforming one of the existing and oldest (established in 1965 as a part of Centre for Post-Graduate Instruction and Research of the then Bombay University) department (of Chemistry) into a School. The School is currently located in the faculty block E since April 2013, with modern infrastructure, conducive for quality education and research in Chemistry. The School (formerly Department of Chemistry) earlier had Organic, Inorganic, Physical and Analytical Chemistry as distinct streams and since AY 2019-20, the Biochemistry has been added as its fifth stream. The establishment of this School is in line with the reorganization of the institutional architecture that allows us to rebrand and showcase our strengths in research and teaching in various Chemistry streams. The research at this School has been recognized by the award of projects to the individual faculty members and also receiving handsome grants from the University Grants Commission (UGC) and the

Department of Science & Technology (DST), Govt. of India in their prestigious programs like UGC-SAP and DST-FIST. The School of Chemical Sciences has various modern sophisticated instruments required for state-of-the-arts research viz., single crystal X-Ray diffractometer, 400 MHz NMR spectrometer, AFM, VSM, Thermal analysers, Ball mill, Microwave reactor, LCMS, HPLC, Surface area analyser, UV-Visible, PL and Infra-Red spectrophotometers, CHN analyser, Atomic emission spectrometer, Gas chromatography etc. which has attracted many DST-Inspire Fellows and Kothari Fellowship holders to our school. The school has a rich tradition of excellent research output and the culture of performing better which has resulted, over the years, in the contribution of 30-40 percent of research publications of Goa University, annually.

The school offers two-year M.Sc. (64 credits) program in Organic, Physical, Inorganic, Analytical Chemistry as well as in Biochemistry. The research work leading to Ph.D. degree in the above subjects encompasses various domains of chemical research with emphasis on synthesis of natural products, developments of reagents for organic synthesis, synthesis and application of polymers and nanocomposites, synthesis of pure and mixed metal oxide nanoparticles and their applications as gas sensors/supercapacitors etc. The research extends further into computational and theoretical chemistry, synthesis of coordination compounds as models for biological systems, development of catalysts/ electrocatalysts and their use in kinetics evaluation for various fundamental processes related to energy and environment.

HIGHLIGHTS PROGRAM OF THE TRAINING

The aim of this 7-day training is to provide skills to participants with the basic knowledge required to handle sophisticated instruments like Nuclear magnetic resonance (NMR), Single crystal X-Ray Diffraction (XRD), Atomic Emission Spectroscopy (AES), High Performance liquid Chromatography (HPLC) & Photoluminescence Instruments. This hands-on training program is intended for participants who are seeking basic and advanced-level insight and hand on training on these instruments. This includes Faculty/Scientists/Post-Doc Fellows/Ph.D. Fellows who are actively involved in Research and Development (R&D) and require knowledge of instrumentation technique.

It will enable participants acquire the basic NMR techniques required for success in scientific research in chemical sciences. Participants will experience hands-on training on, NMR, Single crystal XRD, HPLC, AES, Photoluminescence etc. During this training program, attendees will have the opportunity to visit facilities available at School of Chemical Sciences (SCS) facility and provide basic introduction of other instrumental facilities like BET, AFM, VSM TG-DTA etc. Additionally, the attendees will have an opportunity to closely interact with eminent scientists of Goa University.

LEARNING OUTCOMES OF THE PROGRAM

At the end of the training, participants will be aware and will have practical knowledge on using and operation of following:

- Basic and advanced information on Nuclear magnetic resonance (NMR) technique
- Handling of samples and spectra interpretation of ^{1}H NMR and ^{13}C NMR
- Basic, advanced information, handling of samples and spectra interpretation of single crystal X-ray technique
- HPLC techniques
- Atomic emission spectroscopic (AES) technique
- Photoluminescence Instrument
- Data interpretations of these techniques

RESOURCE PERSONS

Prof. Vishnu S. Nadkarni

Registrar and
Senior Professor in Organic Chemistry
Goa University

Prof. Ganga Ram Chaudhary,

Director, SAIF,
Panjab University

Prof. Vidyadatta M. S. Verenkar

Dean, SCS
Professor in Inorganic Chemistry
Goa University

Dr. Pratishtha Pandey

Head, DST Infrastructure Division,
Government of India

Prof. Sundar N. Dhuri

Vice Dean, Research, SCS
Professor in Inorganic Chemistry
Goa University

Dr. Yogesh Nagpal

Managing Director
Winsom IP

RESOURCE PERSONS

Dr. Rupesh E. Patre
Associate Professor in
Analytical Chemistry
Goa University

Dr. Sandesh T. Bugde
Assistant Professor in
Organic Chemistry
Goa University

Dr. Venkatesha R. Hathwar
UGC - Assistant Professor of Physics
Goa University

Dr. Hari K. Kadam
Assistant Professor in
Analytical Chemistry
Goa University

Dr. Prajesh S. Volvoikar
Assistant Professor in
Analytical Chemistry
Goa University

Day 1. 02.01.2023

Dr. Prachi Torney, Assistant Professor School of Chemical Sciences welcomed the Chief guests and guest of honour. She further gave a formal welcome to dignitaries and participants. She also highlighted the diversity of participants in the STUTI program ranging from Haryana to Tamil Nadu.

Guest of honour Prof. Ganga Ram Chaudhary Director SAIF/CIL and Punjab University and Coordinator of the STUTI-PMU, PU, Chandigarh focused on integrating technology for transforming waste into valuables. He also shared the details of the state-of-the-art equipment's and facilities that SAIF/CIL offers. Along with this, he highlighted the contributions made by the department by innovating and donating air-purifies and UV currency sanitizers to hospitals and offices in and the previously held STUTI training and awareness programs.

Dr. Yogesh Nagpal, Managing Director, Winsom IP delivered lecture on Importance of Patents in Designing and Conducting Scientific Research focusing on types of Intellectual Property Rights. Patents, Copyright, Trade Marks, Registered designs, and trade secrets were discussed in detail. He further briefed about IP rights, Protects and How to acquire these intellectual property rights. Sir mentioned Stages of Designing Research which includes defining the topic,narrow, gather, creative, develop, find, design experimental, compile and write. Evening session included visit to the laboratories of School of Chemical Sciences where instruments like NMR, SCXRD, VSM, TG-DTA, PL, HPLC, AES etc facilities were available and a brief overview of each instrument was given to the participants.

Day 2. 03.01.2023

Prof. V. M. S. Verenkar, Dean of Goa University, School of chemical sciences briefed the participants about the campus of Goa University, the projects being carried out, credentials of faculty and the overall history of the Goa University. Further he added about the various DST sponsored schemes. After this address by the dean of the school there was introduction of the participants. Dr. Hari kadam delivered a talk on various DST sponsored scheme regarding

R&D infrastructure. He also encouraged the participants and the faculty members to avail the opportunities through the STUTI programme to build human resources and its knowledge capacity.

In the second half of the morning session began with Dr. Hari kadam delivered a lecture on NMR briefing the instrument and its parts, basic principle of NMR, interpretation of data, the standard, solvents used, and he further concluded his lecture mentioning the various applications of NMR. This was followed by Dr. Rupesh Patre who discussed an overview of HPLC, he use of HPLC and principle behind it. He further spoke on various points like why separation is needed, two types of elution, normal and reverse phase, stated the difference between GC and HPLC. A detailed schematic diagram was also shown stating the working principle. Later Sundar Dhuri briefed about single crystal XRD and differentiated the powder XRD and single crystal XRD. SCXRD talk was followed by talk on photoluminescence which was delivered by Dr. Sandesh Budge. His lecture began with definition of spectroscopy and also explained on how Pl can be used to differentiate real and artificial diamonds. Jablonski diagram, different types of luminescence etc were also discussed

Afternoon session began with talk by Sundar Dhuri who gave an overview of single crystal XRD, its importance in structure determination and also showed various crystals synthesized by him and his PhD students in his laboratory. Sir mentioned that if crystal structure changes, then the phase changes and he also added that the simplest method of formation of crystal is by simple evaporation.

Venkatesh Hatwar explained in detailed the working of single crystal XRD instrument and also a comparison between powder XRD thus briefing their importance.

Day 3. 04.01.2023

Morning lecture was regarding NMR, which was delivered by Dr. Vishnu Nadkarni. This lecture included the principle, instrumentation and the working of NMR. Processional frequency, chemical shift value, gyromagnetic ratio, different functional group signal.

Second lecture was delivered by Dr. Rupesh Patre explaining working and principle of HPLC And detail with a schematic block diagram. He further different names of HPLC, types of detectors, mobile phase, problems involved in general elution, reason for band broadening, pump, precolumn. Sir further explained about the column temperature where heaters are used to control the temperature, elution trends of solute, retention time, peak width, resolution etc

During afternoon session Dr. Sandesh Bugde discussed photo luminescence. He explained different types of electronic transition processes including excitation, vibrational relaxation, fluorescence, internal conversion, intersystem crossing, phosphorescence and photosensitization. Sir further briefed about the light source, monochromators, light detectors used in the instruments. excitation, emission, fluorophores was explained in the session.

Day 4. 05.01.2023

The session started with the demonstration of the sample analysis by research scholar Mr. Dinesh Nadimetla. He gave a brief introduction to all the participants about the spectroscopy, EMR spectrum and explained the basic principles of spectroscopic techniques such as ^{1}HNMR and ^{13}CNMR.He also explained the identification of different peaks and its interpretation in the spectra obtained using the software. Later he helped the participants with the injection of the sample and also the precautions and safety measures to be followed while handling the instrument.





In the second session, the demonstration and hands on training of the Single Crystal X-Ray Diffractometer (SCXRD) was given by a research scholar Ms. Nikita Harmalkar. She gave a detailed overview of the instrument including its basic principle and the working of the instrument. She also demonstrated all the participants with the selection of the best crystal appropriate for the SCXRD using a microscope. she even showed different types of tools used

to separate a crystal from the bulk sample. Later on, she gave a proper demo of the software to analyse the crystal structure data obtained from the instrument. She mentioned the safety measures to be followed during handling of the instrument.

Day 5. 06.01.2023

The morning session included a detailed demonstration of atomic emission spectroscopy (AES) by Dr. Prajesh Volvoikar. After briefing the participants about the important applications of AES in research studies. He explained the working of the AES instrument and covered up all the theory portion of the technique. Later on, the demonstration and hands on training of the AES instrument was given by the research scholar Ms. Luen Dsouza, wherein she introduced the AES instrument and its working to all the participants. She guided the participants regarding

all the parts of the instrument and its functions, later on how to upload the sample and software operation.




The afternoon session started with the demonstration and hands on training of the high-performance liquid chromatography (HPLC) instrument which was handled by the expert Ms. Siddhi Salgaonkar, a research scholar. She demonstrated the sample analysis to all the participants and explained the working of each component of the instrument. The data interpretation was explained by her wherein she covered the stepwise operation of software.


Day 6. 07.01.2023

The morning session started with the lecture by Dr. Hari K. Kadam on interpretation of data and solved the doubts on NMR spectroscopy. He gave the detailed explanation on spectra solving. He even provided the participants with some unsolved spectra for practice.

The other half of the session started with the demonstration and hands on training of photoluminescence (PL) instrument by Dr. Sandesh T. Bugde. The trainees were acquainted with the importance of the instrument and its application in research related work. He gave a detailed explanation and demonstration starting from sample loading till data interpretation on the software

KEYNOTE SPEAKER

Day 6 we had a talk by Dr. Pratishtha T. Pandey, Head (R & D Infrastructure Division) DST, GOI on various DST scheme to participants and faculty members of university. It was a interactive session where participants and faculty members has good discussion with keynote speaker.

Day 7. 09.01.2023

Participants analysed their samples on AES, HPLC, Single crystal XRD and NMR with the help of research scholar of host institution. Participant could have actual feel of instrument as they operated these DST funded instrument to add to their knowledge.

SAMPLE ANALYSIS BY THE PARTICIPANTS

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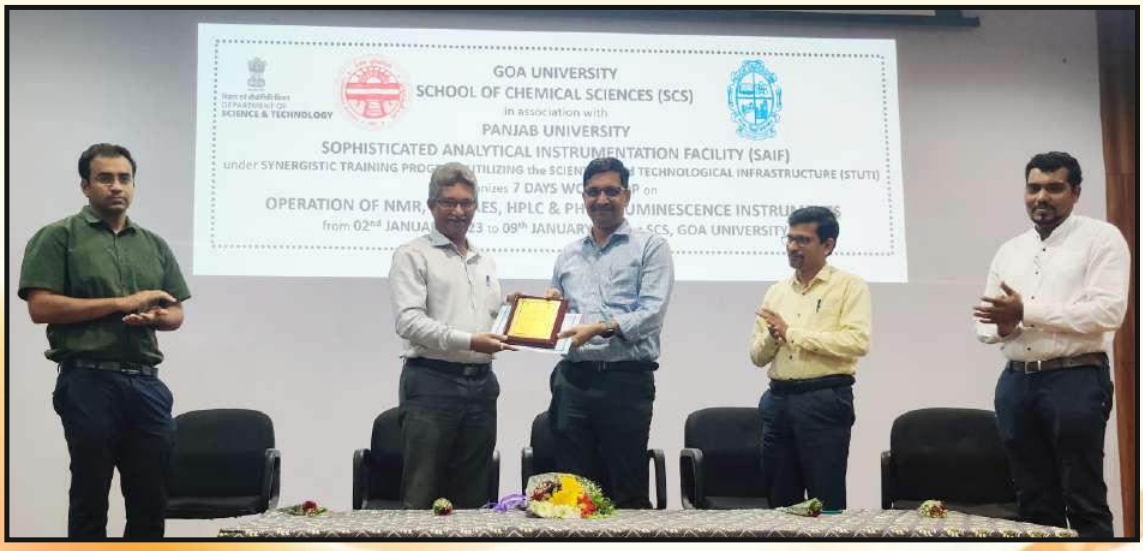


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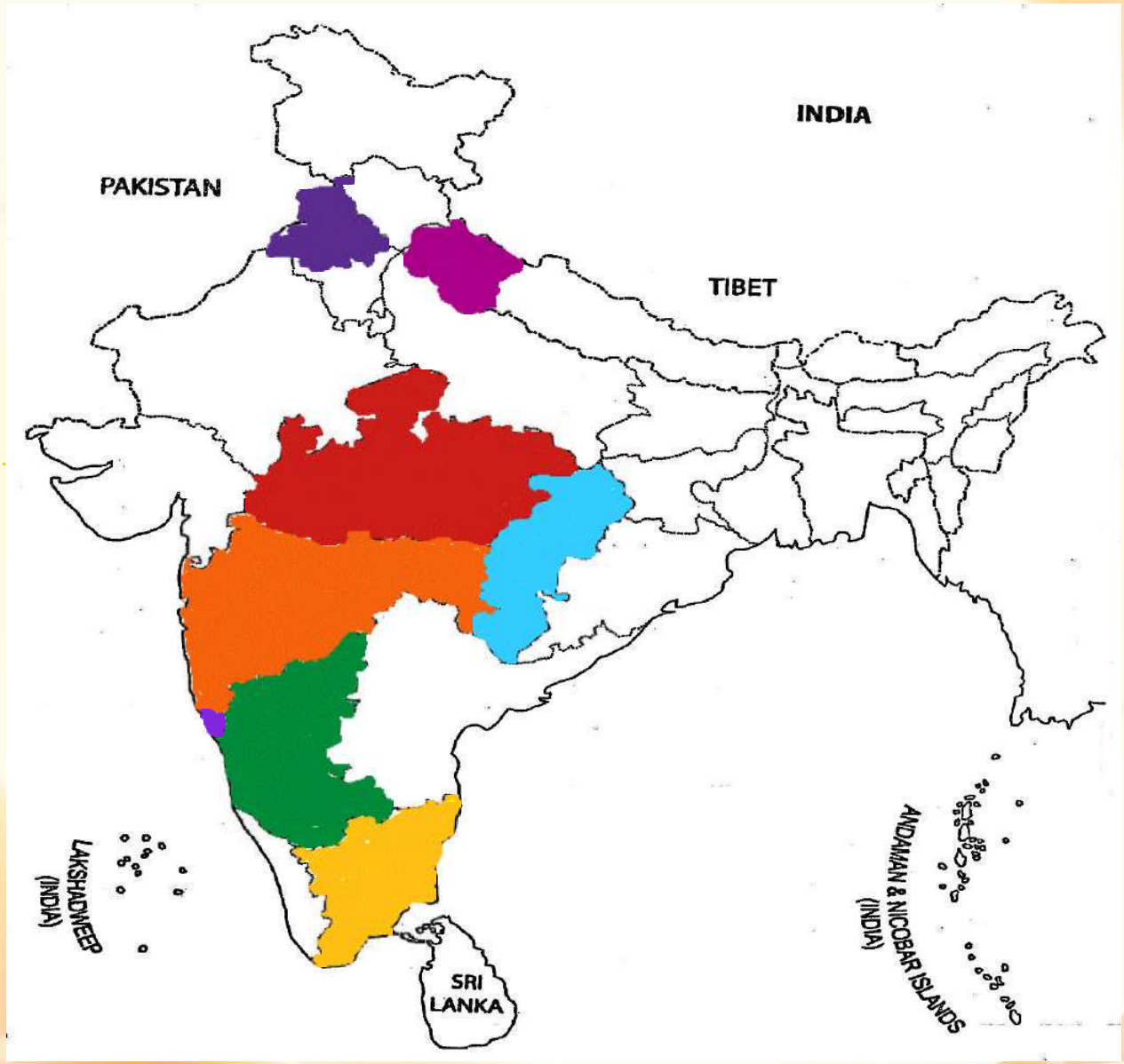
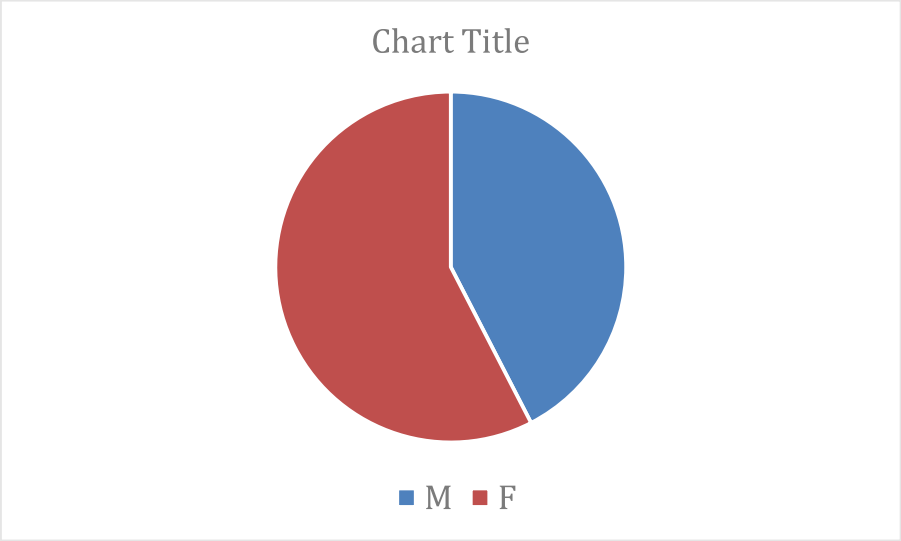
PARTICIPATION SUMMARY

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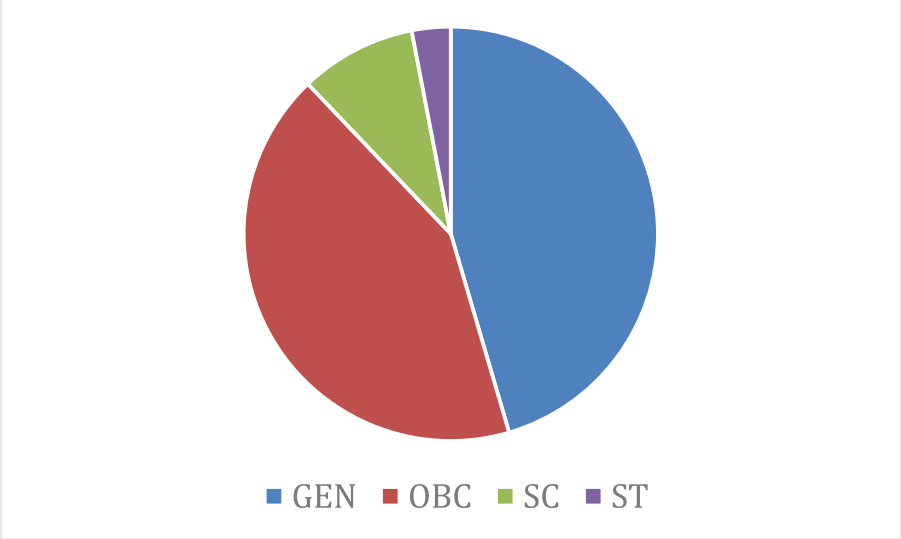
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